

Report of the Investigation
and Inquests into a
Wildfire and the Deaths of
Five Firefighters at Linton
on 2 December 1998

Preface

Introduction

The Coronial Inquest hearings into the December 1998 Linton fire and the tragic deaths of five Geelong West volunteer firefighters (Messrs. Stuart Davidson, Garry Vredeveltdt, Christopher Evans, Jason Thomas and Matthew Armstrong) took 106 hearing days and produced in excess of 11,500 pages of transcript. Over 28,000 pages of exhibit and other documents were produced during the running of the Inquests. There were over 1500 pages of submissions and replies by the legal representatives for the interested parties.

The Coronial Investigation into how the deaths occurred and the fire was managed raised many questions that required detailed examination. A coronial inquest hearing forms part of this overall investigation process. A significant number of issues canvassed at the Inquest hearings and raised in the documentation produced during the Investigation were critical to the safe management of the fire and for the future safety of firefighters. Apart from the entrapment that took the lives of the Geelong West Crew, a number of other incidents occurred earlier in the management of the fire, which placed the lives of many other firefighters at serious risk. Ultimately, the failures of training, supervision, communication, enforcement of operational and safety systems lay behind the deaths of the volunteer firefighters and the serious risks to the lives of many other firefighters in the wildfire that has come to be known as "*Linton*."

The Coronial Investigation was undertaken in order to determine how the deaths and fire occurred, who contributed to the deaths and fire and what could be done to prevent such occurrences in the future.

Counsel instructed by solicitors represented a number of the interested parties who appeared at the Inquests. During the running of the Inquests it was indicated to all parties that detailed written submissions and, if necessary, written replies would be required at the completion of the evidence. In addition, at the end of the written submission procedure, time was set-aside for oral submissions. In general, the written submissions by counsel for the various parties were of a high standard, raising many differing perspectives which were helpful in guiding me through the maze of complex facts and inter-woven issues. Their work is appreciated.

The process for the Inquests was designed to be inclusive, involving all of the parties enabling them, as far, as was practical and appropriate, to contribute to the investigation and development of the issues. The processes have been more comprehensively set out in Chapters 2, 3 and 4. It is also noted that Counsel Assisting were approached on a regular basis outside court by Counsel for each of the parties to raise additional matters such as administration, witnesses required, new issues, requests for Counsel Assisting to cover additional issues or ask questions of witnesses, etc. Where appropriate these requests were addressed during the running or followed up by Counsel Assisting.

The continued support of the Office of the Director of Public Prosecutions and its resources over the time of the investigation and the Inquests is also greatly appreciated. Without that constant and high level of support this work could not have been achieved.

The Report was prepared with the drafting assistance of Messrs. Tom Gyorffy (Crown Prosecutor) Garry Livermore (Barrister) and Glenn Childs (Legal Executive from the Office

of Public Prosecutions). The task was enormous, and without their tireless professional dedication the Report would not have been completed by this time. I wish to express my great appreciation to each of them for their hard work. Ultimately, the conclusions and recommendations are my own.

It is to be hoped that this work helps lead to improvements in safety for all of Victoria's dedicated and community minded volunteer and full-time firefighters.

About this Report

This Report on the deaths and fire is divided into 23 Chapters, and where possible, each Chapter is designed to be as self-contained as practicable. At the end of the document are a series of Appendices, which are listed in the Contents at the beginning of Report. The Appendices contain various plans and maps, recommendations from a number of the parties who made submissions during the Inquests and the recommendations of the Firefighting Agencies' joint "*Operations Review of the Linton Fire/Midlands Fire.*" Also a summary list of the Coroner's recommendations is contained in Appendix A1. A Glossary of various terms used in the evidentiary material and the Report is to be found in Appendix 8. It should be noted that reference in the footnotes to "B" or "T" followed by a number respectively equates to the relevant page in the Brief of Evidence or the Transcript of the evidence at the Inquests.

All of the Submissions and Replies of the parties have been added to the Brief and are to be found between B 9000 and 10561.

Chapter 1 is an introduction to the Victorian Coroner's jurisdiction and covers the statutory framework applicable to the jurisdiction (*Coroners Act 1985*) and the law to be considered by the Coroner when exercising the function of investigating deaths and fires. Relevant occupational health and safety issues are considered in Chapter 20 for the purpose of explaining the background of how the concept of "*contribution*" is determined. The statutory findings on identity of the deceased, cause of death and fire, how the fire and deaths occurred and the identity of the person (or persons) contributing to the death and fire are contained in Chapter 22.

Chapter 21 sets out some of the work the firefighting agencies and the Bureau of Meteorology have undertaken on firefighter safety both before and after Linton.

The Coroner's comments and recommendations are to be found in Chapter 23. There are 55 Recommendations, which canvas a number of issues from the application of occupational health and safety principles and practice to the suppression of wildfire, to research and development.

Chapter 5 gives a general overview of the fire. Other examples of the way the Chapters are constructed include Chapter 14, which deals with the entrapment of the five Geelong West volunteer firefighters, and Chapter 19 which covers the issue of the wind change information, the role of the firefighting agencies and the Bureau of Meteorology. Chapter 7 deals in detail with the fire and its cause. Details of the structure of the agencies, training, firefighting procedures and methods, etc. are to found in Chapter 6. The other chapters cover the various incidents during the fire, the role of the Incident Management Team in Ballarat, Forward Operations Point at Linton, the Staging Area and Communications.

The Report, Brief and Exhibits are on CD-ROM. Copies of the Report and the CD-ROM are available from the State Coroner's Office, Southbank. It is noted that Appendix A6 to the Report contains an index to the brief for the CD.

Graeme Johnstone
State Coroner
11 January 2002

Assisted by
Messrs Tom Gyorffy and Garry Livermore
who were instructed by Mr Glenn Childs
from the Office of the Director of Public Prosecutions

Acknowledgments

The Coroner relies on a range of individuals and agencies to undertake an investigation. The investigation into the Linton fire and deaths of the five volunteer firefighters was both complex and lengthy. As can be seen by the acknowledgments the list of agencies and individuals contributing to the process has been extensive.

The investigation was undertaken with the assistance of a range of government agencies - the Victoria Police Arson Squad, Victorian Forensic Science Centre, the Victorian Workcover Authority and the Victorian Institute of Forensic Medicine. The police officers involved were Detective Senior Sergeant Colin Cortous, Investigation Supervisor, Detective Sergeant Brad Daly, Investigation Leader and Detective Senior Constable Robert Court, Investigator. Also other members of the Arson Squad assisted from time to time. Dr. Olga Korytsky from the Victorian Forensic Science Centre undertook the scientific fire investigation. Mr. Dennis Noonan from the Workcover Authority provided an expert report on occupational health and safety issues. Dr. Michael Burke, Forensic Pathologist from the Institute of Forensic Medicine, provided the forensic details on cause of death.

Investigations of this type inevitably require the assistance of a range of experts. Mr. Noonan has already been mentioned. The investigation also relied on fire experts (Messrs. David Packham and Phil Cheney, Drs. Neil Burrows and Kevin Tolhurst). Dr. Michael Reader from Monash University gave expert opinion on weather.

The Victorian Government Reporting Service provided the running transcript for the Court and to counsel for the parties. The Court Transcript Officers were – Mrs. Shirley Shaw, Ms. Janice McDonnell, Mrs. Karen Salviato, Mrs. Lynne Warren, Ms. Vivienne Broadhurst, Ms. Janet Ceff and Mrs. Liz Colgrave. The CAT Reporters were - Ms. Tracey Graham, Mrs. Kim Fiorentino and Mrs. Diane Byass. Technical, Supervisory and other reporting support was provided by – Mr. Frank Hamelink, Mr. David Hoy, Ms. Chris McKee, Mr. Graham Davidge, Mrs. Denise Mackie and Mr. Ian Neilson-Male. Lastly, Ms. Sue Elliot provided typing assistance for the final report.

During the running of the Inquests the CFA provided a number of additional reports and statements. It also undertook testing of firefighting safety equipment and provided demonstrations for the Court. DNRE also provided additional reports and material from overseas. Mr. Geoff Evans from the CFA and Ms. Catherine Dunlop, its instructing solicitor, obviously undertook a large role to help ensure the provision of material and organising the testing and demonstrations. Ms. Allison Smith, solicitor, also assisted with organising the transcript of communications. Mr. Peter O’Riley from DNRE and its instructing solicitor William Southey performed similar functions on behalf of that organisation. Their help throughout the investigation is appreciated.

Without the overall support for the Coroners’ process by the Office of Public Prosecutions and the former and current Directors (Mr. Justice Geoffrey Flatman and Mr. Paul Coghlan respectively) my task would have been far more difficult and time consuming.

The Office of Public Prosecutions provided extensive support by the way of information technology, legal and secretarial. Mr. Jari Jancar, IT Manager, designed the database used for court presentation, assisted in organising the scanning of documents, photographs and in

running the computer system. Mr. Jancar also provided IT support to myself on several occasions. He provided IT research aids to Counsel Assisting. Mr. John Lipa, IT Network Engineer, assisted in setting up computer equipment (particular with moving and setting up equipment from Geelong to Melbourne) and helped with technical difficulties. Mr. Rod Hume, Audio Visual Expert, assisted in setting up audio visual equipment in courts, copied videos and set up a database of all Region 15 communications (recorded on the day of the fire). He also provided copies of CD's of brief material, interviews, etc. Mr. Daniel Rezmann, Legal Support Officer, spent several weeks recording and organising radio communications in conjunction with Mr. Hume. Ms. Ilma Blundell, Secretary to the Crown Prosecutors, typed a large volume of the final report, as well as providing support duties for Mr. Gyorffy.

Mr. Mike Wilson, Senior Financial Analyst, from the Department of Justice also provided support to the State Coroner's Office.

As indicated in the Preface, assistance from a number of members of counsel and their instructing solicitors representing the various parties is appreciated.

The design and layout of Report was completed by Polar Design (Ms Jo-Anne Ridgway and Mr. Steve Blackie). Mr. Gill Miller of Gill Miller Press Pty. Ltd undertook the printing.

I would like to express my appreciation for the professional dedication of all the individuals and their respective agencies for the hard work and resources provided to this investigation.

Finally, I would like to thank the many individuals in the Coroner's team for their hard work. The team includes my Assistants Messrs Tom Gyorffy and Garry Livermore, their instructor, Glenn Childs, the Coroners Court Registrar, Mr. Rick Roberts, Deputy Registrar Ms. Alison Meek and Trainee Court Registrar, Mrs. Cathryn Burton. The Coroners' secretary, Ms. Patsy Peroni, and Mrs Glenda Thompson also provided some useful secretarial support during the Inquests. Mr Robert Parkinson assisted with proof reading the lengthy document. In addition, Ms. Kirsten Wilken, the former Manager of the Coroner's Grief Counselling and Support Service, provided some counselling support for the families during the Inquests.

Graeme Johnstone
State Coroner

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Jurisdictional Issues

1.1 Introduction

- 1.1.1** The *Coroners Act* 1985 gives the Coroner jurisdiction to investigate reportable death and fire. In the 1985 version of the Act the Coroner must find (if possible) the identity of any person who contributed to a death. On 1st July 1999 the *Coroners Act* was amended to delete the statutory responsibility to find “*contribution*”. Because of this amendment there is an argument that the responsibility of the Coroner to find contribution to the deaths of the five firefighters at Linton has been removed.
- 1.1.2** If contribution does apply in these Inquests then it is also necessary to consider what constitutes contribution and how it is assessed. Issues of contribution are inextricably tied up with a consideration of causation, and require a consideration of that area of the law to be understood.
- 1.1.3** In determining issues of contribution it is also necessary to have regard to (but not express conclusions in respect of) the law relating to the common law duties of employers to employees and others, and the law relating to the *Occupational Health and Safety Act* 1985.
- 1.1.4** In this Chapter the law dealing with:
- jurisdiction;
 - contribution; and
 - causation
- will be considered. The law relating to the duties of employers at common law and under the *Occupational Health and Safety Act* 1985 will be considered in Chapter 20. These chapters form the background to the analysis found in the remaining chapters of this Report.

1.2 Jurisdiction of the Coroner to Investigate a Death

- 1.2.1** The *Coroners Act* 1985 establishes a jurisdiction in the Coroner to investigate a reportable death or fire. Section 3 of the Act defines “*reportable death*” to mean a death:
- “(a) where the body is in Victoria; or
 - (b) that occurred in Victoria; or
 - (d) of a person who ordinarily resided in Victoria at the time of the death – being a death –
 - (e) that appears to have been unexpected, unnatural or violent or to have resulted, directly or indirectly from accident or injury ...”
- 1.2.2** The exercise of jurisdiction requires at least one of the conditions in paragraphs (a) to (d) (inclusive) to be coupled with a situation found in one of the remaining sub-paragraphs in the definition. Of the situations in the remaining sub-paragraphs only (e) is relevant to these Inquests.

- 1.2.3** In these Inquests the deceased were:
- Mr Stuart Davidson;
 - Mr Matthew Armstrong;
 - Mr Christopher Evans;
 - Mr Gary Vredevelt; and
 - Mr Jason Thomas.
- 1.2.4** At the time of their deaths, which occurred in the Linton State Forest in Victoria at approximately 8.45pm on 2 December 1998, all of these men were residents of Victoria.
- 1.2.5** The opinion of the cause of death given by Dr Michael Burke who performed the autopsy on each of the deceased men was:
- Mr Stuart Davidson – “Effects of Fire”;¹
 - Mr Matthew Armstrong – “Effects of Fire”;²
 - Mr Christopher Evans – “Effects of Fire”;³
 - Mr Gary Vredevelt – “Effects of Fire”;⁴ and
 - Mr Jason Thomas – “Effects of Fire”.⁵
- The toxicology testing on each of the deceased was negative for drugs and alcohol.
- 1.2.6** The fire that caused these effects was bushfire that was burning in the Linton State Forest. The deaths occurred when a south-westerly wind change turned an uncontrolled part of the east flank into the head of the fire. The effect of this was that a wall of fire engulfed the area where the men were at the time. Three of the men died on the back of the Geelong West tanker. The other two men were on the ground near the back of that truck.
- 1.2.7** In these circumstances each of the deaths is a “reportable death” which the Coroner has a jurisdiction to investigate.
- 1.2.8** A Coroner’s jurisdiction to investigate a fire comes from s.31 of the *Coroners Act* 1985 which provides that:
- “(1) A coroner has jurisdiction to investigate a fire if the fire occurred in or partly in Victoria and the coroner believes it is desirable or the County Fire authority or the Metropolitan Fire Brigade requests an investigation.
 - (2) A coroner must investigate a fire if the Attorney-General directs.”
- 1.2.9** In this case, because of the extent of the fire and the deaths that occurred as a result of it, there were significant public health and safety issues that needed to be examined. It is because the Coroner formed this opinion that it was believed to be desirable to investigate this fire.
- 1.2.10** Wherever a Coroner investigated a death, and that investigation commenced before 1 July 1999, he or she is required by s.19(1) of the *Coroners Act* 1985 to find if possible:
- “(a) the identity of the deceased; and
 - (b) how death occurred; and
 - (c) the cause of death; and ...
 - (e) The identity of any person who contributed to the cause of death.”
- 1.2.11** In addition the Coroner may:
- “... comment on any matter connected with the death including public health or safety or the administration of justice.”⁶
- A Coroner is, however, precluded from including in a finding or comment any statement that a person is or may be guilty of an offence.⁷
- 1.2.12** The *Coroners (Amendment) Act* 1999 came into effect on 1 July 1999. The effect of that Act was to delete s.19(1)(e) in the 1985 Act. That means that in relation to any investigation into a death which commenced on or after 1 July 1999 a Coroner is no longer required at law to make a finding of contribution.

1.2.13 In this matter the State Coroner was informed of the deaths shortly after they occurred on 2 December 1998. He attended at Linton on that evening and gave a number of directions which were put into effect immediately. Among those directions were:

- that the area be taped off as an investigation scene and access limited to those involved in the investigation; and
- that the police together with the WorkCover Authority prepare a brief of investigation.

1.2.14 Detective Sergeant Brad Daly was in charge of the investigation into these deaths and the fire, on behalf of the Victoria Police and the Coroner. In his statement to the Inquest he said:

“On Wednesday the second day of December 1998 at about 2150 hours I was on duty at the Arson Squad office when I received information from D24 that a C.F.A. crew of 5 had been killed in an entrapment incident while fighting a fire near Linton that evening at about 2030 hours.

A night shift crew from the Arson Squad, supervised by Detective Sergeant Endler was sent to the incident to manage the scene overnight.

On Thursday the 3rd of December, 1998 at about 0840 hours I attended at the Linton Shire office, in company with Detective Senior Constable Soden. I was briefed by Detective Senior Sergeant Cortous regarding the incident and the specific areas that the Coroner had requested police and Victoria and Victoria WorkCover to investigate.

Also present at the shire office was the Disaster Victim Identification (D.V.I.) team comprising Detective Senior Sergeant Ashley, Senior Constables Hopper, Sear, Dr Leditschke, Dr Burke, Dr Hill and Dr Marvan. Dr Olga Korytski, an Arson scientist, was also present to assist with the examination of the scene and to determine the cause and origin of the fire. Dennis Noonan from Victoria WorkCover was also present.

At about 1045 hrs the D.V.I team and I arrived at the intersection of Possum Gully Road and a newly constructed C.F.A. control line. The control line consisted of an earthen track, which travelled in a southerly direction through State Forest, towards the town of Linton.

I travelled south on the control line with Detective Soden and the D.V.I. team for about 500 metres. I observed that the forest to my right or to the west was burnt up to the control line with only large charred trees remaining. The forest to the east was burnt in patches along the control line. At this location I observed a police crime scene tape stretched across the track and Senior Constable Malcolm Scott was guarding the scene.

About 50 metres further south I observed two fire trucks on the track. Once truck was facing south and appeared undamaged. The second truck was about twelve metres behind the first truck, also facing south and appeared totally destroyed by fire. In the foreground, about 5 metres from the rear of the nearest truck I observed two bodies just to the eastern side of the control line.

...

The scene was placed in to the control of the D.V.I. team. The scene was photographed and video recorded. I produce a copy of that video recording marked Exhibit 1 on Police Exhibit List. I observed the D.V.I. team identify the deceased remains by way of numerical and alphabetical identifiers. The two bodies lying on the ground to the north of the trucks were identified as A1 and A2. Three other deceased were located in the rear of the burnt truck. They were identified as A3, A4 and A5. Numerous exhibits were obtained from the area by the D.V.I. team to assist in identification of the deceased.

I arranged for the attendance of the Government undertaker at the scene. Each of the deceased remains were placed into separate sealed containers and removed from the scene under escort by Senior Constable Widdop. The deceased were escorted to the Coroner's Court at Melbourne.

I arranged for the entire scene to be photographed from the air. I produce a copy of that video marked exhibit 1 on the police exhibit list.

Arrangements were made with the C.F.A. to remove and store the damaged trucks in Ballarat.”⁸

- 1.2.15** The deaths were formally reported to the Coroner on 4 December 1998. The report forms are included in the brief.⁹ By notices directed to the Officer in Charge at the Arson Squad there was a request to prepare a brief in these matters,¹⁰ as the Coroner was considering the holding of an inquest into each death. The brief was required to be delivered by 28 January 1999.
- 1.2.16** In successive days and months Mr Daly, with the assistance of other police, largely from the Arson Squad, interviewed witnesses, gathered exhibits and prepared reports which were compiled into the brief that was used at the inquest hearings. Mr Daly delivered the brief in these matters to the Coroner's Office on 31 January 2000. Copies of the brief were delivered to the parties on or after 14 April 2000.
- 1.2.17** Mr Dennis Noonan was the investigator from the WorkCover Authority who attended the scene of the fire and deaths on 3 December 1998 and prepared a report for the Coroner. This report was part of the Coronial brief and dealt with various aspects of the fire and deaths. It formed part of the investigation.
- 1.2.18** The State Coroner directed that an inquest be held into each of these deaths.
- 1.2.19** On 16 December 1999 there was a mention hearing which marked the commencement of the Inquests into the deaths and the fire.
- 1.2.20** It is in this factual context that it must be determined when the investigation in these cases began. It was submitted on behalf of the CFA that the “*investigation*” did not commence until the opening of the inquest on 16 December 1999.¹¹
- 1.2.21** The CFA submitted that an “*investigation*”:
- “... is not constituted merely by a visit to the scene of a fire or a fatality by a Coroner, by a Coroner commissioning reports or by a Coroner otherwise activating the fact finding process in relation to a death. All of those actions are actions properly, taken by a Coroner preliminary, but antecedent, to an investigation for which a Coroner has jurisdiction. That is, there is a clear common sense distinction between, on the one hand an investigation and, on the other hand, steps preparatory, preliminary or anterior to the investigation, which are necessary for the proper conduct of the investigation when it commences.”¹²*
- 1.2.22** The CFA sought to underpin this construction by reference to the ordinary meaning of the words “*investigation*” and “*investigate*” along with an examination of the structure of the *Coroners Act*.
- 1.2.23** By contrast the United Firefighters Union submitted that:
- “While it is correct to say that an ‘investigation’ includes an inquest (see s.3), the Act makes clear that a coroner may conduct an investigation without holding an inquest (see eg. sections 17(2) and 18). In this case the ‘investigation’ commenced, at the latest, when the coroner gave certain directions at Linton on 2 December 1998.”¹³*
- 1.2.24** It is now necessary to examine and consider these competing submissions. The point to start at is the definition of section 3 of the *Coroners Act* 1985.
- The following definition occurs there:
- “‘Investigation’ includes an inquest.”¹⁴*
- 1.2.25** In the same section the following definition occurs:
- “‘Inquest’ includes a formal hearing.”*

- 1.2.26** Given the sparse nature of these definitions in the Act, and given that no authorities which set out the meaning of “*investigation*” were referred to by the parties in their submissions, the submissions sought to refer to dictionary definitions of the word. It is well settled at law that dictionaries may be referred to, when interpreting the words of a statute, but caution must be exercised. The rule is generally taken as properly formulated by Lord Coleridge in *R v. Peters*:¹⁵
- “... I am quite aware that dictionaries are not to be taken as authoritative exponents of the meanings of words used in Acts of Parliament, but it is a well-known rule of courts of law that words should be taken to be used in their ordinary sense, and we are therefore sent for instruction to these books.”*¹⁶
- 1.2.27** A court is free at common law to consult whatever dictionary it likes.¹⁷ In Australia the High Court has referred to The Macquarie Dictionary.¹⁸
- 1.2.28** Caution must be exercised when referring to a dictionary to interpret the words in a statute. The need for caution is well expressed in Statutory Interpretation in Australia where the author said:
- “... The use of a dictionary to assist in the understanding of words used in an Act must not, however, result in the words of the Act being abandoned in favour of synonymous expressions. The legislature will have chosen a particular word and it follows that other like words have been considered and rejected. A dictionary will enable common use, the ordinary meaning, of a word to be identified. It will do this by describing the meaning through other words. It is a misuse of the dictionary to explore the meaning of these other words and interpret the Act in the light of the meaning so discovered. ... Nor should it be overlooked that words take their meaning from the context in which the word is used in the legislation under consideration is of no assistance. ‘One must interpret the phrase as used in its context, assisted as it may be, but not necessarily bound, by one of a variety of dictionary definitions’: Falconer v. Pedersen [1974] VR 185 at 187.”*¹⁹
- 1.2.29** The CFA referred to definitions found in both the Shorter Oxford and Macquarie Dictionaries.²⁰
- 1.2.30** The word “*investigation*” is defined in the Shorter Oxford Dictionary as:
- “... the action or process of investigating; systematic examination; careful search ... a systematic inquiry; a careful study of a particular subject.”*
- 1.2.31** The word “*investigate*” is defined in the Shorter Oxford Dictionary as:
- “... search or inquire into examine (a matter) systematically or in detail; make an (official) inquiry into; make a search of systematic inquiry.”*
- 1.2.32** The definition of “*investigation*” in the Macquarie Dictionary is:
- “... the act or process of investigating. A searching inquiry in order to ascertain facts; a detailed or careful examination.”*
- 1.2.33** The CFA argued these definitions:
- “accord with the ordinary usage of the noun ‘investigation’ and the verb ‘investigate’. An investigation is not constituted merely by asking questions or seeking information. Those processes often precede an investigation. The process of investigation involves not just gathering facts, but also taking steps to analyse and examine facts, and draw conclusions from them.”*²¹
- 1.2.34** The CFA argument seeks to equate the analysis and examination of the facts of a matter with the formal hearing that is the inquest.
- 1.2.35** This argument does not develop that part of the Shorter Oxford definition for “*investigation*” as being “*the action or process of investigating*”. The process of investigation does not start at the inquest. Logically the gathering of material – witness statements, photographs, exhibits, expert reports, postmortem examination and forensic testing etc. commences some time

before the opening of the inquest. In many cases it is on this material that a decision is made by a Coroner as to whether or not an inquest is held, and the direction of the inquest (if held). Also a Coroner may need to review material collected well before an inquest to decide as to whether any other matters require “investigation”. As part of an investigation a Coroner may require certain tests be undertaken or expert reports be obtained.

1.2.36 Furthermore, the argument fails to take account of clear distinction drawn between an investigation and an inquest as defined in the Act. An “inquest” is defined as including a formal hearing. An “investigation” includes an “inquest”, i.e. a formal hearing. It is clear therefore that an investigation has broader meaning than simply an inquest. Where there is a formal hearing that is part of an investigation, but it is not the whole of that which constitutes the concept.

1.2.37 No party to these Inquests cited any authority on the question of the meaning of “investigation”. The court is not aware of any binding or direct authority on this point. However, there are a number of indirect observations in cases which draw a distinction between the hearing and the investigation phases of the Coroner’s inquest.

1.2.38 First, there are the observations of Callaway JA in *Keown v. Khan*:²²

*“A coroner has jurisdiction to investigate a death if it appears to the coroner that the death is or may be a reportable death. The investigation may be undertaken with or without an inquest. ... in 1996–1997 there were 2489 investigations of death of which only 174 involved an inquest. S.59 applies only to the findings of an inquest. Section 19 applies to any investigation of death. ...”*²³

1.2.39 Clearly, His Honour saw a distinction between the investigation and the hearing or inquest.

1.2.40 Similarly in *Von Einem v. Ahern*²⁴ the Supreme Court of South Australia recognised a similar dichotomy. King CJ in delivering the judgment of the Full Court observed that:

“The State Coroner is in a rather different position. Like all coroners, he has duties which are partly judicial in character and partly non-judicial in character. Coroners have duties which are administrative, such as the authorisation of post-mortems. They have responsibilities which are investigative for the ascertainment, by means of investigation, of facts surrounding incidents. In the discharge of their investigative function it may be necessary for coroners to interview people outside the court and may be necessary for them to peruse the reports of those who have conducted such interviews. It may be necessary for them to seek the co-operation of the media.

In addition the coroner has the function of hearing and evaluating the evidence which is given at an inquest and of making findings as to the causes and circumstances of the events being inquired into upon the basis of that evidence. That function is plainly a judicial function.

*The State Coroner has a further special responsibility by reason of his administrative responsibilities for the coroner’s service throughout the State. It may be that in the discharge of the coroner’s administrative and investigative responsibilities he feels himself required from time to time to be in communication with the press. I would say that as a matter of prudence it is desirable that he should avoid direct contact with the press so far as it is humanly possible to do so. ... Once an inquest is underway I think that the coroner should observe in relation to the press and others the same constraints so far as possible and applicable to his office which are observed by judges in relation to cases which come before them. But as I say, by reason of his general administrative responsibilities it may not always be possible for the coroner to observe those constraints in the same way in which they apply to judges.”*²⁵

1.2.41 A careful examination of the provisions of the Coroners Act 1985 shows a well entrenched dichotomy between “investigation” and “inquest”. An examination of the following provisions is instructive.

1.2.42 Under the heading “Functions of State Coroner” in s.7 occurs:

“... The functions of the State Coroner are as follows:

- ... (c) *To ensure that all reportable deaths reported to a coroner are investigated;*
- (d) *To ensure that an inquest is held whenever it is desirable to do so ..."*

1.2.43 In s.12 of the Act under the heading "*Functions of Coroner's Clerks:*" it provides that:

- "(1) A coroner's clerk may -*
 - (a) on behalf of a coroner, receive information about a death or fire which a coroner is investigating otherwise than at an inquest; and*
 - (b) administer an oath in relation to a death or fire which a coroner is investigating otherwise than at an inquest; and*
 - (c) issue a summons requiring a witness to attend an inquest to give oral evidence or to produce documents.*
- (2) An affidavit relating to an investigation by a coroner may be sworn before a coroner's clerk."*

1.2.44 Part 5 of the Act deals with "*INVESTIGATION OF DEATHS*". After setting out the jurisdiction of Coroners in s.15 which has been referred to above, it goes on to deal with "*Directions by State Coroner*", which in s.16 provides:

"The State Coroner may give to a coroner directions about an investigation into a death (other than an inquest) and the manner of conducting it."

1.2.45 Section 18 which deals with an application for an inquest into a death provides:

- "... (1) If a person asks a coroner to hold an inquest into a death which a coroner has jurisdiction to investigate, the coroner may –*
 - (a) hold an inquest or ask another coroner to do so; ..."*

1.2.46 S.19 sets out the matters the Coroner investigating the death must find. This section is set out above. S.20 requires a Coroner or Coroner's clerk to keep a record of each investigation into a death.

1.2.47 S.23 of the Act which deals with certificates of burial provides:

- "... (1) A coroner investigating a death must issue as soon as reasonably possible a certificate in the prescribed form permitting burial, cremation, disposal at sea or other disposal.*
- (2) A certificate under sub-section (1) must not be issued until an application made under section 18 is disposed of or the time for making such an application has expired ..."*

1.2.48 The Coroner investigating the death has control of the body. This is specified in s.24:

"If a reportable death occurs and the body is in Victoria, the body is under the control of the coroner investigating the death, subject to any directions the State Coroner may give, until the coroner has issued a certificate, in the prescribed form, permitting burial, cremation, disposal at sea or other disposal."

1.2.49 In s.26 of the Act a "*coroner who has jurisdiction to investigate a death*" is given various powers that he or she can exercise in the course of that investigation. The powers enable the Coroner to enter and inspect places, take copies of documents and take possession of evidence.

1.2.50 Coroners are given the power to direct autopsies as part of an investigation by s.27 of the Act:

- "(1) If a coroner reasonably believes that it is necessary for an investigation of a death, the coroner may direct the Institute, a pathologist or a doctor under the direct supervision of a pathologist to perform an autopsy on the body.*
- (2) A coroner may direct the Institute, a pathologist or a doctor performing an autopsy to cause to be preserved for such period as the coroner directs any material which appears to the Institute, pathologist or doctor to bear upon the cause of death."*

- 1.2.51** Part 7 of the Act deals with “INQUESTS INTO DEATHS AND FIRES”. Section 45 provides:
- “(1) A coroner may make available any statements that the coroner intends to consider to any person with a sufficient interest.
-
- (3) A person with a sufficient interest may appear to be represented by a barrister and solicitor or, with permission of the coroner, by any other person, and may call and examine or cross-examine witnesses and make submissions.”
- 1.2.52** Section 46 sets out the powers that may be exercised by Coroners at an inquest. They include:
- “(1) If a coroner reasonably believes it is necessary for the purposes of an inquest, the coroner may –
- (a) summon a person to attend as a witness or to produce any document or other materials; and
- (b) inspect, copy and keep for a reasonable period any thing produced at the inquest; and
- (c) order a witness to answer questions; and
- (d) order a witness to take an oath or affirmation to answer questions; and
- (e) give any other directions and do anything else the coroner believes necessary. ...”
- 1.2.53** An examination of these provisions indicates that a clear distinction is drawn between the hearing that constitutes an inquest and the investigation. It is implicit in s.18 that an investigation may be held without an inquest.
- 1.2.54** The powers given to the Coroner by sections 26 and 27 are powers to enable the gathering of evidence to be used in the investigation. This is clear from the fact that the Coroner may only exercise those powers if he or she has “*jurisdiction to investigate*”.
- 1.2.55** The requirement that a Coroner issue a certificate of burial “*as soon as reasonably possible*” means that certain of the findings required to be made by s.19(1) need to have been considered by the Coroner. In particular, for the Coroner to release a body to the senior next of kin a finding must, if possible, be able to be made pursuant to s.19(1)(a) as to the identity of the deceased. Furthermore, the Coroner would need to have sufficiently considered how the death occurred and the cause of death to determine whether an autopsy should be held pursuant to s.27(1) of the Act or whether it is necessary to exercise any of the powers conferred by s.26 of the Act.
- 1.2.56** The Coroner will also have had to give sufficient consideration to the circumstances giving rise to the death, the cause of death, the domicile of the deceased and the other factors in s.17(1) of the Act to form a belief that:
- He or she has jurisdiction to hold an inquest; and
 - it is desirable to do so.
- 1.2.57** The process involved in a Coroner’s investigation is not the same as the process involved in determining whether or not a crime has been committed. In the latter case the police prepare a brief of evidence which is served on the defendant and filed with the Magistrates’ Court. A Magistrate who has no part in the investigation of the crime then holds an independent hearing and analyses that evidence to determine guilt or innocence of the defendant or whether or not he or she should stand trial if the matter is more serious than can be dealt with by the Magistrate. In such a case, there is a clear distinction between the investigation carried out by the police as a result of the duties placed on them at law and the determination of the issues between the police and the defendant.
- 1.2.58** The Coroner’s process is one of inquisition. It involves the Coroner in making decisions about the form an investigation should take, whether or not it is necessary to hold a hearing and whether or not an autopsy should be held. At all stages of the inquisition the Coroner is called upon to consider such material as is then available to determine what other powers, if any, need be exercised.

- 1.2.59** The CFA's submission seeks to draw a clear distinction between the investigation and hearing. No such distinction is possible on the facts as set out above.
- 1.2.60** While there may be some merit in the proposition of the CFA that there is a distinction between matters preparatory to an investigation and the investigation itself, it has no application to this case. The critical date which the investigation had to commence before was 1 July 1999. By 1 July 1999:
- Many statements had been gathered;
 - Numerous video taped interviews had been conducted;
 - Exhibits had been gathered;
 - The identity of each of the deceased had been determined;
 - Autopsies had been conducted;
 - Toxicological tests had been conducted;
 - Certificates of burial had been issued;
 - The bodies of the deceased had been released to their respective senior next of kin.
- 1.2.61** Given the general framework of the *Coroners Act* 1985 and the ever evolving process of evaluation that constitutes a Coroner's inquisition, the definition of the word "*investigate*" found in the Shorter Oxford Dictionary and set out above in paragraph 1.2.31 is appropriate to the Act. Similarly, "*investigation*" means "*the act or process of investigating.*"
- 1.2.62** Applying this definition to the facts of this case, the process of investigation had begun when the Disaster Victim Identification (D.V.I.) team arrived at the fire scene on 3 December 1998. It is therefore not necessary to determine whether or not the Coroner's attendance on the night of 2 December 1998 and the directions he gave at that time were part of or merely preparatory to the investigation.
- 1.2.63** The work performed by the D.V.I. team was part of the process of investigation. The autopsies performed by Dr Burke on 4 December 1998 was also part of the investigation.
- 1.2.64** It follows that the investigation into the deaths of each of these five men began before 1 July 1999, and s.19(1)(e) requiring the Coroner to find contribution if possible applied to each of these cases.

1.3 Fire

- 1.3.1** Part 6 of the Act with the investigation of fires.
- 1.3.2** Section 31 of the Act states:
- "(1) A coroner has jurisdiction to investigate a fire if the fire occurred in or partly in Victoria and the coroner believes that it is desirable or the Country Fire authority or the Metropolitan Fire Brigade request an investigation.*
 - (2) A coroner must investigate a fire if the Attorney-General directs."*
- 1.3.3** Section 34 of the Act provides:
- "Jurisdiction of Coroner to hold inquest into a fire***
- (1) A coroner must hold an inquest into a fire if the Attorney-General directs.*
 - (2) A coroner who has jurisdiction to investigate a fire must hold an inquest if the State Coroner directs.*
 - (3) A coroner who has jurisdiction to investigate a fire may hold an inquest if the coroner believes it is desirable."*
- 1.3.4** Section 36 of the Act provides:
- "Findings and Comments of Coroner***
- (1) A coroner investigating a fire must find if possible ...*
 - (a) the cause and origin of the fire; and*

- (b) *the circumstances in which the fire occurred; and*
- (c) *the identity of any person who contributed to the cause of the fire.*
- (2) *A coroner may comment on any matter connected with the fire including public health or safety or the administration of justice.*
- (3) *A coroner must not include in a finding or comment any statement that a person is or may be guilty of an offence."*

1.3.5 Section 38 of the Act provides:

"Reports

- (1) *A coroner may report to the Attorney-General on a fire which the coroner investigated.*
- (2) *A coroner may make recommendations to the Attorney-General on any matter connected with a fire which the coroner investigated, including public health or safety or the administration of justice.*
- (3) *A coroner must report to the Director of Public Prosecutions if the coroner believes that an indictable offence has been committed in connection with a fire which the coroner investigated."*

1.3.6 Division 2 of Part 6 of the Act sets out the powers of investigation of the Coroner in relation to investigating a fire. These powers include restricting access to the place where the fire occurred, entering and inspecting any place and anything in it, taking a copy of any document relevant to the investigation and taking possession of anything which the Coroner reasonably believes is relevant to the investigation and retaining it until the investigation is finished.²⁶

1.4 Contribution

1.4.1 The concept "*contribution*" to the cause of death and fire in the coronial context requires explanation. As mentioned above, pursuant to ss.19 and 36 of the Act, the Coroner must, if possible, find the identity of any person who contributed to the cause of death or fire. A finding of civil or criminal liability (or both) is not part of the Coroner's role. Moreover, such a finding should not be perceived in the public eye as being part of the Coroner's reasoning when a finding of contribution is made.²⁷

1.4.2 The principal case dealing with the concept of contribution is *Keown v. Khan*²⁸, a decision of the Court of Appeal in Victoria. In that case an inquest concerned the death of a person in the course of confrontation with police. The deceased was shot dead whilst while threatening a police officer with a hatchet. The finding of the Coroner that the police officer who killed the deceased did not contribute to the death and was acting in self defence was challenged.

1.4.3 The leading judgment in the case was determined by Callaway JA, who on the issue of contribution said:

"The findings by a coroner as to how death occurred and the cause of death should, where that is possible, identify any person who contributed to the cause of death. Section 19(1)(e) serves no purpose other than to ensure that that is done. The reference to contribution to the cause of death reflects the commonplace truth that it is sufficient if a person's acts or omissions are a cause of a relevant event. ... The test of contribution is solely whether a person's conduct caused the death. It may have been the only cause or one of several causes. There are also cases where no one satisfies the description in s.19(1)(e), as in the case of a death solely from natural causes. In determining whether an act or omission is a cause or merely one of the background circumstances, that is to say a non-causal condition, it will sometimes be necessary to consider whether the act departed from a norm or standard or the omission was a breach of a recognised duty, but that is the only sense in which para (e) mandates an inquiry into culpability.

...

It follows that a person who kills necessarily contributes to the cause of death and that that is none the less true where the killing is in lawful self-defence. A coroner is not concerned with the latter question but will ordinarily set out the relevant facts in the course of finding how death occurred and the cause of death. The facts will then speak for themselves, leaving readers of the record of investigation to make up their own minds about lawful self-defence ...”²⁹

- 1.4.4** There are three important matters to note from this passage:
- First, the test is “solely whether a person’s conduct caused the death”;
 - Second, the question in each case is whether a person’s acts or omissions are “a cause” and not necessarily the sole cause of the death; and
 - Third, in determining whether or not an act or omission is a cause “it will sometimes be necessary to consider whether the act departed from a norm or standard or the omission was in breach of a recognised duty.”
- 1.4.5** The first and second of these matters require little elaboration here as they are relatively straightforward. It should be noted, however, that the point of the first matter is to make it clear that there is a distinction between the mechanism that led to the death of a person which represents the cause, and the blameworthiness of the person or those people who were responsible for putting into effect, or allowing that mechanism to occur. The latter may give rise to legal or moral culpability but is not an element of cause in the sense required in the coronial system. It is for that reason, that in Victoria Coroners do not embark on a process of determining civil or criminal liability as part of the findings of comments made in an inquest.
- 1.4.6** The facts in *Keown v. Khan*³⁰ bring this into stark relief. There is no doubt that the mechanism that killed the deceased in that case was the injuries inflicted by the bullet fired from the policeman’s gun. The fact (if it be the case) that the policeman was justified at law to fire the shot in self defence did not in any way alter the fact that the gunshot wounds inflicted by him killed the deceased. The additional facts, that is, the circumstances in which the death occurred may mean that no legal or moral liability should be visited on the policeman who killed the deceased, but can change the consequences that should attach to the killing and not the fact of the killing itself.
- 1.4.7** At the opposite extreme from the facts in *Keown v. Khan* is a situation where an omission is being considered as having contributed to a death. For example, suppose that a small boat containing a few people was capsized and sunk by a freak wave, throwing the people into the water. The people remained alive in the water for some time but drowned before rescuers arrived. Suppose also that the people were not wearing life jackets, but they would have survived had they been doing so. In this case the cause of death would be drowning, but was it contributed to by the failure by a person to provide life jackets?
- 1.4.8** It is this type of situation where it may be necessary in order to resolve this question, to consider whether the failure to provide and require the deceased occupants of the boat to wear life jackets was a departure from a norm or standard or was a breach of a recognised duty.
- 1.4.9** In such a case, if there was a norm, a standard or recognised duty that was breached, then the omission to provide the life jackets and require them to be worn, could, depending on other circumstances, result in a finding of contribution against the legal person who breached such norm, standard or duty. If on the other hand no such norm, standard or duty existed, then there could be no contribution.
- 1.4.10** The purpose of examining the norm, standard or duty in such a case is to determine whether or not there was something that should have been done by a person in the circumstances, and whether that something, had it been done, could have prevented the death. It is not the purpose of such an examination to determine whether or not the omission has resulted in a breach of the civil or criminal law.

- 1.4.11** It can be seen at once that where a finding of contribution is made in such a context, the person who was responsible for the omission may suffer devastating consequences. This was recognised by Southwell J in *The Secretary to the Department of Health and Community Services v. Gurvich*³¹ where His Honour observed:

*“To say of professional people that they ‘contributed to the cause of death’ of another person in the course of their professional duties is to make a very serious allegation. It is an allegation of negligence, that by a breach of their professional duty owed to the deceased, they contributed to his death. Since, as I have earlier said, the effect of the coroner’s finding has been devastating, no such adverse finding should be made unless there exists comfortable satisfaction that negligence has been established which contributed to the death.”*³²

- 1.4.12** The law’s answer to this difficulty is to set a high threshold before a Coroner makes a finding of contribution. This is dealt with below under the heading “*Standard of Proof*”.

- 1.4.13** Most of the submissions made on behalf of the parties referred to the passages from the two cases set out above but did not give any assistance by way of analysis.³³ Others contended that contribution need not be found or did not carry out a legal analysis of it.³⁴ The DNRE submission made no reference at all to the relevant legal principles to be applied in determining contribution in any of the passages purporting to deal with the issue.³⁵

- 1.4.14** In their reply Messrs Phelan and Lightfoot referred to *Keown v. Khan* and submitted:

*“In Keown v. Khan [1999] 1 VR 69 at 76, Callaway states that ‘in determining whether an act or omission is a cause or merely one of the background circumstances, that is to say a non-causal condition, it will sometimes be necessary to consider whether the act departed from a norm or standard or the omission was in breach of a recognised duty’. It is submitted that in analyzing the actions of all persons at the Linton fire, it is essential to consider whether any act or omission departed from a standard or norm that existed on the day.”*³⁶

- 1.4.15** On this point of law, the replies of the other parties add nothing to their submissions. It was on this state of the submissions and replies that the analysis above was carried out.

- 1.4.16** It is now necessary to turn to a consideration of the issue of causation.

1.5 Causation

- 1.5.1** Given that the test of contribution is “*solely whether a person’s conduct caused the death*”, it is necessary to carry out an analysis of the vexed issue of what is meant by causation.

- 1.5.2** In the submissions that were filed in those cases³⁷ which dealt with this issue, it was generally agreed that the starting point of analysis on this question is the judgment of Dean J in *March v. Stramare Pty Ltd.*³⁸ There His Honour said:

“... I do not subscribe to the view that, under apportionment legislation, causation is automatically established if a negative answer is given to the question whether the plaintiff’s injuries would have been sustained “but for” the negligence of the defendant. Causation in the context of the elements of the tort of negligence is not the same thing as the ‘scientific term descriptive of sequence in physical phenomena’... For the purposes of the law of negligence, the question of causation arises in the context of the attribution of fault or responsibility whether an identified negligent act or omission of the defendant was so connected with the plaintiff’s loss or injury that, as a matter of ordinary common sense and experience, it should be regarded as a cause of it ... The ‘but for’ (or ‘causa sine qua non’) test may well be a useful aid in determining whether something is properly to be seen as an effective cause of something else in that sense. In particular, the test will commonly exclude causation for the purposes of the law of negligence if the answer to the question it poses is that the accident which caused the injuries would have occurred in the same way and with the same consequences in any event. ... There are however, in my view, convincing reasons precluding its adoption as a comprehensive definitive test of causation in the

law of negligence. First, the clear weight of authority is against the substitution of such a formularized test of causation for a 'common sense idea of what is meant by saying that one fact is a cause of another' ... Secondly, unqualified acceptance of the 'but for' test as even a negative or exclusionary test of causation for the purposes of the law of negligence would lead to the absurd and unjust position that there was no 'cause' of an injury in any case where there were present two independent and sufficient causes of the accident in which the injury was sustained. Less importantly, acceptance of the 'but for' test as a comprehensive test would carry with it the need to draw somewhat artificial distinctions to avoid the type of confusion between an accident which happened and one which did not which is to be seen in the discussion in ... Thirdly, the mere fact that something constitutes an essential condition (in the 'but for' sense) of an occurrence does not mean that, for the purposes of ascribing responsibility or fault, it is properly to be seen as a 'cause' of that occurrence as a matter of either ordinary language or common sense."³⁹

1.5.3 The principles that apply to causation in the context of s.19(1)(e) of the Coroners Act 1985 were considered by Hedigan J in *Commissioner of Police v. Hallenstein*:⁴⁰

"Generally speaking, the law is cautious about unnecessary exposition of principle. The application of principle becomes dominated by facts. The issues of causation and contribution have bedeviled philosophers for centuries and have attracted consideration by superior courts in all jurisdictions and placed for more than a century. The inclination to expound, in an authoritative way, the connection between human and behaviour and consequences has proved seductive. The estimation of the nature and extent of this connection may be described as the evaluation of 'contribution'. The law has also espoused minimalism in attempting definition of the causative or contributing effect of conduct. Nearly 50 years ago, a powerful High Court (Dixon CJ, Fullagar and Kitto JJ) described causation at 277 as 'all ultimately a matter of common sense' adding for good measure at 288 that '[in] truth the conception in question is not susceptible of reduction to a satisfactory formula': Fitzgerald v. Penn (1954) 91 CLR 268.

*In E & M.H. March v. Stranmare Pty Ltd (1991) 171 CLR 506, the High Court of Australia considered the fundamentals of causation in the negligence context. The statements of principle in relation to causation are, in my view, applicable to the concept of contribution which, within the Act, is concerned with the causes of death and who contributed to it ..."*⁴¹

1.5.4 After setting out the key part of Deane J's judgment set out above, His Honour went on to say:

*"Mason CJ also examined the legal history of the common law's attempt to grapple with cause and the language of cause, eg consequences said to be 'direct', 'natural and probable', 'proximate', 'real effective cause' and 'caused or materially contributed to'. The whole court other than McHugh J rejected the 'but for' test as being determinative of causation, although recognising its utility as a negative criterion or check test. Mason CJ, having cited the statement of Lord Reid that 'what was the cause of an occurrence is a question of fact which must be determined by applying common sense to the facts of each particular case' agreed that the common law had always favoured a 'common sense' approach. The fact that some feature constitutes an essential condition of an occurrence in the 'but for' sense does not mean that for the purpose of ascribing fault or responsibility it is necessarily to be regarded as contributing to that occurrence in a causal sense, as a matter of either ordinary language or common sense. If this were not so, then Mrs Kirkwood who pressed the alarm button or the armourer who supplied the police officers with their loaded weapons could be regarded as contributors. But in the common law approach to contribution, they would not be so regarded. This is because their acts (or omissions, in other cases) are not such as could reasonably be regarded as playing a contributing part in causing the death. To adopt Deane J's phrase, as a matter of ordinary common sense and experience, neither of those acts would be regarded causative or contributing to cause."*⁴²

1.5.5 *March v. Stramare Pty Ltd*⁴³ was considered again by the High Court in *Chappel v Hart*⁴⁴ where it was explained. It was affirmed that the “but for” test was not the exclusive test of factual causation and that a common sense view should be taken.⁴⁵ A number of other important observations were made in the course of various judgments in that case.

1.5.6 Gaudron J linked issues of causation to a legal framework:

*“Questions of causation are not answered in a legal vacuum. Rather, they are answered in the legal framework in which they arise. For present purposes, that framework is the law of negligence. And in that framework, it is important to bear in mind that that body of law operates, if it operates at all, to assign a duty to take reasonable steps to prevent a foreseeable risk of harm of the kind in issue.”*⁴⁶

1.5.7 This is consistent with the observations of Mason CJ in *March v. Stramare Pty Ltd*⁴⁷, where the Chief Justice said:

*“In philosophy and science, the concept of causation has been developed in the context of explaining phenomena by reference to the relationship between conditions and occurrences. In law, on the other hand, problems of causation arise in the context of ascertaining or apportioning legal responsibility for a given occurrence. The law does not accept John Stuart Mill’s definition of cause as the sum of the conditions which are jointly sufficient to produce it. Thus, at law, a person may be responsible for damage when his or her wrongful conduct is one of a number of conditions sufficient to produce that damage ...”*⁴⁸

1.5.8 This part was also emphasised by McHugh J who observed:

*“Underlying the rejection of the ‘but for’ test as the determinant of legal causation is the instinctive belief that a person should not be liable for every wrongful act or omission which is a necessary condition of the occurrence of the injury that befell the plaintiff. As Mason CJ observed in March [(1991) 171 CLR 506 at 507] ... causation for legal purposes is concerned with allocating responsibility for harm or damage that has occurred. So the mere fact that injury would not have occurred but for the defendant’s act or omission is often not enough to establish a causal connection for legal purposes.”*⁴⁹

1.5.9 Gummow J dealt with this point by adopting the observations of Lord Hoffman⁵⁰ in *Environment Agency v. Empress Car Co (Abertillery) Ltd.*⁵¹ In the latter case Lord Hoffmann observed:

“The courts have repeatedly said that the notion of ‘causing’ is one of common sense. So in Alphacell Ltd v. Woodward [1972] AC 824, 847 Lord Salmon said:

‘what or who caused a certain event to occur is essentially a practical question of fact which can best be answered by ordinary common sense rather than by abstract metaphysical theory.’

I doubt whether the use of abstract metaphysical theory has ever had much serious support and I certainly agree that the notion of causation should not be overcomplicated. Neither, however, should it be oversimplified. In the Alphacell case, at p.834, Lord Wilberforce said in similar vein:

‘In my opinion, ‘causing’ here must be given a common sense meaning and I deprecate the introduction of refinements, such as causa causans, effective cause or novus actus. There may be difficulties where acts of third persons or natural forces are concerned ...’

The last concession was prudently made, because it is of course the causal significance of acts of third parties (as in this case) or natural forces that gives rise to almost all the problems about the notion of ‘causing’ and drives judges to take refuge in metaphor or Latin. I therefore propose to concentrate upon the way common sense notions of causation treat the intervention of third parties or natural forces. The principles involved are not complicated or difficult to understand, but they do in my opinion call for some explanation. ...

The first point to emphasise is that common sense answers to questions of causation will differ according to the purpose for which the question is asked. Questions of causation often arise for the purpose of attributing responsibility to someone, for example, so as to blame him for something which has happened or to make him guilty of an offence or liable in damages. In such cases, the answer will depend upon the rule by which responsibility is being attributed.”⁵²

1.5.10 Later, after considering various examples, Lord Hoffmann said:

*“These examples show that one cannot give a common sense answer to a question of causation for the purpose of attributing responsibility under some rule without knowing the purpose and scope of the rule. Does the rule impose a duty which requires one to guard against, or makes one responsible for, the deliberate acts of third persons? If so, it will be correct to say, when loss is caused by the act of such a third person, that it was caused by the breach of duty. In *Stansbie v. Troman* [1948] 2 KB 48, 51–52, Tucker LJ referred to a statement of Lord Sumner in *Weld-Blundell v. Stephens* [1920] AC 956, 986, in which he had said:*

‘In general ... even though A is in fault, he is not responsible for injury to C which B, a stranger to him, deliberately chooses to do. Though A may have given the occasion for B’s mischievous activity, B then becomes a new and independent cause.’

Tucker LJ went on to comment:

‘I do not think that Lord Sumner would have intended that very general statement to apply to the facts of a case such as the present where, as the judge points out, the act of negligence itself consisted in the failure to take reasonable care to guard against the very thing that in fact happened.’

Before answering questions about causation, it is therefore first necessary to identify the scope of the relevant rule. This is not a question of common sense fact; it is a question of law.”⁵³

1.5.11 Kirby J also supported the concept that causation takes its meaning from the legal framework within which it is considered. He said:

“The starting point is to remember the purpose for which causation is being explored. It is a legal purpose for the assignment of liability to one person to pay damages to another. It is not to engage in philosophical or scientific debate, still less casuistry. ...

The law allocates responsibility by a process which at once determines the entitlement of the particular plaintiff and sets the standards of conduct that may be expected of other persons in positions analogous to the defendant. The law’s concern is entirely practical. ...

Causation is essentially a question of fact. It is to be resolved as a matter of commonsense. This means that there is usually a large element of intuition in deciding such questions which may be insusceptible to detailed and analytical justification. ... Nevertheless, despite its obvious defects, the commonsense test has been embraced by this Court as a reminder that a ‘robust and pragmatic approach’ to such questions is the one most congenial to the common law.”⁵⁴

1.5.12 It is apparent from the judgment in *Keown v Khan*⁵⁵ referred to in para 1.4.3 that there are circumstances in which the concept of causation must be given its meaning by reference to the test in the cases dealing with negligence. That is the case where cause is linked to an act that “departed from a norm or standard” or the omission “was a breach of a recognised duty.” It was rightly submitted in this case that that applies to the analysis of causation here.⁵⁶

1.5.13 This point was also clearly made by Hedigan J in *Commissioner of Police v Hallenstein*⁵⁷ where, when considering the meaning of causation in s.19(1)(e) of the Coroners Act 1985, His Honour examined causation in the context of the law of negligence and said:

“The statements of principle in relation to causation are, in my view, applicable to the concept of contribution which, within the Act is concerned with the causes of death and who contributed to it.”⁵⁸

- 1.5.14** Given that this is the position that applies to this case, it is useful to consider the framework set out by McHugh J in *Chapel v Hart*⁵⁹, as a tool for assisting in assessing issues of contribution. There His Honour postulated these propositions:

*“The foregoing observations lead me to the following conclusions concerning whether a casual connection exists between a defendant’s failure to warn of a risk of injury and the subsequent suffering or injury by the plaintiff as a result of the risk eventuating: (1) a causal connection will exist between the failure and the injury if it is probable that the plaintiff would have acted on the warning and desisted from pursuing the type of activity or course of conduct involved; (2) no causal connection will exist if the plaintiff would have persisted with the same course of action in comparable circumstances even if a warning had been given; (3) no causal connection will exist if every alternative means of achieving the plaintiff’s goal gave rise to an equal or greater probability of the same risk of injury and the plaintiff would probably have attempted to achieve that goal notwithstanding the warning; (4) no causal connection will exist where the plaintiff suffered injury at some other place or some other time unless the change of place or time increased the risk of injury; (5) no causal connection will exist if the eventuation of the risk is so statistically improbable as not to be fairly attributable to the defendant’s omission; (6) the onus of proving that the failure to warn was causally connected with the plaintiff’s harm lies on the plaintiff.”*⁶⁰

- 1.5.15** It is now necessary to turn to the question what is the standard of proof to be applied when considering contribution?

1.6 Standard of Proof

- 1.6.1** The final issue to be considered in this Chapter is the degree to which a Coroner must be satisfied by the evidence before making a finding of contribution against a legal person.

- 1.6.2** The CFA submission correctly states the principles to be applied and their practical application to these Inquests. It was submitted that:

*“... the Supreme Court of Victoria has repeatedly emphasised that the test in Briginshaw v. Briginshaw (1938) 60 CLR 336 at 361–3 should apply to any potential finding of causation or contribution, where the question of causation or contribution relates to individuals or entities acting in their professional capacity; Anderson v. Blashki (1993) 2 VR 89 at 96; Health and Community Services v. Gurvich (1995) 2 VR 69 at 73–4; Chief Commissioner of Police v. Hallenstein (above) at 19. Thus, no such finding should be made as a result of ‘inexact proofs, indefinite testimony or indirect references’. It should only be made on cogent and logically persuasive proofs. In the context of the present case, the Briginshaw test should apply to any person or agency who might be potentially found to have caused or contributed to the deaths. In respect of the CFA itself, any such finding would clearly impact on the CFA’s statutory public responsibility and the discharge of it. In respect of any officer, employee or volunteer of the CFA, any such finding would relate to the manner in which that individual or those individuals sought to discharge their duties as firefighters while providing services to the CFA (cf. Hallenstein’s case at 19). Accordingly, any such person (whether represented at the Inquest by the CFA or otherwise), should only have a finding of causation or contribution made against him, her or it if the Briginshaw test has been safely satisfied.”*⁶¹

- 1.6.3** This submission was supported by many of the other parties.⁶²

- 1.6.4** The importance of this rule concerning the standard of proof was identified by Hedigan H in *Commissioner of Police v. Hallenstein*⁶³ where His Honour said:

“Both Gobbo and Southwell JJ, there considering the omissions of medical professionals, were conscious that a finding that a professional in such a position had ‘contributed to the cause of death’ was a very serious conclusion to reach, with such personal and professional consequences that no finding of that kind should be made unless there was comfortable satisfaction that negligence had been established as

contributing to the cause of death. The present case is different in that police officers are, by the very nature of their professional obligations, put into situations in which the forces of criminal violence are frequently encountered and managed. But the issue of negligence, and the proper carrying or of their duties, still applies in the appropriate circumstances.

The identification of the appropriate standards of proof and satisfaction is important, a matter that at all times must be borne in mind by any coroner who has to consider findings of contribution which must not lightly be made and only be made when there has been established the necessary degree of satisfaction of mind.”⁶⁴

- 1.6.5** The principles set out in this Chapter have been kept in mind and applied when considering the issue of contribution in these Inquests.

Parties Represented

2.1 Introduction

- 2.1.1** The Coroner, pursuant to s.19(1) (e) of the Coroners Act 1985 is required, if possible, to identify any person who contributed to the cause of death of a person whose death the Coroner is investigating. Similarly, s.36(1)(c) requires the Coroner to find *“the identity of any person who contributed to the cause of the fire”* under investigation.
- 2.1.2** In the course of an inquest there may be serious imputations made against the character or competence of a person, particularly professionals. There is the risk of findings of contribution being made against people. In these types of circumstances fairness and justice requires that a person who may be affected in any of these ways be given the opportunity to be heard on such issues.
- 2.1.3** In other cases there may be issues of public health or safety which require consideration during the course of an inquest. In such cases organisations such as unions or professional associations may have an important contribution to make in presenting or testing evidence given to the Inquests.
- 2.1.4** It is for these, and other reasons, that s.45 of the *Coroners Act* 1985 provides that:
- “(1) A coroner may make available any statements that the coroner intends to consider to any person with a sufficient interest.
-
- (3) A person with a sufficient interest may appear or be represented by a barrister and solicitor or, with permission of the coroner, by any other person, and may call and examine or cross-examine witnesses and make submissions.”
- 2.1.5** In these Inquests there were a number of parties who received leave to appear. The parties and the reasons for leave are set out in the remainder of this Chapter.

2.2 The Country Fire Authority

- 2.2.1** The Country Fire Authority (“CFA”) was established pursuant to the *Country Fire Authority Act* 1958. That Act sets out the statutory obligations and powers of the CFA.
- 2.2.2** Section 20 of the *Country Fire Authority Act* 1958 describes the general duty of the CFA as being:
- “The duty of taking superintending and enforcing all necessary steps for the prevention and suppression of fires and for the protection of life and property in case of fire and the general control of all stations and of all brigades and of all groups of brigades shall, subject to the provisions of this Act, so far as relates to the country area of Victoria be vested in the Authority.”*

2.2.3 The structure of the CFA is more fully described in Chapter 6, at this point it is sufficient to note that for administrative purposes it is divided into many different units including brigades and groups. The general powers of the CFA in relation to brigades and groups include:

- “(a) take measures to facilitate the formation of permanent or volunteer urban fire brigades volunteer rural fire brigades and groups of brigades;*
- (b) subject to sub-section (2), upon application made in the prescribed manner and form register a brigade in respect of any urban or rural district and enrol the officers and members thereof;*
- (c) cause to be kept a book or other written record containing the names ages occupations and places of abode of all members of brigades;*
- (d) amalgamate any urban brigades or any rural brigades or disband or cancel the registration of any brigade or the enrolment of any officer or member of any brigade;*
- (e) furnish any apparatus and other property acquired by or vested in the Authority to any brigade or group of brigades;*
- (f) determine the apparatus and other property of the authority to be available for use by each brigade or group of brigades;*
- (g) establish schools and facilities or courses of instruction to provide training to any person in the skills required to perform any of the functions of the Authority and permit the use of those schools and facilities by any other body or person.”¹*

2.2.4 Section 27 of the Act provides that:

“Subject to the general powers and directions of the Authority every brigade or group of brigades and all officers and members of brigades or group of brigades shall be under the order and control of the Chief Officer.”

2.2.5 In addition, the DNRE and CFA have mutual support arrangements in place to assist each other at wild fires in the country area of Victoria. There are obligations under the *Emergency Management Act* to provide assistance at any fire when that is required. To carry out their mutual support arrangements the DNRE and the CFA plan and liaise with each other in relation to co-ordinating preparedness and response to wild fires, training and accrediting fire fighters and planning and implementing each organisation’s arrangements for multi agency responses to wild fires.²

2.2.6 On 2 December 1998 a fire began on private property and burnt into State Forest just north of the township of Linton. The fire was attended by CFA brigades and the multi-agency agreement with DNRE was activated.

2.2.7 In the course of the fire, five volunteer firefighters under the control of the CFA were killed. The cause of their deaths and the identity of parties who contributed to them was in issue.

2.2.8 One such person was the corporate entity, the CFA, who had responsibility for the safety of all its volunteers on that fireground.

2.2.9 In addition there were numerous incidents throughout the run of the fire which put at risk the lives of other firefighters for whose safety the CFA was responsible. This raised issues of public health and safety requiring consideration during the course of the Inquests.

2.2.10 It is self evident from these matters that the CFA had a sufficient interest to be represented at these Inquests.

2.2.11 Representation was provided by the firm of Maddock Lonie and Chisholm, Lawyers. That firm retained Mr S.W. Kaye QC and Mr E. Woodward of Counsel to appear on behalf of the CFA. For a short time Ms Mandy Fox of Counsel also appeared for the CFA, but throughout most of the Inquests she gave separate representation to Messrs Phelan and Lightfoot.

2.3

Department of Natural Resources and Environment

- 2.3.1** The firefighting responsibilities of the Department of Natural Resources and Environment (“DNRE”) are to be found in s.62(2) of the *Forests Act* 1958 which provides:
- “... it shall be the duty of the secretary to carry out proper and sufficient work for the prevention and suppression of fire in every state forest, national park and on all protected land ...”*
- 2.3.2** As was pointed out in paragraph 2.2.5, the DNRE has mutual support arrangements in place with the CFA. These arrangements include a multi-agency response to certain fires which in effect involve joint management of such fires.³
- 2.3.3** At the Linton fire the Multi-Agency Agreement was operating and the fire was being jointly managed. In addition, many DNRE resources were actively involved in the fighting of the fire.
- 2.3.4** The DNRE therefore was at risk of contribution findings being made, or adverse comment arising from the management of the fire. The management of the fire raised issues of public safety. In these circumstances the DNRE had sufficient standing to be represented at these Inquests.
- 2.3.5** The firm Blake, Waldron and Davison represented the DNRE. It engaged Mr R.F. Redlich QC and Mr J. Langmead of Counsel to appear for the DNRE.

2.4

Messrs Scharf and Stepnell

- 2.4.1** Mr Scharf was the Leader of the Strike Team of which the Geelong West tanker was a part. He was effectively responsible for the supervision of that tanker, which was destroyed by fire with the loss of life of all the crew.
- 2.4.2** Together Messrs Scharf and Stepnell discussed the use of the route that the Geelong West tanker with the Geelong City tanker were taking to leave the fire ground to refill with water. That decision was a potential cause of the deaths of the members of the Geelong West crew.
- 2.4.3** This gave each of these men sufficient standing to be represented at these Inquests.
- 2.4.4** The firm of Slater and Gordon were retained on behalf of Messrs Scharf and Stepnell. That firm briefed Mr M. Dean of Counsel to appear on their behalf.

2.5

Messrs Phelan and Lightfoot

- 2.5.1** Mr Lightfoot was the Sector Commander to whom Scharf answered. Phelan was the Divisional Commander to whom Lightfoot answered. They therefore were in line of command in respect of the Geelong Strike Team.
- 2.5.2** In addition, Mr Lightfoot was the person who briefed Scharf before the Geelong Strike Team commenced its task on the fire ground. The adequacy or otherwise of that briefing was an issue, as was the adequacy of supervision of the Geelong Strike Team.
- 2.5.3** In these circumstances both these men had sufficient standing to be represented at these Inquests.
- 2.5.4** Maddock Lonie and Chisholm were retained as solicitors for Messrs Phelan and Lightfoot. Ms Mandy Fox appeared as Counsel on their behalf.

2.6 Bureau of Meteorology

- 2.6.1** The Bureau of Meteorology is an agency of the Commonwealth Department of the Environment and Heritage. The Director of the Bureau under the direction of the relevant Federal Minister has the responsibility for the general administration of the *Meteorology Act* 1955–1973 (“the Act”). The functions of the Bureau are set out in s.6(1) of the Act. The Bureau is required to perform these functions in the public interest and for the purposes set out in s.6(2) of the Act.
- 2.6.2** The Victorian Regional Office of the Bureau provide fire weather services during each year to the DNRE and CFA. Each year the Bureau publishes a Fire Weather Directive.⁴ That document articulates the working relation arrangements between the Bureau and the fire fighting agencies. Sections 1, 3 and 6 of the Fire Weather Directive were of particular relevance to the Linton Inquests.
- 2.6.3** The Bureau had a sufficient interest to appear as it issued a number of forecasts to the fire fighting agencies during the course of the fire fight. In particular, relating to the timing of the likely arrival of the south-westerly wind change. It was possible that adverse findings might be made against it because it did not accurately predict the arrival of a south-west wind change which changed fire behaviour, causing the deaths of the Geelong West crew.
- 2.6.4** The Bureau was represented by the Australian Government Solicitor. Mr M. Wilson of Counsel appeared for it.

2.7 The United Firefighters Union

- 2.7.1** The United Firefighters Union (“UFU”) represents interest of the professional firefighters employed by the CFA.
- 2.7.2** These Inquests involved public safety issues which were of importance to the members of the UFU, in particular occupational health and safety issues. Further, a number of union members were called as witnesses, and it was important that representation be available to them if needed.
- 2.7.3** The UFU was represented by Ms Lucy Blaney, Solicitor of the UFU. Mr P. Rozen of Counsel was briefed to appear on its behalf.

2.8 The Volunteer Associations

- 2.8.1** The Volunteer Associations are the professional bodies representing the interests of rural and urban volunteer firefighters. They have a similar interest to the UFU in respect of their membership and so were granted leave to appear.
- 2.8.2** The Associations were represented by Corrs, Chambers Westgarth. Mr G. Moore QC was briefed to appear on their behalf.

2.9 The Landowner

- 2.9.1** Mr Peter Neyland owned the land where the fire commenced on 2 December 1998. There were issues as to whether or not Mr Neyland contributed to fire and the deaths in these Inquests. He had sufficient standing to appear.
- 2.9.2** Mr Neyland was represented by Minter, Ellison Lawyers. Mr D. Belson QC of Counsel appeared on his behalf.

2.10 The Families

- 2.10.1** The families, by the nature of their relationships with the deceased, had sufficient interest to appear.
- 2.10.2** In addition, the investigation gave rise to the possibility of adverse comment or finding about the conduct of one or more of the deceased leading up to the entrapment and deaths.
- 2.10.3** The families were represented by Maurice Blackman and Cashman Solicitors. Mr D. Pulling of Counsel appeared on their behalf.

Pre-trial Hearings

3.1 List of Issues

- 3.1.1** It was apparent at an early stage of the investigation that the Inquests would involve the examination of a large amount of material and address many complex issues.
- 3.1.2** As part of the case management process, a number of pre-trial hearings were conducted prior to the commencement of calling of evidence at the Inquest.
- 3.1.3** The hearings of 17 May and 16 June 2000 contained discussions regarding the issues to be covered during the Inquests. As a result of the breadth and complexity of the issues raised in the materials produced during the course of the initial investigation, all parties who were granted leave to appear at the Inquest submitted categories of issues that they regarded as being relevant to the Inquests. Each party's list of issues was circulated to each of the other parties.
- 3.1.4** A consolidated List of Issues was produced by Counsel Assisting, for the benefit of the parties, being a summary of topics and issues drawn from the issues identified by the parties. All parties were given a further opportunity to comment on the settled draft. Furthermore, parties were told that issues could be added or deleted as the Inquests progressed.
- 3.1.5** The list of issues agreed to by all parties as a result of this process was:
1. CONTROL
 - Communications
 - Plan
 - Enforcement of Plan
 - Clarity of Instructions and Messages
 - Information Flow to Appropriate People
 - Acknowledgement of Messages
 - Backup when Failure to Communicate
 - Permission for Implementation of Strategies.
 - Adequacy of Equipment
 - Organizational Structure
 - Choice of Lead Agency
 - Chain of Command
 - Decision Making at Appropriate Level
 - Failure to Maintain Structure of Command
 - Analysis
 - Strategy
 - Hazards
 - Allocation of Resources
 - Tracking of Resources
 - Monitoring of Progress of Strategies
 - Reassessment of Strategies.

2. STRATEGIES

- Weather
- Fuel
- Fuel Reduction Areas
- Need to protect people and resources
- Initial Formation
- Review/Analysis
- Flanking
- Frontal Attack
- Spot Fires
- Backburns
- Use of appropriate equipment

3. SAFETY

- Analysis of risks to safety of fire fighters of proposed strategy
- Continuous auditing of risk
- Responsibility
- Training
- Experience
- Selection for tasks
- Equipment/Strategies
- Organizational culture – DNRE
– CFA
- Watchouts and safety orders.

3.1.6

These issues formed the basis of examination of witnesses during the Inquests and also gave guidance in relation to the content of submissions.

The Proceedings

4.1 Introduction

- 4.1.1** An understanding of the proceedings and the difficulties inherent in the investigation can be gained by an awareness of the complexities of the wildfire incident known as “*Linton*”. The introduction to this Chapter summarises some of the events as a precursor to explaining how the proceedings were managed.
- 4.1.2** Smoke from the Linton bush fire was noticed at about 1.00pm on 2 December 1998. The fire had begun burning about an hour earlier on private land in Rowlers Lane to the south-west of Snake Valley township. The fire began on private land which was covered with forest that had not been burnt for many decades. Fuel load in the area was very, very high.
- 4.1.3** For some time leading up to December 1998 drought conditions had prevailed in the area around Linton and Snake Valley due to an El Nino weather effect. The fire occurred before the beginning of the prescribed fire season. On that day the temperatures were in the high 20 degrees celsius range and there was a gusty northerly wind blowing at 30–40 kilometres an hour. To those who attended the fire on the day, the conditions seemed deceptively benign.
- 4.1.4** The first response units were not able to contain the fire to the property where it began. The fire continued to burn in a southerly direction towards the Pittong Snake Valley Road fanned by the northerly wind. By 2.00pm there were a large number of CFA fire tankers mainly from Region 16, with some from Region 15 in the area of Rowlers Road and the Pittong-Snake Valley Road. Between 2.00pm and 3.00pm a number of CFA fire tankers were in forested areas protecting houses that were at risk from the fire. Also at this time a large number of CFA fire tankers lined up along Pittong-Snake Valley Road in an attempt to stop the fire as it reached that point. The fire travelled in a southerly direction towards Pittong-Snake Valley Road, and spot fires started to appear ahead of it. The CFA Snake Valley “A” tanker went into a paddock on the south side of the road to put these spot fires out. This placed the tanker directly in the path of the oncoming fire front which by now was approaching the Pittong-Snake Valley Road.
- 4.1.5** At about 2.45pm, a wall of fire went across the road through the crowns of the trees and on its way engulfed around a dozen tankers lined up on the Pittong-Snake Valley Road. The fire continued in a southerly direction towards Linton and in the process engulfed the Snake Valley ‘A’ tanker. Miraculously the driver of the Snake Valley ‘A’ tanker managed to proceed through the fire, smoke and trees to end up in a clearing with no serious injury to any members of his crew.
- 4.1.6** By this stage reinforcements had arrived from Region 15. The fire was burning in a southerly direction towards Linton and parallel to Madden Flat Road about 200-300 metres west of that road. One Strike Team led by Mr Ray Hadler started to work south along Madden Flat Road from its intersection with the Pittong-Snake Valley Road, using a grader along the edge of the road, and lighting up the bush between the road and the eastern flank of the fire.

- 4.1.7** In the meantime, another Strike Team from Region 15 being led by Mr Ian Lightfoot, commenced burning out bush from the south-west corner of the intersection of Madden Flat Road and Possum Gully Road. This Strike Team was working south along an extension of Madden Flat Road. Lightfoot who was driving his utility went down the track to explore what lay ahead, and bogged his utility in a goldmine.
- 4.1.8** Shortly before 4.00pm there was a sudden wind change which forced the fire to travel in a north-easterly direction. Mr Lightfoot's utility was incinerated as the flank of the fire ran across Madden Flat Road extension. Other trucks in his Strike Team, two of which were along Madden Flat Road extension, and others which were at the intersection in Possum Gully Road were engulfed by a wall of flame and had to go into survival mode. The fire lit further up Madden Flat Road by the Strike Team under the command of Hadler, had by this stage got out of control, crossed over Madden Flat Road and had widened the fire front by some 300-400 metres.
- 4.1.9** Mr Hadler's Strike Team fled in a northerly direction ending up somewhere on the Pittong Snake Valley Road. Lightfoot's Strike Team was trapped until the smoke and flames had cleared some 15 or 20 minutes later, when the team travelled out to the Snake Valley-Linton Road and went down to the cemetery to regroup.
- 4.1.10** The Strike Teams spent some time recovering around the cemetery, and later worked around houses in the Linton township to protect against spot fires.
- 4.1.11** At around six o'clock bulldozers were brought in to work on the eastern flank of the fire, there being a predicted south-westerly wind change due to arrive in the next two to three hours. One bulldozer started working north from the area of the cemetery in Linton along the eastern flank of the fire supported by DNRE crews. Another bulldozer worked south on Madden Flat Road along the eastern flank of the fire supported by Region 15 Strike Teams under the control of Mr Lightfoot. At this stage conditions were relatively benign, the fire on the eastern flank was variously described as a "*marshmallow fire*" and having flames of 1-1.5 metres in height. There was no significant breeze along the eastern flank.
- 4.1.12** The construction of the control line along the eastern flank continued. At about 7.15pm new Strike Teams were brought in to replace Mr Lightfoot's Strike Teams which had been supporting the bulldozer going south. The bulldozer driver travelling south had never worked on a control line at a bushfire before. The Strike Team that was allocated the task of supporting him from Possum Gully Road going south was the Geelong Strike Team. That Strike Team had never before worked with a bulldozer or been involved in the construction of a control line on the eastern flank or any flank of a fire in a forest. Another Strike Team which was composed of tankers from the Ballarat area initially was tasked to proceed north to ensure that the fire in the northern part of the control line had been extinguished and then was intended to travel south and support the Geelong Strike Team.
- 4.1.13** At about 8.15pm Mr Scherger, who was working with the DNRE team supporting the bulldozer travelling north along the eastern flank, went for a walk through the bush. He met up with the Geelong Strike Team travelling south. He had noticed that they had not put in any turnabouts and suggested that they do so at that point, which was approximately 450 metres south of Possum Gully Road. Scharf, the Strike Team Leader directed the bulldozer driver to put in a turnabout.
- 4.1.14** On his way back to his crew, Mr Scherger discovered an extension of the Homestead Track running parallel to the eastern flank of the fire some 70-100 metres from it. He returned to the Geelong Strike Team and suggested it may be faster if they use that track as the basis of constructing the control line rather than continuing through the bush in the direction the team was going. Had the Strike Team continued through the bush in the direction it was going, it would have come across an area riddled with goldmines. The Strike Team Leader, Mr Scharf, agreed to that course and the bulldozer driver began extending the trail across from the turnaround to the Homestead Track extension and working along the Homestead Track extension. At about this time it became necessary for the Geelong City and the Geelong West tankers to leave the control line to fill their tanks with water.

- 4.1.15** Mr Scharf agreed to the tankers going out along the Homestead Track extension, despite not knowing where that track led and it not being marked on the map in his possession. At the time of making that decision Scharf knew that a wind change was likely to occur but he had no idea how soon. With an impending south-westerly wind change forecast to be of 60-65 kilometres an hour, the area around Sludge Gully on the eastern flank of the fire was extremely dangerous. The area had heavy vegetation and a very high fuel load, it had an upward slope towards the Homestead Track extension, and was the part of the fire that would be turned into a head with the wind change. This was where the Geelong Strike Team was working.
- 4.1.16** At approximately 8.45pm the wind change hit Sludge Gully at about 60 or 65 kilometres an hour in a south-west direction. At that time the Geelong City and Geelong West tankers were some 70-80 metres up the Homestead Track extension and in the path of the new head of the fire. The Geelong City tanker went into survival mode and its crew members were uninjured and the tanker was relatively undamaged. The Geelong West tanker did not go into survival mode, the tanker was destroyed and all five crew members died.
- 4.1.17** The DNRE crew travelling north tracked the fire out to Kelly Road where it was brought under control in a previously burnt out area. Other Strike Teams brought the rest of the breakaway of the eastern flank under control.
- 4.1.18** Different crews were working on other parts of the fire on the western flank, the north-east and north-west. Many of them were also supported by bulldozers.
- 4.1.19** By 1.20am on 3 December 1998 the fire was contained. It had burnt out an area of approximately 660 hectares.
- 4.1.20** In the 12 hour run of the fire some 75 CFA tankers, nine DNRE slip-ons, five helicopters, three fixed winged aircraft, four bulldozers, a mobile communications van, protective equipment van and several cars and over a hundred firefighters were involved in attempting to suppress the fire.
- 4.1.21** By the end of the run of the fire several major incidents of a life threatening nature had occurred:
- the entrapment of the Snake Valley 'A' tanker and its crew of five;
 - the entrapment of approximately 12 tankers on the Snake Valley Pittong Road;
 - entrapment of the tankers along Madden Flat Road and the Madden Flat-Possum Gully Road intersection;
 - the incineration of Mr Lightfoot's utility.
- In addition, there was the entrapment of the two Geelong tankers which resulted in the deaths of five volunteer firefighters.
- 4.1.22** The investigation in this case involved approximately 190 witnesses being interviewed. Numerous reports were prepared, some by police, some by WorkCover investigators, some by DNRE and CFA personnel and others by experts. There were numerous items of film, photographs and recorded radio messages from the Region 15 communications.
- 4.1.23** It was apparent from the outset that this was a complex case with many important issues needing to be investigated and having the potential to take a very long time.
- 4.1.24** By the time Inquest hearings began nine parties sought leave to appear at the Inquests. The parties are identified in Chapter 2 of this report. Each of these parties had a legitimate interest to be protected and issues to be ventilated in the hearing of these Inquests.
- 4.1.25** In order to ensure that each party would have a fair opportunity to protect their respective interests at the Inquests and also to ensure that the Inquests were completed in a reasonable time, a number of case management processes were used. These included:
- a number of mention hearings which have been discussed in Chapter 3 where procedural matters were dealt with;
 - the reaching of an agreement between the parties as to the issues to be explored in the hearing. This process was set out in Chapter 3;

- by the placing of time limits on examination of witnesses, which varied according to the number and importance of issues that were being dealt with by the witness;
- limiting the number of witnesses called, and in other cases simply relying on written statements filed as part of the brief;
- the use of views and demonstrations to enable the parties more quickly to understand the evidence in the case;
- the use of computer facilities which have been fully described below to ensure speed in finding relevant evidence and assisting in the collating and marshalling of it throughout the hearing;
- placing limits on the length of submissions and replies to be filed by the parties in the course of the hearing;
- the provision and outline of the proposed report to enable the parties more efficiently to prepare their submissions; and
- limiting the time taken to present expert evidence by having meetings between the experts to define areas of agreement and disagreement and dealing with the major experts in the case as a panel when questioned.

4.1.26 Even with the use of these techniques, the hearing in these Inquests took 106 sitting days. Without the use of these techniques it would have been significantly longer, for example, it has been estimated that the manner in which the experts were dealt with saved in the order of three to four weeks of hearing time. The limitation of issues and the time taken with witnesses and the speed at which relevant evidence was marshalled to be put to witnesses also saved considerable time.

4.2 Hearing Days

4.2.1 The hearings in these Inquests began with a mention on 16 December 1999. There were then a series of mention hearings to discuss preliminary matters which occurred on the following days:

- 21 December 1999;
- 14 April 2000;
- 17 May 2000;
- 16 June 2000;
- 5 July 2000.

All of the mentions were held at the Coroner's Court at Southbank. There were over 100 pages of transcript recording the mention hearings.

4.2.2 The topics dealt with in the mentions have already been described in Chapter 3. The most important aspect of the mentions was the settling of the list of issues to be considered throughout the hearings in these Inquests.

4.2.3 The Inquests began at the Coroner's Court, Southbank on 10 July 2000. At that time various procedural matters were considered and arrangements were made for a view of the fire area on 11 July 2000. The view is described in Section 4.3 of this report. After the view the hearing of the evidence commenced on 17 July at the Geelong Coroner's Court.

4.2.4 The opening by Counsel Assisting and the evidence of many of the Geelong witnesses were taken at Geelong. The Inquests were commenced at Geelong because the deaths touched the community of Geelong and it was considered that this community should have as much access to the hearing as was reasonably possible. It was intended that later the Inquests would sit at Ballarat in order to make the giving of evidence by witnesses from that area more convenient. This did not occur, because Counsel found it inconvenient to have the Inquests proceed in the country and wanted the hearing returned to Melbourne. In addition the logistics involved in setting up a court where so many parties were represented was difficult and not many court rooms were suitable for the purpose. The hearing of evidence concluded at Geelong on 16 August 2000.

- 4.2.5** The hearing recommenced at the Melbourne Magistrate's Court on 24 August 2000. The hearing of evidence continued at that court until the close of all evidence on 5 April 2001.
- 4.2.6** In total there were 99 days of evidence.
- 4.2.7** After the close of evidence on 5 April 2001, detailed written Submissions and Replies were received from Counsel for all parties. The Submissions and Replies totalled 1561 pages.
- 4.2.8** With the conclusion of evidence the case was adjourned to the Coroner's Court, Southbank on 12 June 2001 for the commencement of final oral submissions by Counsel. This process occupied seven days and was completed on 21 June 2001.
- 4.2.9** In total there were 11,521 pages of transcript up to 21 June 2001. In completing the Report all of this information had to be considered along with approximately 28,000 pages of the brief and exhibits.

4.3 Views

- 4.3.1** On 11 July 2000 before evidence commenced, a view was conducted of the fire ground and surrounding areas. The view was attended by the State Coroner, all Counsel, their instructing solicitors and the families of the deceased. The view was conducted by Sergeant Daly of the Victoria Police Arson Squad who was the police investigator in charge of the fire investigation for the Coroner. The media was allowed restricted access at the commencement of the view.
- 4.3.2** The purpose of the view was to allow parties to become familiar with the main features of the fire ground to enable a better understanding of the evidence as it was given by the witnesses. In the course of the view which took virtually all day, Sergeant Daly took the parties to various significant sites at the fire including:
- the private property where the fire began;
 - the Pittong Snake Valley Road where the fire crossed;
 - the paddock and hill where the Snake Valley 'A' tanker was entrapped;
 - along the Madden Flat Road where the Hadler burn took place;
 - the area around the intersection of Possum Gully and Madden Flat Roads where the strike team lead by Mr Lightfoot was entrapped;
 - the point in the extension of Madden Flat Road where Mr Lightfoot's utility was incinerated;
 - the point on the Possum Gully Road where the Geelong Strike Team commenced working with the bulldozer;
 - along the trail cut by the bulldozer down the eastern flank of the fire;
 - down to the point of the entrapment of the Geelong tankers;
 - further on to the area where the DNRE crew was working as it was coming north with the other bulldozer;
 - down to the area of the cemetery.
- 4.3.3** The view also took in parts of the western flank of the fire and northern areas where work was being done. The fire station in Linton and the Linton Shire Hall were also seen. The view began and concluded at the Linton Football Ground which was used as the Staging Area on 2 December 1998.
- 4.3.4** While evidence was being given at Geelong, the CFA made available a number of vehicles for viewing by those involved in the Inquests. The first of these vehicles was the Mobile Communication Van used by Messrs Balm and Roberts on 2 December 1998 at Linton. An examination of the MCV assisted parties to understand what equipment was available, the layout of the van and the difficulties involved in the job performed by Balm and Roberts and others involved in communications on that night.

- 4.3.5** The Protective Equipment Vehicle used on the day at Linton was also made available for inspection. This vehicle was used at the Staging Area by those in charge of the Staging Area when deploying crews and recording their presence at the fire. Again this allowed the parties to gain an understanding of the equipment that was available, the layout of the vehicle and the difficulties encountered by the staff in the Staging Area in performing their duties.
- 4.3.6** Finally, a CFA fire tanker was made available for examination to show sight gauges on the water tanks, and new warning devices now equipped to tankers to sound a warning when the tanker is a quarter full. Examination of that tanker showed the difficulty the crews would have in assessing the water levels.

4.4 Demonstrations

- 4.4.1** In order for the parties participating in the Inquests to understand CFA training, the type of equipment used and other matters, a number of demonstrations were held during the course of the Inquests. Most of these demonstrations occurred on 28 September 2000 when the Court visited the CFA's training facility at Fiskville near Ballarat. On this day the State Coroner, all counsel, instructing solicitors and the families of the deceased attended.
- 4.4.2** At Fiskville a number of demonstrations occurred:
- training exercises undergone by individuals seeking qualifications in the CFA known as tactical exercises without troupes;
 - an examination of the wildfire command and control simulator;
 - an examination of a mobile operations point and staging area (including a remote weather station, a mobile communication van);
 - the examination of various CFA tankers and DNRE slip-on units;
 - the examination of an DNRE tanker;
 - tests on the water usage of a 2000 litre tanker (of the size of the Geelong West tanker) positioned on a seven degree angle;
 - demonstrations of the use of fog spray on the back of CFA tankers;
 - a demonstration of the effectiveness of a fog spray pattern against radiant heat;
 - an examination of various safety features under consideration for CFA tankers;
 - a demonstration of back burning techniques using drip torches;
 - a demonstration of the spraying of fire fighting foam and its effectiveness; and
 - the participation in CFA training exercises using a gas fire simulation requiring it to be extinguished by trainees.
- 4.4.3** The time spent at Fiskville provided an overview of the type of facilities available to train CFA firefighters. The examination of the equipment that was on view enabled the parties to evaluate the performance of various types of equipment. The demonstration of the fog sprays indicated the effectiveness, to a certain degree, of these methods in protecting fire fighters against radiant heat. Counsel attending the demonstrations were invited by the CFA and DNRE to ask questions which were answered by staff present, and which enabled them to better understand issues involved in the Inquests.
- 4.4.4** During the course of the Inquests a number of issues arose where no testing had been undertaken by the CFA or DNRE to determine the parameters that applied in the circumstances. It was considered that it would be of assistance to the Inquests if tests were conducted on such issues as:
- how long it took for tankers of various capacities to discharge a quarter tank;
 - the sound that would be made by pumps on the back of tankers when water levels had been used up; and
 - the amount of water that was left in tanks of various size tankers after the pumps had emptied all the water.

- 4.4.5** Tests were actually conducted to deal with the following issues:
- how much water a tanker in survival mode would use over a given period of time;
 - whether it was possible to know from the sound of the pump that the water tank was empty in a particular tanker; and
 - whether the slope on which a tanker was positioned made a difference to the amount of water that was left over, and was capable of being used.
- 4.4.6** These issues arose as a result of evidence given by various witnesses in the Inquests.
- 4.4.7** Other demonstrations that occurred during the course of the Inquests involved the use of “PowerPoint” presentations to show the spread of the fire.

4.5 Statements Tendered

- 4.5.1** In the course of the Inquests approximately 230 witness statements made by 190 witnesses were tendered. Many of the statements were taken as part of the original Inquest brief prepared by the Victorian Police Arson Squad and the Victorian WorkCover Authority.
- 4.5.2** However, during the course of the analysis of the evidence by Counsel Assisting the Coroner, it was discovered from various video tapes, in particular a Channel 7 news tape, that an incident occurred which was not described in the statements contained in the brief. This incident was the burn-over of various tankers near the intersection of Possum Gully and Madden Flat Roads. As a result of examining the tape, Counsel Assisting required the police to interview all of the firefighters on tankers that were involved in this incident. Accordingly approximately 80 additional statements were taken, generally as tape recorded interviews of the witnesses concerned, some of which were transcribed.
- 4.5.3** In addition, a number of parties took the opportunity to have statements prepared by various witnesses. The CFA enhanced many of the statements taken by the police and made these available to the Inquests. Nearly all the DNRE witnesses had the proofs of their statements taken by solicitors acting for the Department. In some instances DNRE videotaped the evidence concerned, in particular in relation to Mr Scherger. In other instances DNRE prepared the statements themselves, for example in relation to Edgar.

4.6 Transcript of Interviews

- 4.6.1** In the initial police brief there were a number of transcripts of interview performed by the police. Among the individuals interviewed were:
- Mr Scharf;
 - Mr Stepnell;
 - Mr Rowan;
 - Mr Neyland;
 - Others.
- 4.6.2** As a result of Counsel Assisting detecting that there were areas not covered by the existing statements, the police interviewed approximately 80 additional witnesses. These interviews were conducted as a question and answer format on tape. The parties were given copies of the tapes and asked to nominate those tapes that needed to be transcribed for the purpose of the hearing. As a result of that process 51 witness interviews were transcribed.
- 4.6.3** The overwhelming majority of the transcribed tapes related to interviews with CFA volunteers involved in either the burn-over on the Pittong Snake Valley Road or the burn-over of Mr Lightfoot’s Strike Team at or near the intersection of Madden Flat and Possum Gully Roads.

4.7

Witnesses Heard at the Inquests

4.7.1

Many individuals gave evidence at the Inquests. These included:

- the members of the Geelong Strike Team;
- various CFA volunteers from Region 15 and 16;
- many individuals involved in the Incident Management Team including those at the Linton control, a forward control point;
- individuals manning the Mobile Communications Vehicle;
- individuals manning the Staging Area at the Linton Football Ground;
- other individuals in the CFA or DNRE having a role to play on the day.

4.7.2

In addition a number of experts gave evidence at the Inquests. These included:

- Dr Michael Reeder who gave evidence regarding meteorological aspects of the fire;
- Dr Neil Burrows, Mr Phil Cheney, Dr David Packham and Dr Kevin Tolhurst who produced a joint report on a number of issues including fire behaviour on the day and operational matters;
- Chief Fire Officer, Trevor Roche who gave evidence of operational matters of the fire ground and in relation to management of the CFA; and
- Mr Edgar of DNRE who gave evidence in relation to the operations of his department and also expert evidence on developments overseas.

4.7.3

Insofar as the experts on fire behaviour and operational matters were concerned, that is, Dr Burrows, Mr Cheney, Mr Packham and Dr Tolhurst, they were dealt with as a panel at the hearing. This process has been used in other jurisdictions and is known as “*Hot tub*”, and involved all of the experts being sworn in and examined at the one time by Counsel Assisting. The process then involved Counsel Assisting asking Mr Cheney as the nominated foreman of the panel to give his evidence in relation to a particular matter, and then each of the other members of the panel were asked to indicate whether they agreed or disagreed with that evidence and if they disagreed, why they disagreed. The effect of this process was to greatly contract the time taken by the experts. However, it also assisted all the parties to quickly and readily understand what differences, if any, there were between the opinions of the experts called. As was pointed out above, this was seen as having saved several weeks of court time.

4.7.4

The evidence given by the panel was video taped. The video tape is an exhibit.

4.8

Exhibits Available to the Inquests

4.8.1

On the day of the fire, facilities at Region 15 were capable of recording the radio transmissions that were being made on its frequencies. Region 16 did not have this facility. In the course of the Inquests the radio messages in relation to the Region 15 frequencies were recorded and presented in evidence. A transcript of the radio transmissions was made by the CFA and formed an exhibit.

4.8.2

Numerous video tapes also were part of the evidence. Some of these video tapes involved interviews with witnesses. Other video tapes were films taken by media at the fire. Included among those video tapes was a tape taken by Channel 7 which showed the burn-over at the intersection of Madden Flat and Possum Gully Roads. In addition, there were video tapes of interviews with Messrs Knight and Leach concerning the weather.

4.9

Use of Information Technology Facilities

4.9.1

The Inquests broke new ground for coronial hearings in Victoria by using information technology facilities in court for the presentation and management of evidence. The software used was developed by Mr Jari Jancar, the IT Manager of the Office of

Public Prosecutions. The equipment had previously been used in a major fraud trial in the Supreme Court of Victoria where it was necessary to manage an enormous volume of documentary exhibits. The program and facilities were adapted as required for use in these Inquests.

4.9.2 The hardware used consisted of:

- Computer screens for each of the counsel representing parties, the Coroner and the witness giving evidence;
- A projector and projection screen which allowed documents, video clips and PowerPoint presentations to be shown and viewed by the public (including family members and the media) in the court room; and
- Video facilities which allowed recorded messages to be played to witnesses and the court.

4.9.3 The reasons for using this technology were to allow:

- The public attending court, particularly the families, to more clearly follow and understand the evidence that was being given to the Inquests;
- For the efficient accessing of exhibits and documents as required during the cross-examination of witnesses; and
- Counsel to reduce the volume of paper used in the case by having the entire brief and transcript of hearings in electronic form.

4.9.4 It is believed that the use of these facilities saved time in the presentation of the evidence and in the preparation of this case by the legal representatives of the various parties.

Overview of the Fire

5.1 Introduction

- 5.1.1** This Chapter is intended to provide an overview of the wildfire which occurred at Linton on 2 December 1998. A more detailed analysis of specific incidents and events is found in other Chapters of this Report.

5.2 Location

- 5.2.1** Linton is a small rural town of approximately 630 residents, about 30 kilometres south-west of Ballarat. The Glenelg Highway, a major road leading into the Western District of Victoria, runs through Linton. Another major road in the area runs north of Linton to the town of Snake Valley. See Figure 5.1.
- 5.2.2** The town contains houses, a number of small stores, a post office, a hotel, Shire Offices, and a sporting complex. Linton also has a CFA Brigade which is part of the Grenville Group in Region 15.
- 5.2.3** To the east of Linton and on both sides of the Glenelg Highway is a major pine plantation. It was transferred into private ownership around the time of the Linton fire. To the north of Linton there is an area of State Forest.
- 5.2.4** Snake Valley is a small rural town of about 300 people about 6 kilometres north of Linton. It contains houses, a shop, a hotel and a number of churches. It has a CFA Brigade which is part of the Beaufort Group in Region 16.
- 5.2.5** To the south-west of Snake Valley is a forested area that is privately owned. In that area there are many holiday homes. Rowlers Road gives access to many of these properties.
- 5.2.6** Around midday on 2 December 1998 the fire started on private property in the forested area off Rowlers Road. It travelled in a southerly direction through private land until it reached the Pittong-Snake Valley Road.
- 5.2.7** The fire was observed at about 1.00pm and tankers from the Snake Valley CFA went to investigate it. Within a short time many CFA units from Regions 15 and 16 also attended.
- 5.2.8** At about 2.45pm the fire crossed the Pittong-Snake Valley Road, which coincidentally was the boundary between CFA Region 16 and Region 15. Shortly after crossing the Pittong-Snake Valley Road the fire entered State Forest which extended to the outskirts of Linton.
- 5.2.9** The fire burnt to the outskirts on the north side of Linton where the head was stopped. At that point it had reached an area that had been the subject of a controlled burn in the past, and also it reached grass areas. The perimeter of the fire was contained at 1.20am on 3 December 1998. An area of approximately 600 ha was burnt. Figure 5.2 is a map showing the area of the fire.

Figure 5.1

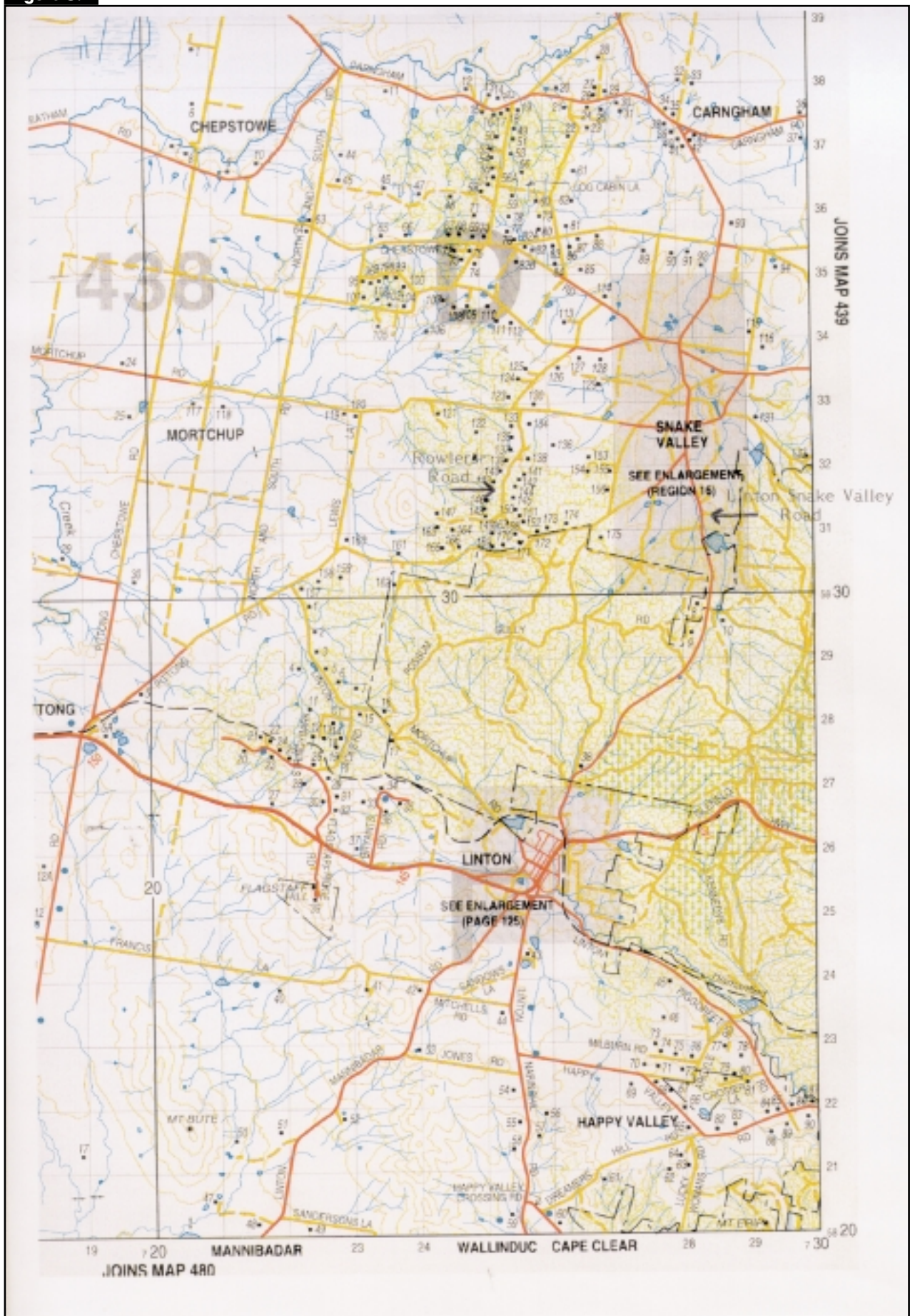
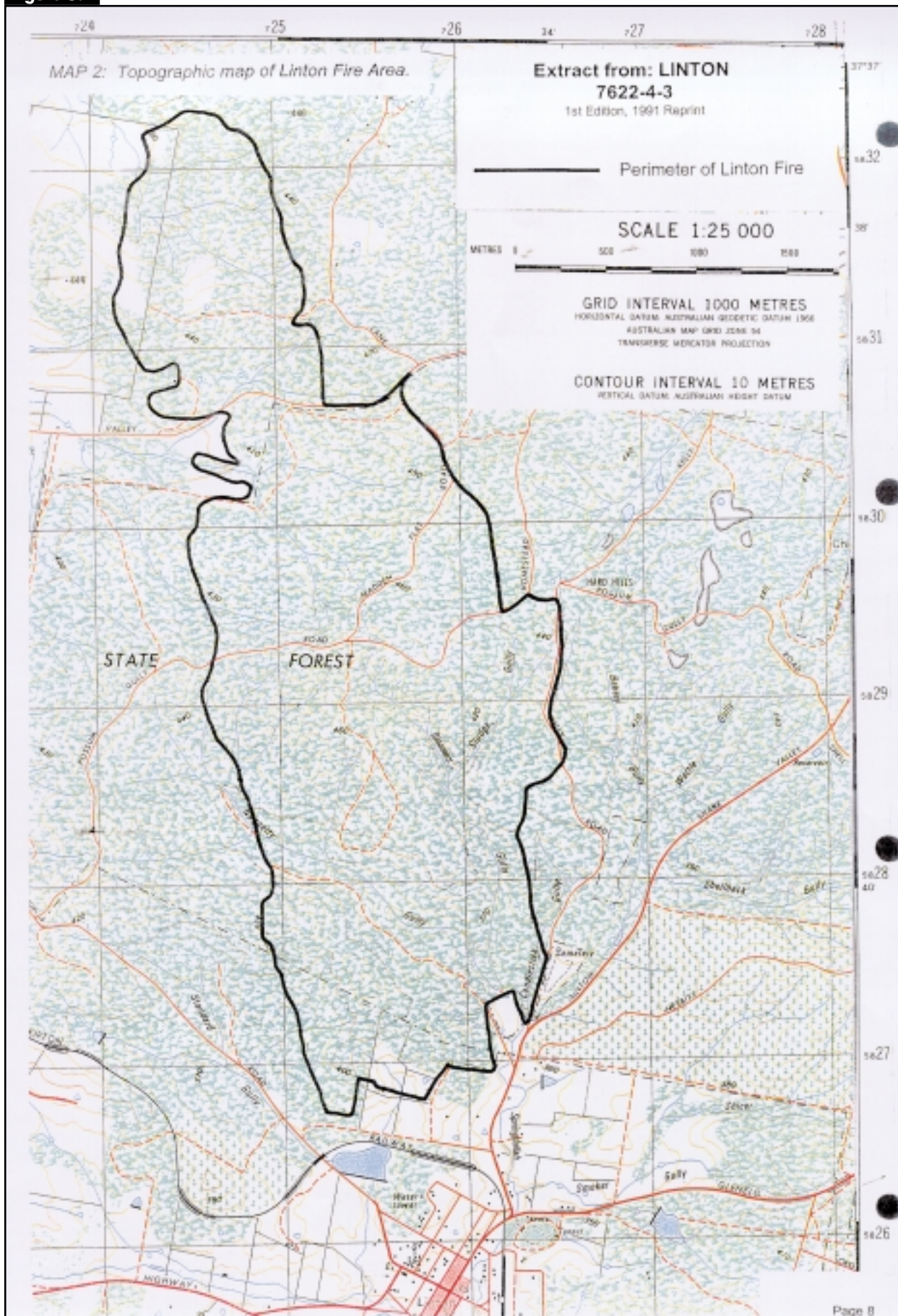


Figure 5.2



- 5.2.10** It can be seen from this brief description that the fire presented a number of administrative problems because:
- It passed from private land where the CFA had primary responsibility for fire suppression to State Forest where DNRE had primary responsibility; and
 - It crossed the boundary between two Regions, a Region being a major administrative unit within the CFA.¹
- 5.2.11** The AIIMS-ICS system of incident control (used by the CFA and DNRE) was designed to overcome these difficulties.²

5.3 Weather

- 5.3.1** In December 1998 the area around Linton had been subject to over two years of drought conditions. Rainfall records for the two nearest towns to Linton where official records are kept, Skipton and Ballarat, showed below average rainfall between October 1996 and December 1998.³
- 5.3.2** The Bureau of Meteorology issued various weather forecasts for the Linton area on 2 December 1998. At 5.00pm on 29 November 1998 the Bureau issued a forecast for Western Victoria which included:
- North-west winds;
 - South-west change due early afternoon with isolated showers and thunderstorms;
 - High Fire Danger in the south of the State, very high to extreme in the north of the State.⁴
- 5.3.3** At 5.05pm on 1 December 1998 the Bureau issued a forecast for Western Victoria which included:
- Maximum temperature around 30°C;
 - Low relative humidity;
 - NNW winds of 40–45 kmh;
 - A south-westerly change, with winds of 25 kmh arriving at Ballarat between 7.00pm and 11.00pm; and
 - A Forest Fire Danger Index of 28 for Ballarat, which translates to a fire danger of Very High.⁵
- 5.3.4** It was a fairly typical Victorian summer day around Linton on 2 December 1998.⁶ The weather on that day has been summarised as follows:
- Temperatures in the fire area reached the low 30's in mid afternoon, with relative humidity about 20%.
 - Wind speeds were about 45 kph gusting to 70 kph from the north-west during the afternoon but dropped to about 20 kph in the 30 minutes before the wind change.
 - A wind change was predicted from the south west. The predicted time of the change was amended on a number of occasions by the Bureau.
 - Ground and air observations about the actual progress of the wind change were made.
 - The actual wind change at the fire occurred about 2040 hours, which was earlier than the most recent Bureau prediction.
 - The actual time of the wind change was close to the time predicted at the fire Operations Point (Linton), based on observations from Wickcliffe and Skipton.
 - This south-west wind change gusted up to 60 to 70 kph, but was shortlived and reduced to about 30 kph within five minutes.⁷
- 5.3.5** When the south-west wind change arrived it turned the east flank of the fire into the head which moved east to Kelly's Road. The change in direction of the fire caused a wall of flame to engulf two tankers. The crew of one of those tankers – Geelong West died.

5.4 Topography

- 5.4.1** Topography is the term used to describe the nature of a land surface by reference to slope steepness, aspect, elevation and landscape pattern.⁸ It has a substantial effect on fire behaviour, and that was summarised by Dr Burrows in his report:

"Slope and aspect can greatly influence fire behaviour. Fuels on northerly aspects are usually drier than fuels on southerly aspects, enhancing fire spread. Slopes in the Linton fire area are mostly between 6 degrees and 10 degrees with a maximum slope of about 20 degrees. While such topography may be characterised as 'undulating' or 'gentle' by Victorian standards, where wind direction and slope align, then these slopes will have a very significant effect on fire behaviour with rate of spread (and therefore fire intensity) approximately doubling for every 10 degree increase in positive slope (McArthur 1973)." ⁹

- 5.4.2** In their joint report the panel of experts gave the following general description of the topography of the area where the fire occurred:

"Topography was rated as undulating with some short pitches of steep slopes to 20 degrees. The topography was of sufficient relief to have significant influence on the speed and the direction of the wind in the forest. Generally the length of slope was relatively short, however slope had a major influence on the behaviour of fire over the short distances. There is likely to have been small differences in the moisture levels of the surface litter on different aspects but these differences would have been less than in a normal season due to the prolonged dry period preceding the fire. Surface fuels were very dry, probably in the range 4%–6%, which means that fire behaviour could escalate relatively quickly with changes in wind or topography." ¹⁰

- 5.4.3** The panel of experts carried out an analysis of the topography at a number of key locations in respect of this fire. Their observations are set out below.

- 5.4.4** At the point of origin of the fire:

"The slope at the origin of the fire was either level or down slope in relation to the northerly wind direction." ¹¹

- 5.4.5** They described the area just north of the Pittong-Snake Valley Road:

"Before the fire crossed the Pittong-Snake Valley Road it was burning on the lee-slope of the ridge to the north. Although the surface fire on the lee-slope involved the coalescence of spot fires (possibly upslope under the influence of an eddy wind)... speed of the fire and the flame heights was very much reduced. The relatively mild behaviour of the surface fire as it approached the bottom of the slope might have influenced fire fighters to consider it was possible to hold the fire on the Pittong-Snake Valley Road." ¹²

- 5.4.6** The panel agreed with the description of the topography in the area of the Snake Valley 'A' entrapment that was set out in the Report of "The Operations Review of Linton Fire/Midlands Fire" which said:

"The initial entrapment site is located approximately two thirds of the way up a prominent hill just south of Pittong Road. The slope to Pittong Road in a north-north west direction is 10° and in a north-north easterly direction 8°. The slope where the incident occurred is predominantly northerly.

Fence Breach Site

This site is on the south side of the hill described above. The fire would therefore have been travelling down a hill of 8° slope. The slope between the location that the tanker became immobilised and the fence is 5°. The area near the fence has been worked by gold prospectors and there are numerous remnant mine shafts." ¹³

5.4.7 The next area to be considered is Madden Flat Road, south from Pittong-Snake Valley Road to the intersection with Possum Gully Road. There the topography is described as:

“The forest west of Madden Flat Road had been thinned some three years prior to the fire in a fire wood cutting operation. This treated area extended from the Snake Valley-Pittong Rod to within about 200m of Possum Gully Road. At the point along Madden Flat Road about 400m north of Possum Gully the fire intensity had been considerably less than elsewhere along the road due to a change in fuel and slope conditions. This portion of the road is located just to the south-east of a ridgeline. A fire travelling from the north-north-west would travel down a slight slope before reaching the Madden Flat Road...” ¹⁴

5.4.8 The next area of interest is the extension of Madden Flat Road south of Possum Gully Road. The topography there was described as:

“... When the fire crossed Possum Gully Road it also crossed the major east-west ridge through the forest. The topography south of the ridge had a general southerly or easterly aspect into Nuggetty and Sludge gullies. It was also more steeply divided by the creeks at the head of these two gullies than the slopes with a north-westerly aspect north of Possum Gully Road.” ¹⁵

5.4.9 Finally there is the area where the entrapment of the two Geelong Strike Team tankers occurred. Reliance is placed on the description in the report of *“The Operations Review of Linton Fire/Midlands Fire”*

- *“At the site of the Geelong City and Geelong West entrapment, the slope was about 6 degrees on a west-south-west facing aspect.*
- *The Geelong City/Geelong West entrapment site was exposed to the south-west wind because the wind was funnelled up a gully for a distance of at least 3 kilometres. This gully was in a direct line with the entrapped tanker crews.”* ¹⁶

5.4.10 The topography at the area in the State Forest was also difficult because of the presence of gold mines, diggings and water races. These hazards were generally not known to the firefighters, particularly those coming from other Regions such as Geelong. These features played a significant role in two incidents:

- The Snake Valley ‘A’ entrapment; and
- The incineration of Mr Lightfoot’s utility.

5.4.11 It is now necessary to consider the fuel loads that were present in the fire area on 2 December 1998.

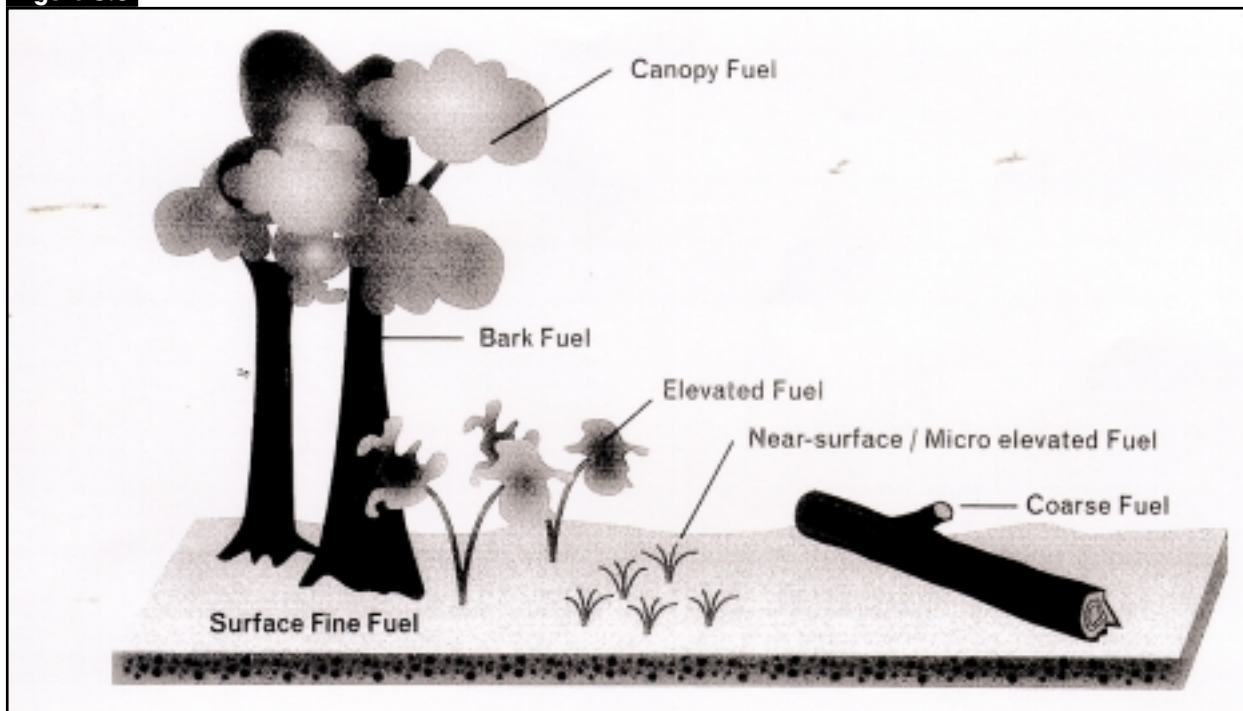
5.5 Fuel Loads

5.5.1 Fuel load is the oven dry weight of fuel per unit area, expressed as tonnes per hectare. ¹⁷ Fuel loads are assessed by looking at the various types of fuels that are present in the forest environment. Common fuel types in forests fall into the following types:

- Surface fire fuels;
- Near surface fire fuels;
- Elevated fire fuels;
- Bark fire fuels; and
- Canopy fire fuels.

5.5.2 These fuels can be represented pictorially, and this has been done in Figure 5.3 produced by DNRE. ¹⁸

Figure 5.3



5.5.3 The panel of experts assessed the fuel loads at various important sites to this fire. They concluded:

- At the point of origin : The area was heavily stocked and very dry with no evidence of a previous fire. It represented an extreme fuel load; ¹⁹
- Pittong-Snake Valley Road : Generally high to very high fuel load except for the open paddock area on the south side of the road which did not burn; ²⁰
- Snake Valley 'A' entrapment site : Very high fuel load; ²¹
- Madden Flat Road between Pittong-Snake Valley and Possum Gully Roads : On the west side of the road fuel loads had been reduced by fire and subculture practices; ²²
- Madden Flat Road extension south of Possum Gully Road and the area around that intersection : High to very high fuel load; ²³
- Geelong West entrapment site : The experts were divided with some options for high to very high fuel loads and others for extreme fuel loads, however they agreed in the end that the fuels were "*just into the extreme range.*" ²⁴

5.5.4 On the outskirts of Linton the fuel loads were greatly reduced from those that applied in the State Forest. To the north of the town there had been a fuel reduction burn in 1991–1992, which the experts believe had little effect on the fire intensity.²⁵ The area, however, was open and green which allowed the fire to be comfortably contained before reaching the town.²⁶

5.5.5 The vegetation in the area made a significant contribution to fuel loads. Generally, the area was covered by Peppermint and Brown Stringybark forest.²⁷

5.5.6 At the point of origin, the vegetation consisted mainly of Broad Leafed Peppermint and Brown Stringybark forest with small areas of grassland.²⁸

5.5.7 In the Linton State Forest, the vegetation varied. In the gulleys, Mesquite and Narrow Leafed Peppermint was common with tree heights up to 25 metres. There was also candlebark surrounded by grassy areas in some gulleys. In the moist gully area, the ground fuels included Silver Wattle, Bracken Fern, Saw Edge and Tussock grasses. On mid slopes there was a great deal of Bracken Fern and Tussock grass at ground level. On the ridges and upper slopes, Brown Stringybark and Broad Leafed Peppermint of 15–20 metres was common with an understorey of Tussock grass being prominent on upper slopes.²⁹

- 5.5.8** A series of fuel reduction burns had been undertaken in and around the Linton State Forest over many years before this fire. These were done in the following fire seasons:
- 1973–1974;
 - 1975–1976;
 - 1976–1977;
 - 1980–1981;
 - 1990–1991;
 - 1991–1992; and
 - 1996–1997.
- 5.5.9** The most recent burn was carried out in an area east of Kelly Road in 1996–1997. This process aided in bringing the fire under control after the wind change, with the east flank stopping alongside the previously burnt area.³⁰
- 5.5.10** The experts considered that, in order to be effective, fuel reduction burns need to reduce 70%–80% of surface fuels in 70%–80% of the burnt area.³¹ While there is some doubt about the effectiveness of prescribed burns in suppressing fire, Dr Burrows made the point when questioned:
- “Mr Gyorffy: Dr Burrows, you are keen to add something?—Yes, I mean there is quite an extensive knowledge in various agencies around the country about how to go about implementing fuel reduction burns, the time of year, interval between burns, regional contexts, hazard analysis, so you are looking at strategic burns to protect various assets and that has been around for quite a while, so it is there, it is happening. The other point I wanted to make was that fuel reduction burns aren’t only important when they are implemented appropriately for protecting assets, but they are important for protecting fire fighters into an area of forest that hasn’t been burnt for 40 years to try and put out a fire under almost any circumstance. So my point is that, it is obvious and common knowledge to most fire fighters, is that the difficulties and danger associated with suppressing a fire are intimately linked with the amount of fuel that is burnt and the rate at which it burns. So if you can manage that, you not only reduce the hazard to assets surrounding that particular block of forest or that particular patch of bush, but you reduce the risk to fire fighters that have to go in there and put it out, and not if it lights, but when it lights.”*³²
- 5.5.11** It is within this context of weather, topography and fuel load that the analysis turns to the spread of the fire on 2 December 1998.

5.6 Spread of Fire

- 5.6.1** The generally accepted definition of fire behaviour is that given by Luke and McArthur:
- “Fire behaviour is commonly described as the manner in which fuel ignites, flame develops and fire spreads and exhibits other phenomena. It is a descriptive term used to designate what a fire does or how it behaves, and covers the ignition, build-up, propagation and decline of a fire of any size or intensity and the various phenomena which may be significant from time to time during the course of the fire ...”*³³
- 5.6.2** Luke and McArthur consider the following aspects of fire behaviour as being important to those on the fire line or those planning strategy away from the fire ground:
- rate of forward spread;
 - perimeter and area spread;
 - combustion rate;
 - fire intensity;
 - burn out time;
 - flame dimensions;
 - scorch heights;
 - radiant heat output;
 - convection column characteristics;

- fire whirlwinds; and
- spotting potential.³⁴

5.6.3 It has been observed that:

*“When a fire starts in natural fuels it does not exhibit immediate violent reactions such as those observed when petrol ignites or explodes. A potential for intense fire behaviour may exist but fires cannot reach a steady state of progression appropriate to existing fuel, weather and local topography until the natural forces inherent to such conditions have been reinforced fully by those engendered by the fire.”*³⁵

5.6.4 In a free-moving fire there are three recognisable stages in development:

“The first stage in fire development is a period of initial build-up, during which the behaviour of the fire is dominated by environmental conditions and the suppression task is relatively easy provided fire fighters arrive early enough.

The second stage is one of transition, when forces engendered within the fire begin to affect fire behaviour significantly. This can involve convection activity, down draught winds or greatly increased combustion rates.

In a third and final stage, which can be termed the peak stage, all or most of the forces which can be released by the fire exert their influence. If fuel and weather conditions are ideal for rapid combustion, a conflagration may result ...”³⁶

5.6.5 The processes involved in the initial build-up can be described as:

“ ... At first the pre-heating of fuel to ignition point is dependent on the relatively low rates at which heat may be transferred by radiation or convection from a small fire with low flames. Later the rate of build-up increases as more fuel is involved in both the vertical and horizontal dimension. Finally, when the fire has reached a sufficient size, wind speed, convection and radiant heat become dominant factors as the fire passes into, and begins to exhibit, the type of fire behaviour characteristic of the transition stage.

*The initial stage may last from a few minutes to half an hour or more, depending on such factors as the quantity, condition and arrangement of fuel and the influence of weather and topography.”*³⁷

5.6.6 Then follows the transition stage which can be described in the following way:

“... convective activity begins to reinforce those forces nearer to the ground which normally regulate surface fire behaviour during the initial stage. It is generally considered that three criteria must meet to effect this transition.

The first relates to available fuel loading and burn-out time, and requires that the depth of the flaming zone should be large in relation to its length, and that the fire has achieved a dynamic head with the flames leaning towards the unburnt fuel...

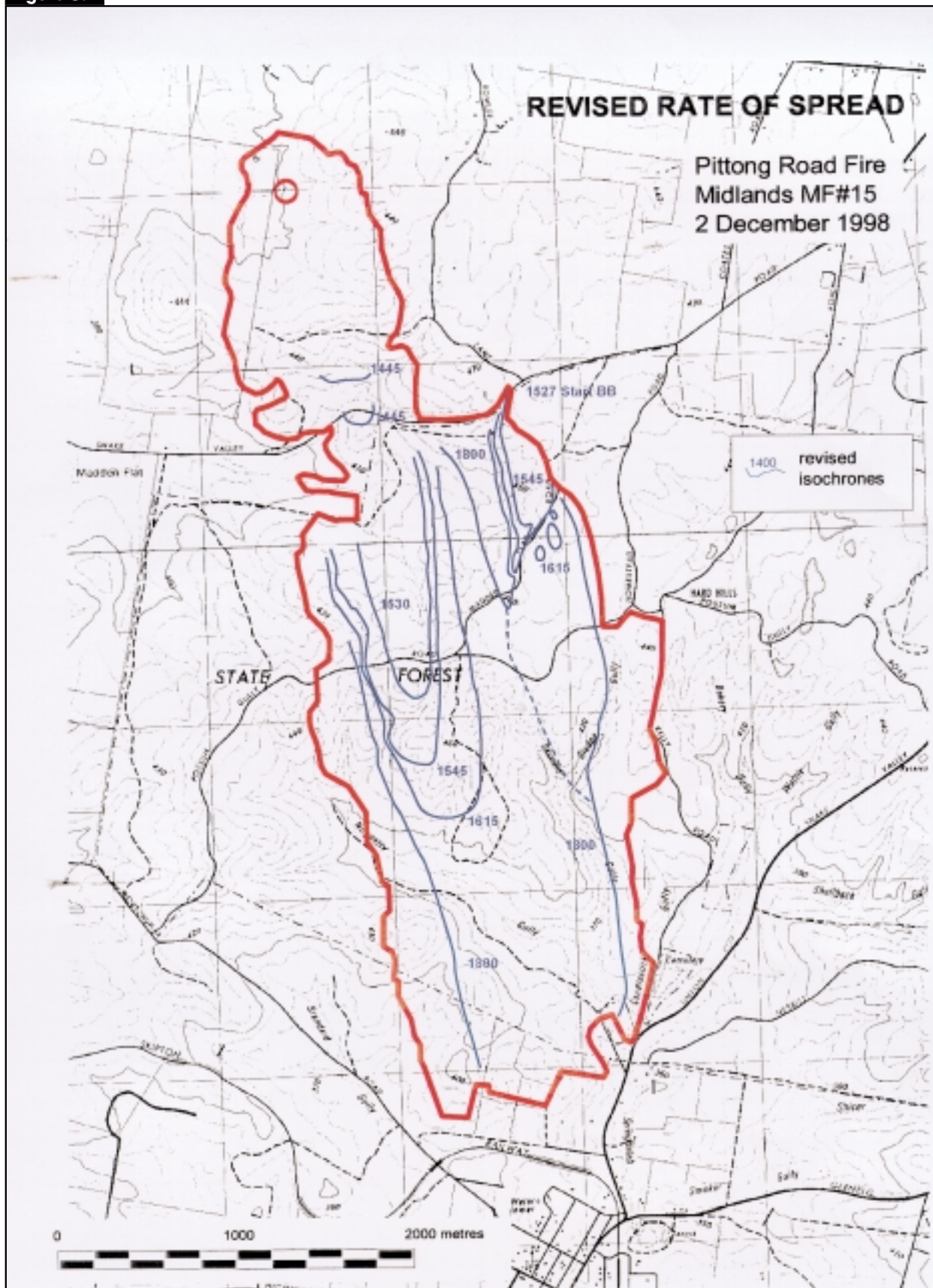
*The third criterion is that the total rate of heat output should be sufficient to cause a significant perturbation in the surface wind field at and near the fire. When these criteria have been met, either down draughts occur or wind speed into the rear of the fire increases noticeably ... In forest fuel a transition from a surface to an intermittent crown fire is likely to occur, but is influenced greatly by the extent of the fuel loading.”*³⁸

5.6.7 The final stage is:

*“... marked by a well-developed or towering convection column. In forest fuels this almost invariably means that the spotting process is well developed and that, for some hours, suppression forces have to face dangerous situations beyond or almost beyond their control capacity...”*³⁹

5.6.8 The first attempt to describe the spread of the fire at Linton was made in the Report of “*The Operations Review of Linton Fire/Midlands Fire*”. This was supplemented by a further report of Dr Tolhurst. The panel of experts also considered the spread of the fire and reached substantial agreement on it. That agreement is represented pictorially in Figure 5.4. The following summary is taken from the evidence of the experts.

Figure 5.4



- 5.6.9** The fire ignited on private property at 36 Rowlers Road, Snake Valley. The ignition probably resulted at about 12.00pm by the wind fanning some cinders lying dormant on the property as a result of burning off done by the owner preceding the fire. The cause of the fire is discussed in detail in Chapter 7.
- 5.6.10** The fire was noticed shortly after 1.00pm and local units from Snake Valley CFA went to investigate. This is dealt with in detail in Chapter 8.
- 5.6.11** By 2.00pm the fire had travelled approximately one kilometre south of the point of origin, crossing a ridge and track which travelled west from Rowlers Road. The fire began spotting south of this ridge and burnt slowly down the leeward slope towards Pittong-Snake Valley Road.
- 5.6.12** At 2.45 pm the fire went rapidly up the slope leading to the Pittong-Snake Valley Road and crowned in the trees as it passed over that road.
- 5.6.13** In the process about 12 tankers were engulfed in flame. This is described fully in Chapter 9. It burnt up the hill on the south side of the road where it trapped the Snake Valley 'A' tanker. This episode is fully described in Chapter 10.
- 5.6.14** Between 2.45pm and 3.15pm the head of the fire moved rapidly south between Pittong-Snake Valley Road and Possum Gully Road. The fire crossed Possum Gully Road at 3.20pm. It crossed 200 to 300 metres south of the intersection of Possum Gully and Madden Flat Roads.⁴⁰
- 5.6.15** At this point it is necessary to pause and consider the behaviour of the fire along Madden Flat Road and around the intersection of that road with Possum Gully Road. This behaviour was collateral to the passage of the main front.
- 5.6.16** The experts were of the opinion that about 3.15pm the wind shifted to a north-north-easterly direction for about 30 minutes. The main fire may have played some part in inducing the easterly effect of the wind at this time.⁴¹ This wind shift appears to have had a significant effect on the decision to light the fires along Madden Flat Road.
- 5.6.17** During the time of the NNE wind shift the head of the fire had progressed to the south, south-west slopes of Nuggetty Gully. There was significant spotting at this time with fires beginning up to 500 metres ahead of the main front.⁴²
- 5.6.18** At about 3.5pm the wind shifted back to the NNW. The experts observed from that time on that:
- "At around 1545 hours the wind switched back to the NNW causing fire fighters to evacuate from the Possum Gully – Madden Flat Road intersection. The change of wind direction also caused spot fires from the northern burning out operation on Madden Flat Road to carry the fire south of the road.*
- Between 1545 and 1615 hours the fire intensity increased at the head and along the eastern flank south of Pittong Snake Valley Road. Although there are few observations recorded, there would be considerable spotting up to 1 km south of the fire and by 1636 hours spot fires were recorded west of the Linton Cemetery.*
- By 1700 hours spot fires were coalescing and the main run of the head fire had more-or-less stopped at the forest/grassland interface north of Linton.*
- The burning-out operation on Madden Flat Road travelled in a southerly direction and was probably under the influence of the convection from the main fire. The breakaway from the burning-out fire and the main fire probably coalesced in the vicinity of Bloomers Creed between 1700 and 1800 hours."*⁴³
- 5.6.19** Between 6.00pm and 8.30pm fire behaviour was relatively benign:
- "Fire activity now was confined to the eastern and western flanks of the fire. From scorch patterns it appears that there were alternating periods of northerly and north-easterly winds which created parallel banding of moderate light and severe scorch.*

Most of the banding is on the western flank, which suggests that there were more shifts of wind towards the NE than towards the NW. There was easterly flow reported by fire fighters on the eastern flank before the frontal change. This wind direction may have been associated with a shift in the gradient wind towards the NE and partly responsible for the flank having the appearance of a very mild fire.”⁴⁴

5.6.20 At about 8.45pm the south westerly wind change hit the Sludge Gully area turning a length of about 800 metres of uncontrolled flank into a new head which pushed out to Kelly Road where it was brought under control.

5.6.21 The entire perimeter of the fire was controlled at about 1.20am on 3 December 1998.

5.6.22 The average rate of spread of the fire was 1.1 km/hr with a maximum speed of spread of 1.6 km/hr when the fire was at its highest intensity.

5.6.23 A computer model of the fire was prepared by Mr Cheney. This showed the topography of the area and the spread of the fire in it. The model was presented during the expert panel’s evidence.

5.6.24 It is well to pause at this time and consider the opinion of the fire behaviour experts about the manner in which the Linton fire behaved. They said:

“The panel considered that the mean direction and mean rate of spread of the fire and general spotting behaviour was reasonably predictable. It is not possible to predict exactly when veering (clockwise) and backing (anti-clockwise) shifts of wind direction will occur but it is reasonable to expect that they will occur over the course of the fire.

By the time the fire had reached the ridge north of the Pittong-Snake Valley Road it should have been apparent that the potential fire behaviour for the day was quite severe and that the fire would continue to spread, on average, at 1 to 1.5 km per hour. The rates of spread and fire behaviour on lee slopes would be less and would occur mainly through the coalescence of spot fires.

The experts considered that there was nothing unusual about the fire behaviour but recognition of the potential changes according to changes in wind direction, wind strength, and topography required that fire fighters had been trained and were experienced in forest fire behaviour.”⁴⁵

5.6.25 In evidence Mr Cheney in particular, highlighted that this was not a severe fire, and the fire intensity and speed were significantly below that which can occur in Victorian forest fires.⁴⁶ A similar opinion was expressed in the “Report of the Operations Review of Linton Fire/Midlands Fire.”⁴⁷

5.6.26 The DNRE in its submissions to the Inquests that the fire behaviour was entirely predictable if all relevant factors were known.⁴⁸

5.6.27 In these circumstances it is of great concern that there are so many incidents at this fire where fire fighters found themselves in trouble because they misjudged conditions and fire behaviour. This raises a critical issue of adequacy of training and experience of fire fighters in forest fire behaviour. This matter is considered later in this Report.⁴⁹

5.7 Fire Intensity

5.7.1 Fire intensity refers to the rate of heat output per length of fireline. It is measured in kilowatts per metre (kw/m).⁵⁰

5.7.2 The intensity of a fire is affected by a number of factors:

- fuel loads;
- weather conditions; and
- the presence of junction zones where fires join.

5.7.3 Fire intensity is not always constant. In practice it may wax and wane due to change in fuel, wind or topography for example. Dr Burrows gave a practical assessment of this during his evidence:

*“ ... When you are working on a fire line, fires don't always burn consistently in one direction and then change with a definitive and long lasting change. There is quite often fluctuations in the behaviour. You may be working on a flank burning out or whatever, regularly that flank will increase in intensity for a short duration and then drop off. It is very difficult sometimes to know, even for experienced fire fighters, whether that change in flank fire behaviour that could threaten you, is going to persist for simply a short time. There are normal variations which happen along the flanks of fires which may only last for a matter of five or ten seconds.”*⁵¹

5.7.4 In the Report of “The Operations Review of Linton Fire/Midlands Fire” the following opinions were given on fire intensity at the Linton Fire:

- The average intensity of the head of the fire was 9,000 kw/m;⁵²
- Maximum fire intensities were 13,000 kw/m;⁵³
- Average flame heights were 7.5m;⁵⁴
- The fire intensity was ‘unusually’ uniform across the fire ground;⁵⁵ and
- The fire intensity was high.⁵⁶

5.7.5 Mr Cheney did not agree that this was a high intensity fire. In cross-examination he said:

*“... by my reckoning this fire was burning under a fire danger which on the scale of fire danger is something less than 20 per cent of the potential fire danger that could occur in Victoria. The fire was burning at a speed and intensity which was something less than 10 per cent of the speed and intensity that could occur in forests in Victoria ...”*⁵⁷

5.7.6 Mr Packham supported this view by drawing a comparison between the Linton fire and the Ash Wednesday fires. The latter were 70,000–80,000 kw/m more intense than the Linton fire. This is pictorially represented in Figure 5 which was tendered at the inquest by DNRE.

5.7.7 Fire intensities at other significant times in the Linton fire were:

- At the time of the Pittong – Snake Valley Road line up – 4,000–8,000 kw/m;⁵⁸
- Between 3.00pm and 4.00pm along Madden Flat Road and around its intersection with Possum Gully Road – 9,400 kw/m–13,100 kw/m;⁵⁹ and
- During the entrapment of the Geelong City and Geelong West tankers – 11,000 kw/m.⁶⁰

5.7.8 The intensities shown at various times by this fire raised concerns about the techniques and strategies used by firefighters. In particular:

- The attempt to stop the head of the fire along Pittong-Snake Valley Road;
- The attempt by the Snake Valley ‘A’ tanker to put out spot fires directly in the path of the head of the fire;
- The burning undertaken along Madden Flat Road; and
- The fires lit around the intersection of Madden Flat and Possum Gully Roads.

These incidents are dealt with in detail in other parts of this report.

5.7.9 In addition, Dr Tolhurst raised concerns about the safety of firefighters in the future if the wrong message gets out about the use of survival techniques at this fire. He said:

“... I would just like to add to what the consequences may be given that this fire was not in the magnitude I might expect under more severe conditions. I think the burn-over strategies adopted wouldn't have worked under more severe conditions and I am already fearful of some of the messages that are going out about how, as long as you have a little bit of water in your tank, you can survive a fire under these situations. The point is a burn-over, where the intensity is as low as it was at Linton ... but talking about a marshmallow fire, saying that's all right on the flank or the back, the fire has the potential of what the head fire is. At any point it is possible, because of

*the wind shift or whatever, that the flank suddenly becomes the head fire. You shouldn't be treating the flank as a marshmallow fire when you are in fact quite aware the head is nothing like that. The flank could change."*⁶¹

5.7.10 These issues are also considered in other parts of this Report.

5.8 Damage

- 5.8.1** At the point of origin at 36 Rowlers Road a caravan and shed were damaged.⁶² A trailer on the property was also partially damaged.
- 5.8.2** As the fire spread fencing on several properties was damaged.⁶³ Two houses and various outbuildings were destroyed.⁶⁴
- 5.8.3** Approximately 660 ha of mixed species forest on private and public land was burnt,⁶⁵ but not destroyed.
- 5.8.4** The Geelong West tanker was destroyed. Two other tankers were damaged.⁶⁶ Mr Lightfoot's utility and property in it were incinerated.⁶⁷
- 5.8.5** The destruction of private property that occurred in this fire was largely complete by 2.45pm when the fire crossed the Pittong-Snake Valley Road. After that State forest was burnt and CFA equipment used to stop the fire was destroyed or damaged. Linton was never at risk.
- 5.8.6** It was in that context that six hours later when the fire was all but controlled that the five CFA volunteers – Matthew Armstrong, Stuart Davidson, Christopher Evans, Jason Thomas and Gary Vredevelt died.

5.9 Duration of Fire

- 5.9.1** The fire began about 12.00pm on 2 December 1998. It was noticed around 1.00pm and shortly after that fire suppression attempts began.
- 5.9.2** The head of the fire burnt south towards the township of Linton. It was brought under control at about 5.00pm.
- 5.9.3** The fire flared up again when the wind change came at approximately 8.45pm. The fire was declared as contained at 1.20am on 3 December 1998.
- 5.9.4** For some days after, crews continued to work on mopping up and blacking out.
- 5.9.5** The fire had a duration of about 13 hours until containment. The average duration to containment of fires in the central highlands of Victoria is five to six hours.⁶⁸ This fire, therefore, was of slightly longer duration than the average for the area.

5.10 Area Covered

- 5.10.1** The fire was 6 km long and had an average width of 1.5 km. It covered 660 ha.
- 5.10.2** The majority of the land involved in this fire was State Forest.

5.11 Aircraft Use

- 5.11.1** A number of aircraft attended the Linton fire. There were five helicopters and three fixed winged aircraft present.
- 5.11.2** Some of the aircraft were used as observers and others were used for fire bombing.
- 5.11.3** No issues arose for consideration by these Inquests from aircraft use.

5.12 Major Events

Time	Event
2 December 1998	
12.00pm	Fire began on a private property at 36 Rowlers Road, Snake Valley
1.03pm	Mr Harrigan told Diane Foy at the Snake Valley Sub-Base that there was a fire near the tip in Mortchup Road.
1.15pm	Snake Valley tanker arrived at the scene of the fire. It was observed that the fire was burning steadily and could not be extinguished.
1.30pm	DGO Wyllie and DGO Kavanagh arrived at fire scene. Ms Foy called out the Beaufort Group. An aircraft was requested to attend.
2.00pm	GO Millar and DGO Welsh arrived at the fire ground. CFA Operations Manager Leach and DNRE employee Sanders met in Ballarat and established an IMT at the Glasshouse Office Building to oversee the fire. Over the next half hour there was a rapid build up of trucks mainly from Region 16 arriving at the fire ground. The first aircraft arrived on the scene. DNRE resources were arriving at the scene.
2.30pm	By this time GO Phelan, Operations Officer Britton and DRNE Officer Graham had arrived. A forward operations point was set up at the Linton Fire Station under the command of Graham. At the Pittong-Snake Valley Road, some tankers were lined up along the road waiting for the head of the fire to arrive. Other tankers were in the bush protecting houses. Around this time Snake Valley 'A' tanker attempted to put out spot fires occurring in front of the approaching head on the south side of the Pittong-Snake Valley Road.
2.45pm	The head of the fire reached Pittong-Snake Valley Road, it crowned over the road and continued on the south side of the road. In the process about 12 CFA tankers on the road were engulfed in flames. The Snake Valley 'A' tanker was engulfed in flames in the forest on private land on the south side of the road.
2.53pm	May day message from the Snake Valley "A" tanker.
3.00pm	Mr Anderson of CFA arrived at Linton. By this time there had been a build-up of Strike Teams from Region 15 arriving at the fire including the teams led by GO Lightfoot, DGO Taylor, Lieutenant Pohl and Mr Ray Hadler. Anderson was sent to Snake Valley Sub-base to bring the Region 16 resources under the control of the IMT.
3.06pm	A general broadcast was made setting out the communications plan for the fire.
3.07pm	Request was made to Region 7 Headquarters for a Mobile Communications Van and two Strike Teams to attend Linton. The Geelong Strike Team was assembled over the next hour or so.
3.20pm	Head of fire crossed Possum Gully Road 200–300 metres west of Madden Flat Road.
3.21pm	Radio message that Snake Valley 'A' tanker was out at the fire but one person was injured.
3.25pm	An ambulance had been called to the Pittong-Snake Valley Road. The wind changed to NNE along Madden Flat Road.
3.30pm	A Strike Team led by Mr Hadler began to light up bush on the west side of Madden Flat Road. Over the next 15 minutes approximately 1.2 km of fire line lit up. Around this time the Buninyong Strike team led by GO Lightfoot arrived at the intersection of Possum Gully and Madden Flat Roads. The Strike Teams began burning out the south-west corner of the intersection and down along the extension of Madden Flat Road.

Time	Event
3.45pm	GO Lightfoot's utility was incinerated when bogged in a gold mine in the path of the fire.
3.50pm	Wind changed back to NNW. Buninyong Strike Team and other vehicles at intersection of Possum Gully and Madden Flat Roads are engulfed by flames and went into survival mode. The Hadler burn crossed to the east of Madden Flat Road. The Strike Team abandoned the exercise and left for the Pittong-Snake Valley Roads.
4.00pm	Staging Area established at the Linton Football Ground.
4.10pm	Fire and smoke cleared sufficiently for the Buninyong Strike Team and other tankers in the vicinity to withdraw to the cemetery at Linton.
4.30pm	Group 15 Strike Teams rested and regrouped at the cemetery.
5.00pm	The head of the fire was contained near the northern edge of Linton.
5.40pm	Geelong Strike Team arrived at the Staging Area.
6.00pm	Bulldozers started working along the eastern flank of the fire. A small bulldozer worked north from the cemetery. Later it was joined by a larger bulldozer. These bulldozers were supported by DNRE crews. In the north, a large bulldozer worked south along the eastern flank. It was supported by Strike Teams led by GO Lightfoot and DGO Taylor. When these Strike Teams started supporting the bulldozer they were advised to look after him because it was his first time on a fire.
7.15pm	GO Lightfoot briefed the Geelong and Ballarat Strike Teams on their tasks. The Geelong Strike Team ends up following the bulldozer south along the eastern flank. The Ballarat Strike Team headed north to mop up. When mopping up was completed to go south to assist the Geelong Strike Team.
7.30pm	Geelong Strike Team headed south and Ballarat Strike Teams proceeded north.
8.30pm	Mr Scherger of DNRE met up with the Geelong Strike Team. He suggested they put in a turnaround. The Strike Team was then about 450 metres south of Possum Gully Road. Scherger walked off and a short time later returned and suggested that the control line be diverted to the east to follow the Homestead Track extension. Scharf agreed to this. Geelong City and Geelong West tankers needed to fill up with water. After a discussion between Scharf and Stepnell it was agreed that the tankers would attempt to go to the cemetery along the Homestead Track extension.
8.45pm	The Geelong City and Geelong West tankers stopped while proceeding along the Homestead Track extension. They considered their position. The wind change occurred and a fire front was blown across the tankers. The Geelong City tanker went into survival mode. The Geelong West tanker was incinerated and its crew died.
9.00pm	The DNRE crew followed the fire out to Kelly Road where it was stopped.
10.00pm–11.00pm	Other crews burnt out the area between Kelly Road and Possum Gully Road.

3 December 1998

1.20am	The perimeter of the fire was controlled.

Systems, Policies and Procedures at Time of Linton

6.1 Introduction

6.1.1 The CFA is administratively divided into:

- Areas;
- Regions; and
- Brigades

The structure is shown opposite in Figure 6.1.

6.1.2 Victoria is divided into 11 areas, each being managed by an Area manager who is assisted by an Area Management Team. Areas are further divided into Regions. There are a total of 20 Regions.

6.1.3 Each Region is managed by an Operations Manager. Operations Officers report to, and assist, the Operations Manager.

6.1.4 At regional level firefighters are divided into two categories:

- Career firefighters at permanently staffed stations; and
- Volunteer firefighters divided into groups and brigades.

6.1.5 Within the career firefighting structure there are 5 ranks:

- Fire officer 1;
- Fire officer 2;
- Leading Firefighter;
- Qualified Firefighter; and
- Firefighter.

There are approximately 400 permanent operational firefighters in the CFA and they are located at 21 staffed stations.

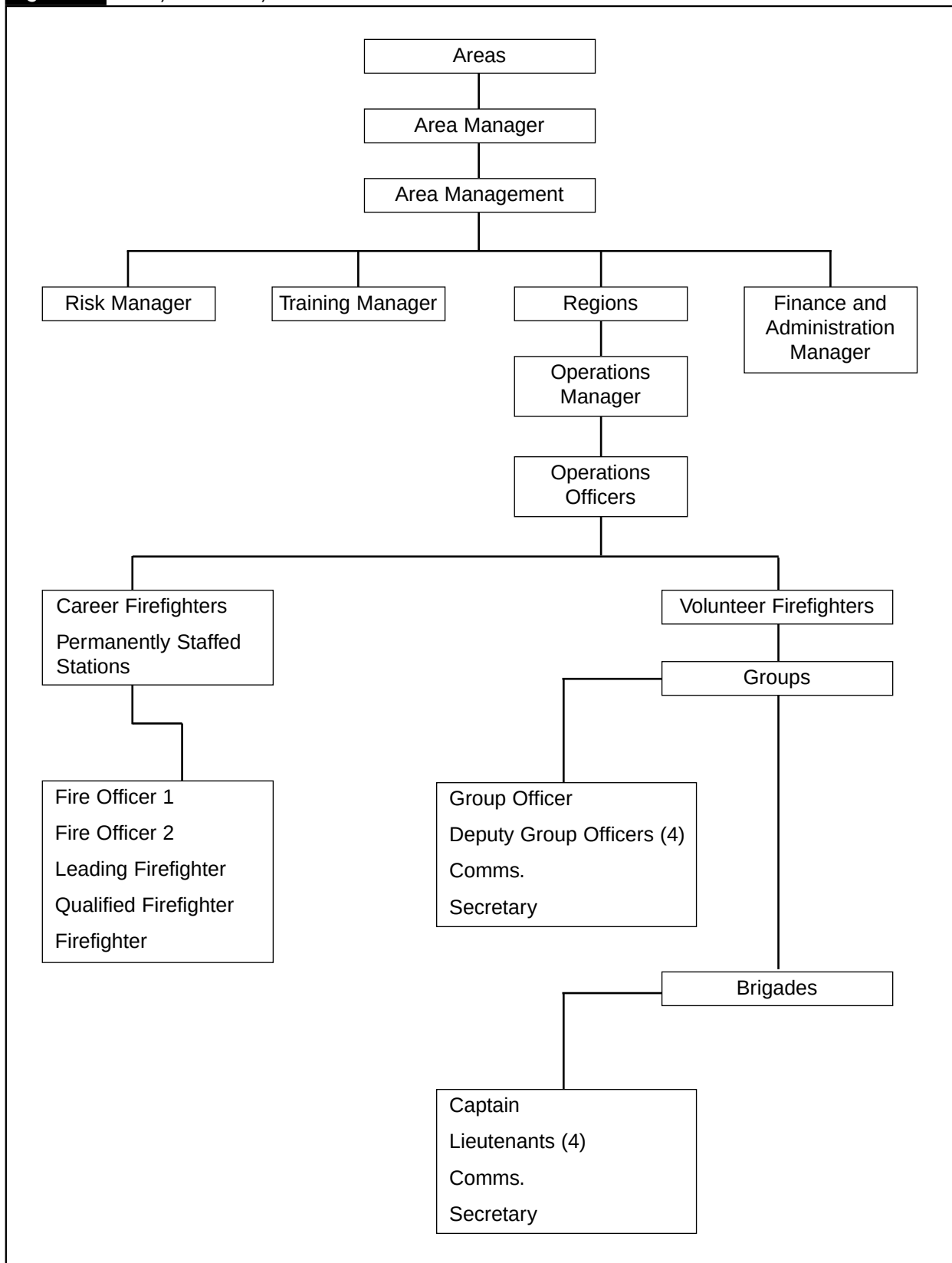
6.1.6 Volunteer firefighters are organised into Groups and Brigades. There are 143 Groups divided into 1218 Brigades in Victoria.¹ The number of volunteers in these Brigades is estimated as 63,020. Of these about 28,330 are considered as active.²

6.1.7 Brigades are organized into Groups, which now perform an important role in training and administration. Groups are controlled by volunteers elected to the following ranks:

- Group Officer;
- Deputy Group Officers;
- Communications Officer; and
- Secretary.

Groups bring together brigades in areas which have similar geographical characteristics and which are often based on local government boundaries.³

Figure 6.1 Country Fire Authority Administration Structure



6.1.8 Brigades are housed in local fire stations. Each brigade has the following elected officers:

- Captain;
- Several Lieutenants having different functions;
- Communications Officer; and
- Secretary.

- 6.1.9** At the Linton fire on 2 December 1998 brigades from two areas were in attendance. These were:
- Midlands-Wimmera; and
 - Barwon/Corangamite
- The structure of the areas attending at Linton is to be found in Appendix A2.1 of this Report.

6.2 Group System

- 6.2.1** The Group system expanded rapidly during the 1940's and 1950's and was the first attempt by the CFA to provide an intermediate operational structure for command and control from grass roots level to the top of the CFA organization.⁴
- 6.2.2** By the 1960's the Group system was firmly entrenched in the CFA. Often Group officers had a significant fireground command role, in addition to their administrative duties. This could involve fireground command and control during a fire.⁵
- 6.2.3** Chief Officer Roche described the operation of the Group system at a fire in the past:
- "The senior officer present was almost automatically the officer in charge of an incident regardless of whether or not the person concerned had the necessary skills and training. Thus, control would normally vest in the Captain of the first Brigade at the scene but would then pass to a Deputy Group Officer or the Group Officer on the arrival of that officer. Furthermore, the officer in charge of the Brigades then (and now) will retain command of his or her own resources."*⁶
- 6.2.4** During the 1970's and 1980's weaknesses in the Group system became apparent. Among the identified problems were:
- Difficulty of controlling resources to larger incidents which crossed Group or Regional boundaries or between private and public land.⁷
 - Difficulty in responding in a timely way to large and evolving fires.⁸
 - Lines of management and spans of control were not adequately defined for larger incidents to be efficiently managed.⁹
 - Very little or no time was spent by Group officers in developing strategies or forward planning.¹⁰
 - Because of the ad hoc delegation of tasks by Group officers on the fireground, there was no clear recognition of the roles and responsibilities of the individuals assisting group officers.¹¹
 - The people elected to positions of authority within a Group or Brigade were not necessarily the most suitable people to be in charge at a fire because their leadership skills were lacking or they were not appropriately trained.¹²
 - Petty rivalries and territorial issues could hamper management of fires where they crossed Group or Regional boundaries;¹³ and
 - Local Brigade structures had the potential to collapse in fast moving fires due to local pressures and emotional issues.¹⁴
- 6.2.5** Another major difficulty with the Group system was identified as:
- "The Group system has also been shown to be incompatible with inter-agency operation. It is impossible effectively to coordinate the resources of two (or more) agencies during an incident, without a system of command and control that effectively supplants the different hierarchies within those agencies."*¹⁵
- 6.2.6** To overcome these problems the CFA and other fire suppression agencies in Australia adapted an American fire management system known as the National Interagency Incident Management System ("NIMS") to Australian conditions.¹⁶ Adaptation was carried out by the Australasian Fire Authorities Council (AFAC) which is composed of 24 fire suppression agencies around Australia including the CFA and DNRE. Work began in the late 1980's and

by the early 1990's the Australian Inter-service Incident Management Systems Incident Control System ("AIIMS-ICS") had been adopted by both the CFA and DNRE.¹⁷

- 6.2.7** The system of AIIMS-ICS is considered in detail in Section 6.3 of this Report. While AIIMS-ICS should have been the management system used by the CFA and DNRE at the Linton fire on 2 December 1998, the fact is that at least some parts of the fire were not managed under this system. At this point therefore, it is appropriate to consider to what extent at this fire on that day there was a departure from AIIMS-ICS management principles.
- 6.2.8** On 11 March 1999 a Committee consisting of various officers and experts associated with the CFA and DNRE produced a report entitled "*Report of the Operations Review of Linton Fire/Midlands Fire # 15 on Wednesday 2nd December 1998.*" Many of the individuals on that Committee gave evidence before these Inquests.¹⁸ The report was based on the evidence which was available to the committee shortly after the fire and it suffered from significant shortcomings in many areas; in particular, that additional witness statements and cross-examination of witnesses involved in the Pittong-Snake Valley Toad burnover, the Snake Valley A entrapment, the Hadler backburn, the Lightfoot vehicle incineration, the Buninyong Group burn out near the intersection of Madden Flat and Possum Gully Road. Also the expert evidence of Mr Cheney, Dr Burrows and additional evidence of Dr Tolhurst and Mr Packham was not available for consideration by the Committee. The Committee also did not have, it seems, access to various video and audio evidence.
- 6.2.9** Notwithstanding these limitations, there were many areas where the analysis carried out by the Committee was extremely helpful when interpreting and considering the evidence that subsequently came out in these Inquests. In particular, the Committee's assessment of the incident management system was helpful:
- Sector and division boundaries and sector and division commanders were not clearly understood by all personnel in the chain of command.
 - The fire crossed the CFA Region 15/16 boundary. This influenced the actions of some fire-ground commanders and may have detracted from the overall management of the fire.
 - It was observed that some Deputy Group Officers were working the fire within a Group structure rather than within the Incident Control System structure. Persistence of the "Group" structure detracts from the implementation of the Incident Control System.
 - The Western Division Commander did not meet with the Operations Officer and consequently did not gain an overall appreciation of the strategies being used on the whole fire. The Operations Officer did have a face to face briefing with the Eastern Division Commander and he relayed and received messages via the Snake Valley sub base.¹⁹
- 6.2.10** There was a great deal of evidence at these Inquests to support those observations and to lead to the conclusion that the administration of the Linton fire was divided into:
- CFA resources north of the Pittong-Snake Valley road being allocated and controlled by Region 16 through the Beaufort and Westmere Groups;
 - CFA resources south of the Pittong-Snake Valley road be allocated and administered by Region 15 through the Grenville and Buninyong Group system;
 - From the Forward Operations Point at Linton to Ballarat the resources were controlled under the AIIMS-ICS system, but such control did not extend to Region 16 resources; and
 - Throughout all the areas of the fire DNRE resources were controlled by DNRE personnel, a parallel system of accountability supposedly under the AIIMS-ICS system through Mr Graham at the Forward Operations Point at Linton.
- 6.2.11** Prior to the adoption of the AIIMS system the CFA had produced a manual with the title "*Operation – Tactics and Administration in the Field Vol. 1 – Operation Manual 1*"²⁰ which set out the procedures and tactics to be adopted at fires attended by the CFA. In short, it described the operation of a Group System fire.
- 6.2.12** This document is used here as a basis of setting out the principles on which the CFA expected Brigades, Groups and regions to suppress fires. The principles extracted in that way are then compared with key evidence given in these Inquests.

- 6.2.13** Under this system once a fire was reported a crew would be dispatched from the nearest available Brigade fire station. The Captain of the relevant Brigade would nominate one member of the crew as leader. The crew would search out the place where the fire was burning and the crew leader would have to make an assessment of the fire and immediately report to the Captain by radio or runner.²¹
- 6.2.14** The report sent back from the fire-ground might be quite simple, setting out:
- Map reference;
 - That the fire was going;
 - The area already burnt.²²
- 6.2.15** This information was to be relayed to the following:
- Group officer;
 - Flanking Groups;
 - Regional officer;
 - Zone officer; and
 - CFA Headquarters.²³
- 6.2.16** After receiving the first report the Captain of the Brigade should:
- have done a recognizance of the fire;
 - made his appreciation of the fire;
 - determined whether additional resources are required; and
 - if so, he should have set up a Brigade Control Point.²⁴
- 6.2.17** The Brigade Control Point is described as:

"8.2.1

Brigade Control Point Captain or Officer-in-Charge

This rations Manual 1" set out how assessments (called appreciations) were expected to be determined by the relevant officers:

"APPRECIATIONS

GENERAL:

An appreciation may be either of two kinds –

- (a) A deliberate review of a fire situation, potential or actual, in which there is time to commit thoughts to writing; or*
- (b) A quick size up of a situation in which speed is the essence. This is usually a mental process.*

In both cases the vital factor is an accepted and much practised method. It is essential in both cases that no factor is overlooked and the process is completely automatic and logical.

Sequence:

The accepted sequence is –

- (a) The Aim.*
- (b) Consideration of all factors which affect the attainment of this aim.*
- (c) Courses open to the fire commander and the fire.*
- (d) The development of a simple plan.*

4.1.1 The Aim:

The aim should be capable of being stated in not much more than a sentence.

e.g. To suppress a fire that may occur in the Grampians and threaten the area to the south.

4.1.2 Factors:

All factors must be considered but the most important ones are listed below –

- (a) *Description and extent of fire.*
- (b) *Own strength (equipment including aircraft).*
- (c) *Climate.*
- (d) *Weather –*
 - (i) *Humidity*
 - (ii) *Temperature*
 - (iii) *Wind, including strength*} *Fire Danger Index*
- (e) *Drought Index.*
- (f) *State of fuel (curing).*
- (g) *Lives and property in danger.*
- (h) *Time and space.*
- (i) *Administrative situation –*
 - (i) *Communications*
 - (ii) *Roads*
 - (iii) *Water availability*
 - (iv) *Hygiene*
 - (v) *Feeding*
 - (vi) *Relief crews*
 - (vii) *Heavy equipment, bulldozer, water carriers, etc.*
 - (viii) *Et cetera.*
- (j) *Topography.*

Each factor when considered must automatically produce a deduction. It may well be a simple deduction but it is vital that it be registered in the mental process; e.g.,

Factor: The fire is small and in inaccessible country.

Deduction:

- (i) *Therefore I must either cut a trail into it and use hand tools.*
- (ii) *Or anticipate the best point to meet and suppress it.*
- (iii) *In either case I must prepare to suppress spot fires down wind.*
- (iv) *(i) and (iii) seem the better ideas for these reasons, i.e. the best course open.*

4.1.3 Courses Open:

Here you must treat the fire as an enemy, e.g. changes of wind may produce catastrophic results, and these must be anticipated. In considering your own course of action, review carefully your deductions and your considered opinion of just how the fire may act. These considerations or deductions should lead logically to a simple plan.

4.1.4 The Plan:

The plan of action should be simple, clear, definite and practical. Maps and diagrams should be used to attain this Aim. In formulating the plan, the Principles of Operations should be applied, e.g.

- (a) *Am I acting with speed?*
- (b) *Are my forces sufficient to allow concentration or do I need more.*
- (c) *Have I a reserve to allow flexibility.*
- (d) *Does my plan allow me to fight in depth.*
- (e) *Et cetera.*

N.B. Remember we are all prone to say “but I do all this anyhow.” Be sure that you do. Many Officers consider factors without having an aim or knowing what they really want to accomplish. This is a time-tested procedure.

*Know what you want to do – The AIM.
then – The factors and deductions.
how – The Courses open.
then – The Plan checked against the Principles.*

When done mentally it should not be a long and tedious affair and to a practised and experienced man should not take more than a few minutes.

It is merely a method of ordering the thoughts we all have so that nothing is forgotten.

WHEN THE PLAN IS MADE:

If written it should be so clear, brief and definite that a Staff Officer can write the detailed orders to commit the forces to the fight.

If a mental process – the plan should be so clear in your mind as to allow the issue of definite verbal orders.

REMEMBER TO BE A COMMANDER IN ANY FIGHT YOU MUST BE WELL PRACTISED IN THIS APPRECIATION TECHNIQUE. YOU NEED NOT SLAVISHLY FOLLOW ANY SYSTEM OUTLINED BUT A SUGGESTED DRILL FOR THINKING, AND LAY OUT FOR WRITING IS APPENDED.”²⁵

6.2.18 The “drill” is a helpful document in guiding those seeking an appreciation of the fire they are to suppress. It set out practical questions to be asked to obtain an understanding of the task confronting the fire fighters. It also gives a simple risk assessment. The drill is set out in Appendix A2.2 to this Report.

6.2.19 It was contemplated that “the plan” could be reduced to writing and a specimen written plan was provided. The specimen plan is to be found in Appendix A2.3 to this Report.

6.2.20 Thus by the time a Brigade Control Point was set the Captain who was the Commander at that stage would have had a good understanding of the fire in his area and would have formulated an action plan. If time permitted these matters would have been reduced to writing.

6.2.21 If the Group system was working as anticipated by the Manual:

The Group officer will already have put in place plans to supply support to the Brigade. This would have occurred as a result of the Group officer’s knowledge and experience and an assessment of the Fire Danger Meter;²⁶ and

The Captain will also have planned to and acted upon controlling spot fires down wind of the fire front.²⁷

6.2.22 When the fire gets beyond the resources of the Brigade Captain “Group Tactics” are employed. What was expected was that:

“During the period of this fire fight the Group Officer, by means of information gained from his own experience, Fire Danger Meter and reports from the Captain, will have made his own appreciation and: –

(a) Checked fire report by any available means and given radio warning where applicable.

(b) Alerted the Regional Officer and flanking groups, particularly those in the path of the fire.

(c) Alerted a Deputy Group Officer to be prepared to set up a Forward Group H.Q., and advise as to its location.

(d) Dispatched all brigades within 10–15 minutes of fire if they have not already gone.

(e) Sent mobile radios to direct units and to give a “Sitrep” of fire to Group H.Q.”²⁸

6.2.23 Then when the situation is reached that the Group Officer:

“When from information or other reasons (pre-planning, experience etc.) he considers the Captain may not hold the fire, he will: –

- (a) *Nominate nearest Deputy Group Officer to set up Forward Group H.Q. and notify Group H.Q. of its location, and if necessary, arrange to set up Group H.Q.*
- (b) *Alert all other brigades and start support procedure.*
- (c) *Send for assistant base operators.*
- (d) *Notify Regional Officer, Forest Officer and local disaster organization (where applicable).*
- (e) *Where applicable send Shire pumps and tankers to Forward Group H.Q.*
- (f) *If necessary, arrange aircraft recce. Notify Regional Officer before take-off.*
- (g) *Mark probable course of fire on map and decide where and what support will be needed.*
- (h) *Arrange R.V. for support forces and send them to it.*
- (i) *Send sitrep at least every half hour.*
- (j) *Plan to deal with wind changes.*
- (k) *Alert 2nd D.G.O. to act as additional Forward Group H.Q. if needed.*
- (l) *Ask Regional Officer for any other support likely to be needed.*
- (m) *Ask local disaster organization for any administration requirements.*
- (n) *Use aircraft to locate danger spots for mopping up.*
- (o) *Send food and drink to Forward Group H.Q. for dispatch to crews.*
- (p) *Arrange roster of brigades for mopping up.*
- (q) *Notify families of crews likely to be delayed at fire.*
- (r) *Inform everyone as soon as fire is under control.”* ²⁹

6.2.24 By this stage (which should still be within the first 30 minutes of the fire) the Group Officer should have taken control and should be directing forces including those at the fire, those moving to the fire and those about to move to the fire. The Group Officer will also have made predictions by plotting the fire.

6.2.25 The Group Officer would then:

- “(a) *Set up a Forward Group H.Q. A Deputy Group Officer will command this H.Q. unless the Group Officer decides to take command himself, in which case he will send a Deputy Group Officer to Group Headquarters.*
- (b) *Report the situation to the Regional Officer and Group Officer “B” Group.*
- (c) *Group Officer “B” Group on his own initiative or on instructions from Regional Officer sets up a Forward Group H.Q., at a convenient position near the Group boundary. Officer in Charge Forward Group H.Q. should then do a reconnaissance, make an appreciation, and decide just how he is going to control the fire should “A” Group be unable to hold it. If requested, he may decide to send some of his forces to backburn and/or knock down the head of the fire. He must not forget to have forces in depth to deal with spot fires.”* ³⁰

6.2.26 It is contemplated in this example that the fire could pass from the area of Group A to the area of Group B. Once the fire passes from the area of one group to the other the system contemplated:

“If Group “A” fails to hold the fire then the flanks must be worked hard and control lines set up on the flanks so as to make Group “B’s” task that much easier.

If commanders use foresight, speed and concentration, all of this action normally should have been taken by the end of the first thirty minutes or not much later.

This will only be accomplished if:-

- (a) *the pre-planning is of a high order.*
- (b) *all commanders act with speed and are deliberate and decisive.*
- (c) *sufficient equipment is immediately concentrated to the tasks.*

- (d) *sufficient information is sent to all concerned to allow decisions to be made and action to be taken.*
- (e) *when backburning is essential or desirable it is done with speed but in a deliberate and planned manner (refer to Section 10)."*³¹

6.2.27 Once the fire passes between the areas of Group A and Group B it requires the use of major tactics. This meant:

"At this juncture with Group "A" and Group "B" fighting to get control of the fire the Regional Officer will have already made arrangements with the Zone Officer and/or Chief Officer to set up a Forward Regional H.Q. (Or alternatively the Chief Officer may have ordered some other officer to carry out this task).

He will have already been in touch with the Telecom Engineer, Regional Police Co-ordinator, Forest Officer, etc. When relieved from his own Headquarters will set up his Forward Regional H.Q. and take the following action: –

- (a) *Commit his regional spares if requested.*
- (b) *Make arrangements to have communications as shown in the diagram on page 11–5.*
- (c) *Make arrangements to have communications as shown in the diagram on page 11–5.*
- (d) *Ask the Chief Officer for a package post from Red Cross and St John ambulance.*
- (e) *Set up H.Q. to receive and commit the Support Forces.*
- (f) *Keep in continuous touch with Zone and CFA H.Q.*
- (g) *Make sure that Group "B" get sufficient forces to control the fire. In doing this he must be in continuous contact with neighbouring Regional Officers if they are involved.*
- (h) *Make sure that all heavy equipment such as water carriers, bulldozers etc. are on the move and are allotted where requested or needed.*
- (i) *Relieve Group H.Q. and Forward Group H.Q. of all possible administration, eg:*
 - (i) *Reception and logging of support forces.*
 - (ii) *Checking out support forces.*
 - (iii) *Dissemination of weather reports.*
 - (iv) *Feeding, bedding, medical etc. (Red Cross).*
 - (v) *Making sure that no part of the forces at the fire front are surprised or caught by fire behaviour due to weather changes.*
 - (vi) *Telecom communications.*
 - (vii) *Supply of heavy equipment.*
 - (viii) *Provision of veterinary advice re destruction of injured stock.*
- (j) *Arrange to have the Police Co-ordinator and the Telecom Engineer alongside him in H.Q. if the Chief Officer has not set up a Field H.Q.*
- (k) *Allot group Boundaries if necessary (a natural feature or road).*

*In doing this he must at all times work through the Group Officer even though his Forward Regional H.Q. may be nearer to Forward Group H.Q. than Group H.Q. He will only deviate from this policy if the Group Officer requests it or it is impracticable, and then he must keep the Group Officer fully informed of action taken with Forward Group H.Q."*³²

6.2.28 An assessment of the requirements of the fire was continually made during its course. If it appeared to the Chief Fire Officer that it was necessary he would order the setting up of a "Field Headquarters" in the fire area. In these circumstances the Officer in Charge would normally be an Assistant Chief Officer who would:

- "(a) Take overall command as directed by the Chief Officer.*

- (b) *Take all possible administrative loads from the Forward regional H.Q., eg. (d), (e), (f), (h), (j), (i) of Forward Regional H.Q.*
- (c) *Set up communication as shown on page 11-5.Support Forces.*
- (e) *Maintain constant and close liaison with the Chief Officer.*
- (f) *Make the dissemination of weather information one of his special and priority jobs.*
- (g) *Where the fire had been controlled allot tasks for mopping up. This must be done with all speed.*
- (h) *As Field Commander do a personal reconnaissance and satisfy himself that the blackout is complete and in depth.”³³*

6.2.29 This descriptive framework of the operation of the Group system forms a background to the analysis of the command structure at various times and at various places at the Linton fire on 2 December 1998. It is intended to enable conclusions to be drawn whether the command structure was in accordance with AIIMS-ICS or the Group system.

6.2.30 In the next section of this Chapter a description and main features of the AIIMS-ICS system will be considered.

6.3 AIIMS-ICS

6.3.1 Introduction

6.3.2 The purpose of this section of the Report and paragraph 6.4 is to set out the principles of the AIIMS-ICS system of work as evidenced by the documentation, particularly in Exhibit 21U which is the “*Incident Control System – The Operating System of AIIMS*” and Exhibit 52D which is the Multi Agency Incident Management CFA/DNRE Agreement 1997/1998. In addition there was considerable evidence given by officers of the CFA and DNRE as to their understanding of the system and its practical operation.

6.3.3 The Incident Control System – The Operating System of AIIMS’³⁴

6.3.4 In the early 1980’s the Australian Association of Rural Fire Authorities (“AARFA”) was formed. The charter of AARFA includes the promotion of effective rural fire management throughout Australia; to establish national policies on all matters concerning rural fire management; and encourage coordination of fire research, fire education and fire training.³⁵

6.3.5 AARFA developed the Australian Inter-service Incident Management System (“AIIMS”) from the National Inter-agency Incident Management System (NIIMS), which has operated in North America.³⁶

6.3.6 AIIMS is designed to promote effective joint operations through the use of common terminology and a structure which provides for appropriate communication between organisations at all levels of the incident, whilst maintaining the integrity of the chains of command and information systems within the participating agencies. The application of AIIMS to multiple agency incidents is subject to legislation and policies applicable to individual agencies participating in the management of the incident.³⁷

6.3.7 The Incident Control System (“ICS”) is a structure of delegation to ensure that all vital management and information functions are adequately performed. ICS is divided into four functional areas – control, operation, planning and logistics. During the initial response phase of an incident the Incident Controller may perform all of these functions. As the incident grows, and the management functions become more demanding, the functions of operations, planning and logistics are delegated. The operations function is normally the first function delegated.

6.3.8 The Incident Controller and the person responsible for each section or sections are referred to as the Incident Management Team (“IMT”).³⁸

6.3.9

Exhibit 21U is a Manual entitled *“Incident Control System – the Operating System of AIIMS”* which sets out two of the principles, upon which the ICS is based, namely management by objectives and span of control. It states:

“(i) Management by objectives – is a process of consultative management where the management team determines the desired outcomes of the incident. These outcomes or objectives are then communicated to those involved so they know and understand the direction being taken during the operation.

(ii) Span of control – is a concept which relates to the number of groups or individuals which one person can successfully supervise.

At emergency incidents, the environment in which supervision is required can rapidly change and be dangerous. A maximum of (five) reporting groups or individuals is considered to be the optimum, as this maintains a supervisor’s ability to effectively task, monitor and evaluate performance.

The supervising officer needs to be able to quickly receive reports, evaluate information, communicate orders, and mobilise and redeploy crews at the same time as overseeing their safety and welfare. Responsibility for more than five teams or persons begins to jeopardize the safety of personnel and the effectiveness of the operation.”³⁹

6.3.10

The AIIMS-ICS Manual also sets out the functions and responsibilities of the Incident Management Team.

“(i) Incident Control

An Incident Controller is designated by the responsible agency to have overall management of the incident.

The Incident Controller prepares objectives that in turn will be the foundation upon which subsequent action planning will be based. It is the Incident Controller’s responsibility to approve the Incident Action Plan, and approve all requests for the ordering and releasing of personnel and resources.

(ii) Operations

The Operations section is established to combat the incident and is responsible for control of operations in accordance with the Incident Action Plan.

The Operations Officer is responsible to the Incident Controller for the management and activities of the Operations Section.

(iii) Planning

The Planning section is established to support the incident with responsibility for:

- collection and analysis of incident information*
- prediction of incident behaviour*
- maintaining a register to record the location and tasking of*
- resources, and*
- preparation of alternative strategies to control the incident.*

The Planning Officer is responsible to the Incident Controller for the management and activities of the Planning section.

(iv) Logistics

The Logistics section is established to support the incident, with responsibility for providing:

- facilities*
- services, and*
- materials.*

The Logistics Officer, is responsible to the Incident Controller for the management of the Logistics section.”⁴⁰

- 6.3.11** To effectively carry out their statutory fire fighting responsibilities, the CFA and DNRE have entered into a Multi-agency Incident Management Agreement (“MAIM Agreement”). The 1997–98 agreement was in force at the time of Linton.⁴¹
- 6.3.12** In the section of the AIIMS-ICS Manual dealing with “Introduction to AIIMS”, “Action Planning” is considered.⁴² The Incident Action Plan is a strategy document developed by the IMT. It contains objectives and strategies along with specific time frames for the accomplishment of stated goals. When approved by the Incident Controller, it should be distributed to the various levels of the ICS structure and to supporting agencies.
- 6.3.13** The Incident Action Plan is a critical document. It consists of sections, which are stand-alone. Only appropriate parts of the plan need to be circulated to the officers responsible for its implementation. The plan should describe the overall operational objectives and strategy, ensure continuity of control operations, provide effective use of resources and identify total anticipated resources.⁴³
- 6.3.14** “The key to the operational success of an incident revolves around an ability to effectively implement the incident control system.”⁴⁴ The incident control system involves the creation of a structure for the purposes of managing the incident. Occupants of the various functional roles within the structure may come from one or more agencies. For the purposes of the management of the incident, it is the functional role within the incident control system that is important, rather than the particular position a person may occupy in his or her home agency.
- 6.3.15** The AIIMS-ICS Manual states that the “use of ICS principles and terminology for multiple agency incidents is a distinct advantage, with the potential for confusion being substantially eliminated.”⁴⁵
- 6.3.16** The Manual also highlights “Further benefits of AIIMS and ICS”. These benefits include:
- “(iii) Flexibility
- “ICS will accommodate a variety of incident types, sizes and operational environments. Particular functions and operational elements are activated only at the time and to the extent dictated by the operational requirements of each specific incident.
- ICS applies from the small to the very large incidents and provides for a logical and smooth expansion of structures and functions as the response to the incident grows.”⁴⁶
- 6.3.17** The Incident Controller is normally appointed by the agency with the legislative responsibility for the overall management of the incident. As incidents develop and additional resources are allocated, the officer undertaking the incident controller role may be relieved by another incident controller from that or another agency. It is said that the principal functions of the Incident Controller are:
- “ – CONTROL
- COMMAND, and
- COORDINATION OF ALL ACTIVITIES AT THE INCIDENT.
- The objective of the IMT under the direction of the Incident Controller is to combat the incident safely and efficiently, minimizing the threat to life and damage to property.”⁴⁷
- 6.3.18** Delegation of the Incident Controller’s responsibilities depend upon the type of incident, location and resources required. “At all times, however, the Incident Controller retains the overall responsibility for management of the incident and for appointment and supervision of the Incident Management Team.”⁴⁸
- 6.3.19** The responsibilities of the Incident Controller are set out at paragraph 2.2 of the Manual. These include:
- “(i) Assume control.
- “The assumption of control of an incident by the Incident Controller is of vital importance. The incident scene can be very confusing during the initial response phase and attending personnel need to know who is in control of the incident.

Clear identification of the Incident Controller can reduce this initial confusion. Some methods for identifying the Incident Controller are:

- Tabard entitled 'Incident Controller'*
- Helmet, insignia, arm bands and vehicle, and*
- Radio call signs using the title 'Incident Controller'.*

Tabards for all members of the Incident Management Team and other officers in the ICS are important for the identification of officers at an incident.

Tabards are function specific and are not related to rank, structure, or the chain of command of agencies.

The Incident Controller needs to establish a focal point for control at the incident. Control points are normally located near the incident in the early stages, but may be relocated to control centres in towns where more permanent facilities and services are available. Control points at incidents need to be identified by a flag, vehicle or facility recognisable to all responding personnel.”⁴⁹

- 6.3.20** Under the heading “(ii) Review the Incident Action Plan” the AIIMS-ICS Manual emphasises the importance of the IMT controlling the incident by continuously monitoring, reviewing and updating the Incident Action Plan.

“Action planning is continuous and plans are constantly under review, taking into account the current situation reflected in situation reports.

Regular meetings between the Incident Controller and the Incident Management Team (established) or crew leaders will assess the effect of previous strategies and may develop new ones.

For rapidly developing incidents these meetings may be half hourly, or for large incidents they may be every 6 to 12 hours. The duration of each meeting, its location and frequency, is determined by the Incident Controller with the assistance of a Planning Officer (if appointed).

The Incident Action Plan should be documented for incidents that have a potential for extended involvement. During rapidly escalating incidents it can be extremely difficult for a plan to be prepared. Nevertheless, a plan needs to be prepared in case the incident increases in complexity or becomes the subject of an inquiry, at a later stage.”⁵⁰

- 6.3.21** The Incident Controller must also approve the Incident Action Plan to combat the incident. The objectives, strategies and tactics will reflect the policy or aims of the combatant authority.⁵¹

- 6.3.22** A further function of the Incident Controller is identified as “Allocate Tasks”:

“Once the strategy is in place to combat the incident, tasks are allocated by the Incident Controller. The tasks need to be specific with a time restraint. The resources required for each task are identified and placed under the command of a responsible officer. Status reports are required from the officer undertaking the task. The Incident Controller will determine the frequency and detail in these reports.”⁵²

- 6.3.23** The Incident Controller is responsible to “Ensure safety of all personnel”. The Incident Controller is responsible for “the safety of combating crews, supporting personnel and the public who may be involved in the incident. Within each agency, safety, health and welfare must be continually stressed by managers. All personnel have a responsibility for their own welfare, their workmates and the people they may be supervising ...”⁵³

- 6.3.24** The ICS system provides for the appointment of a Deputy Incident Controller to assist the Incident Controller.

“The need for this is determined by the complexity of the incident and the demands placed upon the Incident Controller. More than one deputy may be appointed. The Deputy Incident Controller does not have any ‘in line’ control responsibilities and reports directly to the Incident Controller.”⁵⁴

- 6.3.25** Chapter 3 of the AIIMS-ICS Manual specifies the responsibilities of the Operations Section of the IMT.
- 6.3.26** The Operations Officer is responsible to the Incident Controller for combating the incident.
- “Operations will be conducted in accordance with the Incident Action Plan developed by the Incident Management Team and approved by the Incident Controller.*
- The Operations Officer’s strategies and specific tactics will be developed from the incident objectives included in the Incident Action Plan. Operations within ICS are accomplished by resources (ie. Strike Teams, Task Forces or single resources), normally working under the direct supervision of a Division or Sector Commander. Specific tactics will be directed by the commanders who report to the Operations Officer via the chain of command. Division and Sector Commanders are responsible for the supervision of all resources allocated to them.”⁵⁵*
- 6.3.27** In relation to the issue of supervision, the “span of control” is regarded as the:
- “Practical limit to the number of personnel or organisation units one person can direct successfully. Exceeding the span of control is a common failure under emergency conditions.*
- A factor of five to one with span of control has been established for use within ICS. An incident will normally have no more than five sectors to a division. During an initial attack when an officer notes that the span of control is or soon will exceed five to one ration, a sector organisation should be designated. Similarly, when it is noted there are, or soon will be, more than five sectors, a division organisation should be established.*
- Division and Sector Commanders must be able to exercise close supervision over their resources. In some cases this will mean having them in sight at all times. In other circumstances, distances of up to several kilometres may be acceptable, depending on the situation.”⁵⁶*
- 6.3.28** The AIIMS-ICS Manual also establishes the need for “Resource Identification”:
- “At any incident, all resources must be clearly identified, especially where the incident is large or complex or there are many resources allocated.*
- The identification system used must be standard across the incident.”⁵⁷*
- 6.3.29** The benefits of resource identification are said to be assisting in the location of resources or groups of resources; organising resources into the incident control structure and the chain of command, assisting and controlling communication; provides for clear directions and orders to be given at change-over times; Resources can be identified by the tasks or roles they are fulfilling; An effective identification system can reduce confusion and assist managers to effectively allocate and direct resources at the incident.⁵⁸
- 6.3.30** Under the heading “Tactics” the AIIMS-ICS Manual states:
- “All specific incident tactics will be accomplished in accordance with appropriate agency procedures and safety measures. In general, in a multiple agency incident, resources of the same agency will be managed within divisions or sectors which are under the supervision of responsible personnel from that agency. Initially, however, that may not be possible, and may also not be recommended from an overall incident control standpoint.*
- Resources not working at the incident (unserviceable) will be under the administrative supervision of the Logistics section.*
- The structural chart developed by the Incident Management Team will depict the personnel responsible in a major incident.*
- The Incident Controller will provide an Incident Action Plan which will be the source of instructions and information for briefing arriving personnel.”⁵⁹*

- 6.3.31** The AIIMS-ICS Manual also covers the functions and responsibilities of the Operations Officer. Operations Officer's responsibilities commence with obtaining a briefing from the Incident Controller. They involve:
- Developing the operations portion of the Incident Action Plan.
 - Briefing and allocating operations personnel in accordance with the Incident Action Plan.
 - Managing and supervising operations at the incident.
 - Establishing and maintaining assembly/staging areas.
 - Determining need for and request additional resources.
 - Assembling strike teams/task forces from allocated resources.
 - Reallocating or releasing strike teams/task forces allocated to Operations section.
 - Initiating recommendations for the release of resources.
 - Reporting special incidents/accidents.
 - Maintaining a log of activities.⁶⁰
- 6.3.32** Central to the detail of the Operations Officer's responsibilities is obtaining a copy of the Incident Action Plan, discussing that plan with subordinates, developing plans for each division/sector and making resource allocations for each division/sector. The Operations Officer must:
- Identify key personnel appointed to the incident, eg. Division and Sector Commanders,
 - conduct briefing meeting with the above on Incident Action Command,
 - make sure they have copies of the plan relevant to their requirements, and
 - establish reporting requirements concerning the execution of the plan.⁶¹
- 6.3.33** A further identified functional responsibility of the Operations Officer is to "*Report special incidents/accidents.*" This involves the following:
- Obtain information from:
 - subordinates
 - personal observations
 - ground or air personnel.
 - Information required:
 - nature of event
 - location
 - magnitude
 - personnel involved
 - initial action, and
 - subsequent action
 - Submit report to Incident Controller.⁶²
- 6.3.34** The Manual also deals with the roles and responsibilities of commanders and leaders. The Divisional Commanders are under the direction of the Operations Officer and "*are responsible for the appropriate portion of the Incident Action Plan.*"⁶³ Amongst the responsibilities of the Divisional Commanders is:
- Reviewing allocating and modifying specific work tasks
 - Reporting to Operations Officer when:
 - Incident Action Plan is to be modified
 - Additional resources are needed
 - Surplus resources are available
 - Hazardous situations are present, and
 - Significant events occur.⁶⁴

- 6.3.35** Sector Commanders are responsible for implementing their portion of the Incident Action Plan *“for reporting on progress of operations, and the status of resources within the sector.”*
- 6.3.36** Strike Teams/Task Force Leaders are:
“Responsible for seeing that duties allocated to their strike team or task force are efficiently carried out. These leaders report to their Sector Commanders and their report should include:
 – Work progress
 – Resource status
 – Any significant changes in the situation, and
 – Injuries.”⁶⁵
- 6.3.37** The Planning Section of the IMT is:
“Responsible for the collection, evaluation and dissemination of information about the incident. The Planning section maintains:
 – Information on the current and forecast situation
 – Information on the status of resources allocated to the incident
 – Responsibility for the preparation and documentation of incident action plans.”⁶⁶
- 6.3.38** The Planning Section has four functions (or units) and may also have a number of technical specialists. The four functions are identified as:
 (i) situation
 (ii) resources
 (iii) management support, and
 (iv) information service.⁶⁷
- 6.3.39** The Planning Officer's role and responsibilities vary with the type and stages of the incident. There are, however, a number of generalisations, which can be made. In relation to the Planning Officer's interaction with the other major ICS functions:
“(ii) Operations Officer
Current/projected situation
Both officers develop their own views of the situation and projected situation. These views are consolidated as required. Operations provides feedback on the current strategies being implemented and assist in the development of alternative future strategies.
Resources
Operations keep planning up to date changes to resource status and development.”⁶⁸
- 6.3.40** The Planning Section is also responsible for conducting the fire situation analysis in accordance with a form:
“The Fire Situation Analysis Form uses the following processes:
 – Description of the situation
 – Consideration of alternatives
 – Analysis of effects of each alternative, and
 – Recommendation, review and approval of the decision.”⁶⁹
- 6.3.41** An important function and responsibility of the Planning Section is to develop an Incident Action Plan. This is undertaken by the Planning Officer in conjunction with the Operations Officer. The Planning Officer must:
“Ensure the Incident Action Plan has been prepared, obtain the Incident Controller's approval for the plan and distribute copies and part copies of the plan appropriately, and assist in briefing personnel on their role on combating the incident.”⁷⁰
- 6.3.42** The Planning Officer's two *“major responsibilities in action plan preparation are: Conducting the planning meeting, and Coordinating the preparation of the Incident Action Plan.”⁷¹*

6.3.43 The AIIMS-ICS Manual also deals with the Logistics Section:

“Major Functions of the Logistic Section.

The Logistic section has eight major functions. These are fulfilled as required to satisfy the needs of the incident. They are –

- (i) supply*
- (ii) facilities*
- (iii) ground support*
- (iv) air support*
- (v) communications, including producing the communications plan*
- (vi) medical*
- (vii) catering, and*
- (viii) finance.”⁷²*

6.3.44 The Main Responsibilities of the Logistics Officer are:

Participate in preparation of Incident Action Plan ...

Ensure Incident Communications Plan is prepared.”⁷³

6.3.45 Chapter 6 of the AIIMS-ICS Manual deals with “Incident Action Planning”. It states that the most “productive technique” is for each Section to determine:

“...its intentions and then decide who needs to know about it. The most productive technique for this communication is the Incident Action Plan”⁷⁴

6.3.46 Chapter 6 defines three types of format for Incident Action Plans. The “Type 2” Incident Action Plan for “medium – large incident” is a four page document. The form provides for a map identifying the origin of the Incident Control Centre’s control points, assembly areas, staging area, ...control lines, fire breaks completed and not-completed, sector boundaries and division boundaries. It provides for the formal recording of the “operational structure” and the identification of people occupying the various functional roles, including Incident Controller, Planning Officer, Operations Officer, Logistics Officer, Division Commanders, Sector Commanders reporting to specific Division Commanders, Task Force/Strike Team Leaders reporting to Sector Commanders and so on. The document further provides for the recording of a “resources summary” identifying resources ordered, arrival and allocated task.

6.3.47 The sample Incident Action Plan for a Type 3 “large incident” contains similar details to that referred to in respect of the Type 2 Incident Action Plan. This Incident Action Plan will “be prepared in writing and the relevant parts distributed to all sections and assisting agencies.”⁷⁵

6.3.48 Under the heading “Action Planning Responsibilities” the AIIMS-ICS Manual defines the responsibilities of those from the Incident Controller down the incident structure. Essentially, all those occupying functional roles in the incident chain of command are responsible for implementing their tasks in accordance with the Incident Action Plan. In addition, they are responsible for providing information up the line (the incident chain of command) to develop the Incident Action Plan for the next operational period.

6.3.49 The existence of a Safety Officer, who participates in planning meetings and reviewing Incident Action Plans, is also referred to in the Manual.⁷⁶ Evidence was given that the appointment of a Safety Officer under AIIMS is in the discretion of the Incident Controller.⁷⁷ No safety officer was appointed to the Linton fire.

6.3.50 Some key elements of the AIIMS-ICS system could be described as follows:

- (i) The creation of an incident specific structure with incident specific designated roles and functions to be carried out regardless of agency affiliations.*
- (ii) The management structure for a particular incident is designed to grow with the complexity of the incident and quantity of resources deployed.*
- (iii) Any one person is responsible for supervising no more than five units to ensure appropriate supervision and information flow up and down the incident chain of command.*

- (iv) *The creation of an Incident Action Plan in the prescribed form noting Division and Sectorisation and occupants of functional roles within the Incident Control System is essential to the IMT and, in particular, the Planning and Operations Division being able to carry out their functions.*

As will be demonstrated key aspects of the AIIMS-ICS system were not fulfilled at Linton and no effort of any significance was made by the IMT to carry out many important functions or to enforce adherence to AIIMS-ICS principles in the management structure or on the fireground.

6.3.51 CFA Chief Officer Trevor Roche gave evidence that before 1990 training in incident management was based on the principles of command and control outlined in the CFA publication *"Tactics and Administration in the Field"*. Following the introduction of incident management based on AIIMS-ICS, the CFA conducted training of career and volunteer personnel, using a training manual developed by AARFA.⁷⁸

6.9.52 Chief Officer Roche gave evidence of the reason for moving away from the group system to AIIMS-ICS. He stated:

"The move to AIIMS ICS was not a case of change just for the sake of change. Experience in incidents during the course of the 1970's and 1980's had exposed weaknesses in the system of incident management based on Brigades and Groups, particularly when faced with larger incidents crossing group or regional boundaries, or between private and public land.

Under AIIMS ICS the overall control of the incident is under the command of the Incident Controller. However, it is not part of the role of the Incident Controller to determine tactics as this is beyond what could reasonably be managed by a person in that position. The primary role of the Incident Controllers is to determine strategies and objectives. The group system on the surface, looks quite similar. When a brigade responded to an incident, that incident would be under the control of the Brigade Captain or the most senior officer from the brigade present. As the fire grew, the Group Officer would take over control and establish a forward group headquarters somewhere in the field.

However, there was no limit to the span of control and no direct recognition that each of the lower levels of the organisation had some degree of independent line management responsibility for those working under them. The group would try to do everything themselves and responsibility for this would largely fall onto the Group Officer. Thus the Group Officer would be responsible for logistical issues from arranging for additional support to come in from outside areas to assist the fire fight, through to ensuring firefighters were properly fed and looked after.

The Group Officer was essentially expected to solve all problems and issues arising on the fireground and, to this end, would spend a lot of time travelling around the fireground communicating with field commanders and going back to the Group Headquarters to check on work being undertaken there. There was also no clear recognition of the roles or responsibilities of individuals assisting the Group Officer, as these would be assigned by the Group Officer as the need arose. Among other things, this meant that, in practice, very little time (if any) was spent on developing strategies and forward planning.

Further, people elected to positions or who hold positions of rank, may not necessarily be the right person to fulfil a leadership role during a difficult and stressful incident. There are many anecdotal examples of incidents where people who can operate quite well at a senior level when it comes to an administrative function, will go into denial in the face of a difficult and stressful incident. For example, this type of problem was identified during inquiries into the South Canyon fire in the United States.

The Group System has also been shown to be incompatible with inter-agency operation. It is impossible effectively to coordinate the resources of two (or more) agencies during an incident, without a system of command and control that effectively supplants the different hierarchies operating within those agencies.

Other weaknesses that have become apparent over the years include:

- (a) An incident run along group lines is more likely to be hampered by group rivalries and other territorial issues when the fire crosses group or regional boundaries; and*
- (b) Local brigade and group structures have the potential to collapse in the event of a fast moving devastating fire due to local pressures and emotional issues (for example, where key personnel have had to leave command positions to protect their own properties and families, and there has been no structure in place to provide a replacement).*

These types of problems were identified as long ago as 1983 at the time of the Ash Wednesday fires. The report into those fires by S.I. Miller raised several concerns about issues of commander control. For example, ((Paragraph 174):

‘Under very severe and extensive fire conditions, such as those of Ash Wednesday, the difficulties facing local CFA Commanders (for example, at group level) was sometimes enormous and the need for assistance and advice from more senior and experienced officers was keenly felt. Although the organisation structure of the CFA makes some provision for meeting this requirement (through its system of forward headquarters and similar means) additional strengthening measures are desirable for the future. Fire fighting capability is reduced, sometimes very seriously, if incoming reinforcements cannot be deployed rapidly and accurately.’”⁷⁹

6.3.53 At the time of the development of AIIMS-ICS both the CFA and DNRE (then the Department of Conservation Forests and Lands) were active participants in AARFA. AIIMS-ICS was adopted as the system of incident management for both organisations early in 1990, shortly after its development.⁸⁰

6.3.54 Chief Officer Roche identified some key principles of AIIMS-ICS. He stated that the system should result in a clearly defined structure that sets reporting guidelines and identifies communication arrangements, thus achieving more efficient command, control and coordination across and within multiple and single agency incidents.

6.3.55 AIIMS-ICS is designed to operate effectively across agencies, regions, groups and brigades, and for any type of emergency incident.

6.3.56 At paragraph 149 of his statement, Chief Officer Roche described the key principles of AIIMS-ICS as being:

“(a) Management by objectives:

Management of an incident requires an objective or desired outcome to be identified and communicated.

(b) One controller:

The Incident Controller is responsible for the overall management of the incident until the incident is finalised, or until control is transferred to a more appropriate person.

(c) Span of control:

The span of control is a concept which relates to the number of resources, groups and people who may be successfully supervised by one person. This is generally considered to be one:five.

(d) Functional delegation:

The Incident Controller will delegate responsibility to the Operations Planning and Logistic functional areas. Depending upon the size and complexity of the incident, there will be further delegation to subordinate roles within each of these functional areas.

(e) Management plans:

Once the incident objective has been determined, an incident control plan outline strategies and tactics to combat the incident should be developed, approved and communicated.”

- 6.3.57** As mentioned above, the CFA first introduced AIIMS-ICS principles in 1990. Chief Officer Roche indicated its introduction met with some resistance because it presented a major change in the overall structure of incident management, away from the familiar group structure, and it relied on people being trained and accredited, which was seen by volunteers as not practical and beyond what could reasonably be expected of a volunteer organisation like the CFA.⁸¹
- 6.3.58** Chief Officer Roche stated:
- “In recognition of these difficulties, while the CFA mandated that it would run all emergency incidents in accordance with AIIMS ICS, it did not take the path of breaking down the group structure and replacing it with a structure that was more compatible with AIIMS ICS. Senior management at the time ... decided that they would prefer to let it evolve over time as the primary system for incident management.”⁸²*
- 6.3.59** Chief Officer Roche continued:
- “Thus, although acceptance of AIIMS ICS has grown over the years since its introduction, there has as yet been no complete evolutionary change. Many of our more senior and experienced volunteer personnel have lived with the system of incident management based on the group system for so long that they have found it difficult to make the transition to full implementation of AIIMS ICS.”⁸³*
- 6.3.60** In respect of the Linton fire, Chief Officer Roche stated:
- “The Linton fire is an example of the time it can take to fully implement systemic change and how, in the interim period, the level of update can be patchy. In the case of the Linton fire, it appears that some parts of the fire were run with full implementation of AIIMS ICS, but, in relation to other parts, vestiges of the old group system were still in operation. To some extent, this reflects the position around the State. In some regions, there has been a full update and acceptance of AIIMS ICS, in others it is still meeting resistance, while in some the implementation has been achieved in part.”⁸⁴*
- 6.3.61** The Fire Agencies Improvement Initiatives Project (FAII) involved an analysis and review of the significant fires of January 1997, and of recommendations arising from an analysis of fires in which the CFA and DNRE were involved in recent years. The FAII Report⁸⁵ was a working party draft report of September 1997. It contained numerous recommendations for change. This report is dealt with at paragraph 6.9 of this Chapter. The concept of an operations point was discussed in the FAII draft report⁸⁶ along with the need to emphasise more formality in the setting up of staging areas and checking in at fire-grounds to improve resource management. There was no specific provision within the AIIMS-ICS Manual⁸⁷ for the division of operations section functions when an operations point was established.
- 6.3.62** Although the actual operation of the systems employed at the Linton fire will be examined in detail later in this Report, for the purposes of this Chapter, it is sufficient to say that an issue arose during the course of the Inquests as to the role of “deputies” in the AIIMS-ICS system. As will be demonstrated later in this Report, the Linton fire was managed under agency and CFA Group lines, rather than one “seamless” and integrated structure, as required by AIIMS-ICS. This is why many of the problems with the Group System identified by Chief Officer Roche were present at Linton.
- 6.3.63** To examine this issue further, it is necessary to refer to the evidence of a number of witnesses.
- 6.3.64** DNRE Officer Edgar in his statement⁸⁸ described the developmental history within the DNRE of fire management systems along similar structural lines to AIIMS-ICS. Mr Edgar stated that:
- “AIIMS ICS was adopted in principle by both CFA and NRE in early 1990. When AIIMS ICS was initially presented to CFA groups it was presented as a means of managing an incident, but with an officer’s substantive rank determining the roles performed. As the incident grew it was envisaged that the group would devolve its role*

to a formally constituted IMT. This move met with resistance due to distrust of change, and the need for training and accreditation. Senior management of the CFA decided to allow the process to evolve.”⁸⁹

6.3.65 Mr Edgar further stated:

“In summary, NRE has effectively been using “AIIMS” type systems for approximately 25 years. The systems were increasingly based on the principles of management by objectives, limited span of control, and the role of each position in the structure being clearly defined.”

In relation to the role of deputies, Mr Edgar stated:

“Both the MAIM agreement, and the AIIMS ICS principles, anticipate that deputies will be appointed wherever necessary. The principle and practice of employing deputies enables agency command structures and agency specific requirements or peculiarities to be addressed. For several years NRE and CFA have attempted to provide deputies for key roles within the structure. NRE and CFA also generally maintain agency command as far as is possible, coordinated within the defined control strategy for the incident. (See Incident Control System, The Operating System of AIIMS2nd Ed. paragraph 1.10, p.6 and paragraph 1.11(i), p.6). This does not create any duplication of structure, but means that part of the AIIMS organisational structure incorporates parts of an agency chain of command.

As such, and in my experience each level of the structure which has a responsibility for both agencies generally has a deputy appointed. Further, it is rare in my experience to see someone holding a position below the operations point in which he or she bears responsibility for both agency’s resources. Usually sectors are allocated to one agency. If two agencies were involved in a particular division or sector, then at this stage in the evolution of AIIMS implementation, a deputy from the alternate agency would generally be appointed, with the resources of each agency managed by a line of command of that agency.”⁹⁰

6.3.66 Mr Edgar stated he had read the statements of Britton and Anderson and the transcript of their evidence in the Inquests. He also read portions of the evidence of Harris, Mahoney and Ferguson *“regarding management by Graham and Phelan on NRE and CFA resources on the fireground I consider their conduct to accord with AIIMS principles.”⁹¹*

6.3.67 It is notable that Mr Edgar did not give evidence that any deputy appointed to an officer holding a functional role in the AIIMS-ICS structure assumed the functional responsibilities of that officer as specified under the AIIMS ICS system.

6.3.68 Mr Mahoney gave evidence:

“... Under the AIIMS ICS system the role of Operations Officer, in a multi-agency fire fight, as this was, is not a position that is attached to a particular organisation, is it, it is a position within the structure for the purposes of the fire fight?—In the AIIMS document, that’s correct.

Is that the way it worked on this day, with you - you have said it was you and Mr Graham jointly carrying out the function?—Not exactly, because there was at the operations point, which really is not – I don’t believe that’s part of the original AIIMS, and also there were deputies at the operations point and at the Incident Control Centre.

I will tell you what I am getting at. It seems apparent from your log that at least up until the time of the entrapment of the Geelong West tanker, the only people you have recorded as speaking to are NRE people?—That would be correct.

I suggest to you, if you were carrying out the function of the Operations Officer under the AIIMS ICS principles, that you would have been talking to CFA people as well, wouldn’t you?—That would be correct.

If you were fully carrying out...?—If I was carrying out the AIIMS function of Operations Officer.

Did you effectively operate as the NRE's assistant to Mr Graham, really, in terms of operation or aspects of this fire, is that a fair description, or not?—I think so, yes. I was really the link into the Incident Management Team for Bob.”⁹²

6.3.69 Mr Leach, the Incident Controller, was asked:

“In relation to deputies, it is clear that in a multi-agency incident it may be appropriate to appoint deputies for functional roles, to assist a person occupying a functional role, or in a training or mentor role, would you agree with that?—Yes, that’s correct.”⁹³

6.3.70 Mr Leach was further asked:

“It is not the role of a deputy under AIIMS ICS principles, is it, to act as a defacto occupier of the functional role for the purposes of the agency that the deputy comes from?—No, not at all. The aim of the deputy is to ensure that as far as possible the two agencies can come together as part of an integrated structure and to share the knowledge that those key people have. In the situation of the IMT for Linton I had Brad Mahoney, who is a very experienced forest fire fighter, and Michael Harris from CFA who had a lesser experience in forest fire fighting, but had other skills in the ICS system, and knowledge of the CFA, and the two of those would work together in an integrated way.”⁹⁴

6.3.71 On the same topic he was asked:

“Mr Leach, you indicated that is not the role of a deputy under AIIMS ICS principles to act as a defacto occupier of the functional role position?—Yes.

Why is it important that a deputy doesn’t do that, why is that an important factor?—Well, it breaks down the chain of command and breaks the integrated structure you are trying to create. The only time that the deputy should step into the role is in the absence of the person performing the role. In the case of doing that, there should be a handover, a briefing if you like, while the person performing the role goes off to do some other duty, and then the deputy would step out when that person returns.

Is that an important factor as well in terms of communication and safety and supervision?—Well, yes, all of those things, and I think one of the big advantages of a deputy is having someone sitting outside of the formal chain of command within the structure, not dealing with all of the pressures of the position. They can perform a bit of an audit role as to how the role is being performed, what other issues need to be dealt with and feed them into the person performing the role.

If we take Mr Sanders as your deputy, he has given evidence that he didn’t have any in line responsibilities?—That’s right.

Consistent with the evidence of what your description of the deputy should be?—Yes.

His role was to help you basically?—It was, yes.

Because you are occupying a functional role, and he is an additional role to assist you in carrying out the duties of the functional role?—Correct.

That same applies, I suggest to you, to any deputy who is appointed to any functional role within the structure?—That’s right.”⁹⁵

6.3.72 Mr Leach was later asked:

“Mr Leach, can I turn to a slightly different topic, that is the operation of AIIMS in a multi-agency context such as the one that operated at Linton. Now in your role as Incident Controller, you were Incident Controller for all personnel on the fireground?—That’s correct.

Regardless of the agency for which they worked?—Correct.

You have already told us that your deputy, Mr Sanders, who happened to work for the NRE, didn’t have a corresponding role that was limited to the NRE personnel, in fact he had no line of responsibility at all, as he has already told us.—That’s correct.

It would lead, would it not, to duplication were he to exercise the identical role to yours, but only in respect of his agency's resources?—Yes, that wouldn't accord with my understanding of ICS.

The structure where you have overall control and he deputises for you is an example, I suggest, of an integrated fire management arrangement?—Yes, that's right.”⁹⁶

6.3.73 Mr Leach was referred to some passages in the AIIMS-ICS Manual that referred to agency chain of command. He was asked:

“Would you agree with me that on its face the notion of maintaining separate chains of command would appear to be inconsistent with the notion of one integrated fire management operation?—Yes, I would agree with that.”⁹⁷

6.3.74 Mr Leach was then referred to some evidence given by Ferguson at T.8055 and was then questioned:

“Can you explain to His Worship the difference between the two types of chain of command that were identified by Mr Ferguson, the day to day chain of command, and the incident chain of command.—Well, the day to day chain of command, which has been in place in the CFA pre-dating ICS, is the structure of brigades and officers in brigades, then groups and officers within groups, and then officers within the region. So if you like there is Brigade Lieutenants, Brigade Captains, Deputy Group Officers, Group Officers, Regional Officers, up through the Deputy Chief Officers to the Chief Officers. Then of course there is the ICS structure, which you would be well aware of. I suggest it goes beyond that, the day to day chain of command also refers to statutory responsibilities that CFA officers may have?—Yes, that is correct, the CFA act with certain statutory responsibilities...”⁹⁸

6.3.75 Mr Leach was then referred to various other statutory responsibilities of the CFA, applying to the Chief Officer and career officers within the CFA. He was then asked:

“That would be an example, would it not, of the continued operation of the day to day chain of command that applies to CFA fire fighters, for example?—Yes, that would be correct.

Could the continued operation of such legal arrangements be an explanation for, as you understand it, the reference in the AIIMS ICS manual to the maintenance of each agency's chain of command?—Well, I think the personnel who drafted the ICS manual recognised that there was statutory responsibilities from State to State and that the ICS principles need to take account of those statutory responsibilities.”⁹⁹

6.3.76 Mr Ferguson was taken to a passage in the Manual stating that AIIMS in fact ensures that supporting services retain their command structures.¹⁰⁰ Ferguson endeavoured to explain what that statement meant. He said:

“Yes, the objectives of the multi-agency agreement are for, in effect, a seamless structure for one incident organisation to occur, one Incident Control Centre, and at the various levels of incident, from the Type 1, the small incident, right through to the Type 3, there will be some personnel who exercise joint control.”

He later said:

“The way in which AIIMS ICS system is implemented in Victoria is by virtue of the AIIMS ICS system, with certain extensions by virtue of the multi-agency incident management agreement between the CFA and NRE. Immediately above that proposition is the proposition that ‘... the management of emergency providers will be enhanced by sharing resources to mutual advantage while still maintaining the integrity of the autonomous structures within each participating organisation.”

6.3.77 Mr Ferguson endeavoured to explain the difference between the “incident chain of command” and “the normal day to day chain of command”. He was asked:

“Does that mean, Mr Ferguson, that whilst you can identify an individual who holds an AIIMS position in the hierarchy, that person by virtue of their position has a responsibility in relation to both agencies to discharge his or her role in that position,

*that that responsibility is often discharged by delegating various parts of the function to others below them in the chain of command?—Yes.”*¹⁰¹

6.3.78 It was not suggested to Mr Ferguson that a deputy to a functional role took over any of the responsibilities of the person holding the functional role.

6.3.79 Mr Ferguson was asked:

“Well, I don’t want to get into a debate about the meaning of Mr Mahoney’s evidence with you, but it would appear on my reading of it that there he is giving a description of not one chain of command below Mr Graham, but in fact two, where your evidence, as I understood it, is there was one chain of command, is that right?—Yes, my understanding and certainly my expectation would be, and was at the time, one chain of command. The principle of multi-agency incident management between NRE and CFA is based on the principle of the seamless fire control organisation, a single incident management system, a single incident management team, a single Incident Control Centre and so on. Now, there may, in implementing that, there may be some very good and practical reasons to appoint a deputy to some positions, particularly where the two agencies perhaps may have some difference in the size or the type of resources, or in their communications mode.

Yes?—But the principle is one organisational structure.

*That’s principally because, I suggest, Mr Ferguson, that one of the objectives of the inter-agency agreement is to avoid duplication?—That’s correct.”*¹⁰²

6.3.80 Regarding the incident chain of command, Mr Ferguson was asked:

“Did you understand that immediately beneath Mr Graham, as the Operation Officer at the Operations Point, there was one chain of command, or effectively two chains of command emanating from Mr Graham?—No, my understanding is one chain of command.

Perhaps if I can ask you, please, to comment on some evidence that was given by Mr Mahoney, which appears in the transcript at p.7728. Mr Mahoney was asked at line 3 of that page, ... ‘Were there two chains of command coming out from Mr Graham, or how did you understand it to be working?—I understood it to be on the eastern flank, that Des Phelan was looking after the bulk of the eastern flank, where as more towards the southern part, I don’t think there was any NRE resources, but where the NRE resources were I believe Murray Fullerton was liaising with Des, where they were mixed in’.

Did you have an understanding of how the matters were operating beneath?—My understanding was that Des Phelan was taking on the role of a Divisional Commander on the eastern flank. Underneath Des there were a number of Sector Commanders, some of whom were NRE people and some of whom were CFA people.

*Just in relation to Mr Phelan’s responsibilities as Divisional Commander, that would be for all resources in the division regardless, presumably, of which agency they were working for, is that right?—That’s correct, yes.”*¹⁰³

6.3.81 Mr Mahoney was questioned on this issue:

“You have told us that you were aware of certain Divisional Commanders and you have identified Mr Phelan, for example, as having responsibility for the Eastern Division. When you describe him as a Divisional Commander, are you conveying that he was a Divisional Commander in charge of all resources in his division, that is, both NRE and CFA resources, or was his responsibility, as you understand it, limited to his agency, which in Mr Phelan’s case was the CFA?—No, I think he was liaising very closely with Murray Fullerton, who was from my knowledge his counterpart on that eastern flank.

Just so I can clarify this, earlier you said Mr Graham was the Operations Officer at the forward operations point for both NRE and CFA?—Yes.

Were there two chains of command coming out from Mr Graham, or how did you understand it to be working?—I understood it to be on the eastern flank, that Des Phelan was looking after the bulk of the eastern flank, where as more towards the southern part, I don't think there was any NRE resources, but where the NRE resources were I believe Murray Fullerton was liaising with Des, where they were mixed in.

Is that an arrangement as you understand it which is in accordance with the inter-agency operation of AIIMS?—It is not as the template of AIIMS in the ICS manual, no.

It is meant to be seamless, isn't it?—That's right, yes.”¹⁰⁴

6.3.82 Mr Sanders of the DNRE, the Deputy Incident Controller, was asked:

“Mr Sanders, as Deputy Incident Controller, who was reporting to you within the IMT structure?—No one.

No one?—Correct

Were you supervising any specific officers within the IMT?—No I wasn't.”¹⁰⁵

6.3.83 Mr Sanders was also asked:

“Where NRE and CFA resources are working in the same sector, would they, in your experience, report to one sector commander, or report to the commanders appointed by each agency?—Normally the sectors tend to be agency specific, there is a case where both agencies are represented on a particular sector. The normal process is to appoint a deputy from the other agency.

How is it determined who from which agency the sector commander is provided?—That's the role of the Operations Officer, based on the experience of the people that he has around him.

Where you have a deputy sector commander appointed from a different agency, would you expect the deputy sector commander and the sector commander would be in radio communication with one another?—I would expect them to be co-located.

Sorry?—I would expect them to be co-located.

Co-located?—Yes, preferably in a vehicle with two radios, or two vehicles together.”¹⁰⁶

6.3.84 Mr Sanders was directed to the entry in the AIIMS-ICS Manual specifying that the Deputy Incident Controller has no functional responsibility and was asked:

“Is the reason for that – is the reason it is expressly stated that the deputy doesn't have any in line responsibility, is it to keep the actual functional lines quite clear cut?—At that level, yes.

What do you mean 'at that level'?—I think once you get into the provisional command structure you start operating within the agency levels below, say, sector commander.

What, the strike team leader or crew leader?—Strike team leader in charge of crews would be agency specific.

That is because generally a crew that is assigned to a sector will be either a wholly CFA crew led by a CFA strike team leader?—Correct.

Or a wholly NRE crew headed by an NRE leader?—Yes.

In practice, that is the way it works out?—It is practical to do it that way.

That NRE crew might be assigned to a sector where there is an NRE sector commander and the crew leader reports to the NRE sector commander?—Yes.

Or it might be assigned to a sector where there is a CFA officer as the sector commander and the crew leader would report to that sector commander?—That is an NRE crew leader reporting to a CFA sector commander.

Yes, that might happen?—That doesn't happen that often. Where we tend to have mixed resources on a sector you would tend to place a deputy with the sector

commander to ensure that the agency chain of command was maintained there, and that is in the fact that people tend to operate at that level better where there is familiarity with who they are talking to, it is also in regard to communicating or communication plans or in regard to shift plans.

You are not suggesting, are you however, that there is in effect a parallel structure?—No

Because that is completely contrary to the AIIMS ICS principles?—No, there is still only a chain of command, one chain of command.

Because the AIIMS ICS principles are designed to avoid precisely that, they are designed to avoid a parallel structure, aren't they?—Correct.

That is what it is about, you have one incident and one structure to manage that incident?—Yes, but at some point in time you will have people coordinating across different agencies.

What I am getting to is that you have one sector commander for a sector and that might be an NRE or a CFA person, each sector has only one sector commander?—Yes, yes.

If you needed more than that you would split it?—Make two sectors out of one sector.

That is what it is about, how the system works?—Yes.

That sector commander is responsible for the resources operating at the incident within that sector?—The overall direction of those resources on the sector, yes.

The object is to keep the number of teams or people that a sector commander is responsible for at five or less, that is one of the aims of the system?—Span of control, yes.”¹⁰⁷

6.3.85 Mr Graham was asked about the reporting arrangements for DNRE Sector Commanders.

“There are a number of NRE officers who were sector commanders within that eastern division, were there not?—Yes, Murray Fullerton and Luke Lubeek were looking after the back fire down the western side, so the fire couldn't get round behind us.

What about when Mr Scherger's crew started in the south-eastern area, we have heard evidence from Mr Scherger he was reporting to Mr Keppell and Mr Keppell confirmed that. What was Mr Phelan's role in terms of the NRE crews working within his division, the eastern division?—He was aware of what they were doing and the fact they were reporting to me.

Why weren't they reporting to Mr Phelan as the eastern division commander?—Mr Phelan only had one radio in his vehicle to my knowledge.

So what's the problem with that?—Well, he couldn't converse directly with NRE personnel without another radio.

Do you think that's good for the system?—It was the best we could do on the day.

In the future is it a good situation to be in?—No.

Why didn't you request another radio for him?—Because the system we were using was, it seemed to be working reasonably well.

What system was that?—CFA sector commanders reporting to Des, NRE sector commanders reporting to me, we got together on regular occasions and face to face, coordinated it in that way.

It is not really the way it is supposed to work, though, is it?—No, it is not.

Doesn't it work a lot better if it works the way it is supposed to work, with one divisional commander and all the sector commanders within that division reporting directly to him?—With a deputy, yes, the deputy looks after – command of the other agency.

Apart from Mr Britton being the deputy, your deputy, the deputy operations officer, you don't mention in your statement anything else about deputies, why is that?—Because we tried to put single agency on sectors.

*We have heard evidence about that, that wherever possible you will have a CFA crew working in a sector where there is a CFA sector commander and a CFA divisional commander, if necessary, that's the way it has worked in a practical sense, is it?—In a practical sense, as long as we have a sector commander reporting to a divisional commander, it doesn't matter if the divisional commander is from the CFA, as long as he is competent ..."*¹⁰⁸

6.3.86 Mr Graham was asked by senior counsel for the DNRE:

"Do you accept whilst under strict AIIMS principles you as the person holding the position of manager of the operations point have the ultimate responsibility for discharging the Operations Officer's role at the operations point, you had a deputy, or as you called him a few moments ago, a delegate?—Correct.

Is that correct?—(Witness nods).

That is a standard methodology of anyone discharging duties under AIIMS is it not, other than the Incident Controller and the deputy, you find deputies created for almost all AIIMS positions, don't you, when the need arises?—When the need arises, yes.

*In this case at all material times you had a delegate or deputy who was discharging your responsibilities in relation to CFA resources?—Yes I did."*¹⁰⁹

6.3.87 Mr Anderson was asked:

"Does the sector commander have a deputy?—No, Your Worship, not normally. But one can, can I just clarify that too?

*Yes?—One can be appointed, Your Worship, in the case of the sector commander leaving that sector, say to visit strike teams within that area."*¹¹⁰

6.3.88 Mr Roche was questioned about the conflicts between the two systems (AIIMS and Group):

"Just in relation to the group system ... one of the disadvantages of the group system you have identified is that the system has been shown to be incompatible with inter-agency operation?—Yes.

And you go on and say why it is impossible effectively to coordinate the resources of two or more agencies during an incident, without a system of command and control that effectively supplants the different hierarchies operating within those agencies?—That's correct.

... Your description of a system that effectively supplants the different hierarchies operating within the two agencies, is that intended to be a description of how AIIMS operated in a multi-agency situation?—All it's saying is that the agencies have adopted ICS and – both agencies – and that system should apply for operations and take the place of any other system that in independent agency, sorry, an agency has in independence?...The process is seamless if it's operated along the lines of ICS."

6.3.89 On the same topic Mr Roche was asked:

*"... Are you suggesting that a situation where you have in operation on the fireground two chains of command, that is NRE chain of command and CFA chain of command, would not be consistent with those principles of one integrated organisation supplanting individual hierarchies?—That's correct."*¹¹¹

6.3.90 Mr Roche was also asked:

"Could I ask you something please about some evidence Mr Leach gave, and it bears upon paragraph 141 of your statement concerning your application of AIIMS. Mr Leach said at 9447, or rather he agreed that it is commonly the case, that resources of one agency are put in a sector as far as possible and are managed by that agency within that sector, has that been a common experience?—That's common, yes.

When that happens, is the chain of command normally in an AIIMS situation that that agency, from the operations point downwards, manages those resources through a chain of command of that agency?—Not necessarily.

I understand it's not necessarily the case, but is it your experience, let's say you have a sector that contained with it only CFA resources, that the chain of command you would find for that sector is entirely a CFA chain of command?—Not necessarily.

In the case of Linton the evidence is that the Deputy Operations Officer, Mr Britton, worked through a chain of command in managing the CFA resources in the south-eastern sector, through Mr Phelan as the Divisional Commander to the Sector Commander to the Strike Team Leader, through to CFA chain of command. You don't suggest, do you, that was not in accordance with AIIMS principles, do you?—Yes I do.

You do what?—I suggest it is not in accordance with AIIMS principles.

Why not?—My understanding of AIIMS is that there is no duplication of the command structure and that deputies do not have line of control.”¹¹²

- 6.3.91** Submissions made, particularly by the DNRE in relation to the operation of AIIMS-ICS in multi agency incidents involving the CFA and DNRE are dealt with at the conclusion to Section 6.4 in this Report.

6.4 Multi-Agency Agreement

- 6.4.1** The Multi-Agency Incident Management Agreement (“MAIM Agreement”) appears on its face to be a straightforward document capable of simple construction. This agreement was signed by the Chief Officer of the CFA and the Chief Fire Officer of DNRE on 14 November 1997. It specified that it *“is paramount for effective and efficient protection of life, property and assets that fire suppression activities where both agencies are involved are co-ordinated to maximise suppression effort.”*

The document sets out the definition of Multi-agency incidents as being *“where both agencies have suppression responsibilities, where their area of responsibility is threatened...”* Two senior officers representing each agency decide the *“agency to be in overall control...”* A range of criteria to be considered when making this decision. These are:

- The projected area and spread of fire;
- The relative threat to life property and assets in both agencies' area of jurisdiction;
- The resources committed by both agencies;
- The ability of the agency to effect control given other fire response commitments...

The agreement also states that one *“incident organisational structure to be adopted for all personnel present at the incident.”* That the agencies *“are to ensure that there is no duplication of structure”* and the *“incident organisational structure will follow AIIMS/ICS principles.”*

Functional AIIMS-ICS titles are to be used for all positions and agency specific titles or prefixes are not to be used. The Incident Controller shall come from the agency *“recommended to be in overall control”* with a Deputy from the other agency. Under the sub-heading *“INCIDENT OPERATIONS”* – *“both agencies are to ensure that first responders immediately liaise and establish...”* an integrated organisational structure suitable for the incident, an integrated communications plan and staging areas. Reporting is to the Incident Control Centre as being the *“central focus for all information”* via the incident organisational structure *“established for the incident, not each agency's separate communication system.”* The balance of the document refers to *“integrated”* planning, resource management, the incident communications plan, and logistics. It is noted that the incident communications plan is to be *“incident based and not agency based.”* The following evidence explores the understanding of management and individuals from the two agencies as to how it worked. It appears that, at the core of the document is the idea that the management of an incident must be *“integrated”*, incident based and not *“agency”* based.

- 6.4.2** Mr Edgar stated:

“Late in 1996 the first Multi-Agency Incident Management Agreement was signed. This document superseded the previous joint agreement “CFA-CNR Incident Organisation” signed in 1992 MAIM again committed both organisations to follow AIIMS ICS principles, the use of AIIMS ICS titles and provided for the

*appointment of deputies. This MAIM agreement and subsequent agreements continued to commit the CFA and NRE to “multi-agency incident management” based on the AIIMS ICS organisational structure. It is my view and that of NRE that these agreements are fully consistent with and complement the application of the principles of AIIMS ICS as set out in the document “Incident Control System, the Operating System of AIIMS” 2nd Edition (Exhibit 21U)”*¹¹³

6.4.3

Mr Mahoney was asked questions about parts of the MAIM Agreement:

“... If you look first of all at the second page, .2, the definition of multi-agency incidents. Were you aware of the terms of this agreement at the time of the Linton fire?—I think I had seen this document at the time, yes.

...

“Incident Organisational Structure”: “One incident organisational structure is to be adopted for all personnel present at the incident.” Do you understand that clause to be consistent with the manuals and the principles of AIIMS ICS?—Yes, I believe so.

The next page, “Agencies are to ensure that there are no duplication of structure”, the top sentence on the next page, page 3?—Yes.

“Agencies are to ensure there is no duplication of structure”?—Yes.

Did you understand that to be consistent with what is in the AIIMS ICS principles and instructions?—Yes, I believe so.

What do you understand that to mean in terms of the multi-agency fire?—Well, primarily that there is not a second, or there is no duplication of roles causing confusion, so there is not another Incident Management Team running somewhere else, where often across regional or district boundaries, whatever, there is only one Incident Management Team, so that there is no confusion about who the controller is.

There is one sector commander for a particular sector and one divisional commander for one division?—Yes.

And one Operations Officer, although in this case we have the complication of the operations point?—Yes.

Where the function there was split between you and Mr Graham?—Yes.

But you have said previously in your evidence that Mr Graham was the Operations Officer at the operations point for the NRE and CFA?—Yes.

You don’t withdraw from that evidence, do you?—No.

That is consistent with him being the occupant of that position in the AIIMS ICS structure?—Yes.

There is no duplication of the structure?—No.

The third point there “Functional AIIMS ICS titles are to be used for all positions. Agency specific titles or prefixes are not to be used.” Again, is that consistent with the AIIMS ICS principles as you understand them?—Yes it is.

What is the reason, as you understand it, for that?—Often there can be confusion in day to day reporting within NRE or within the CFA, like as a regional manager or as a group officer within the CFA, that there is no confusion about the role that is played at the incident, that the Operations Officer is the Operations Officer, it is not a group officer or a regional manager.

It doesn’t matter whether you are a first lieutenant or group officer or regional manager for that fire, you are either the...?—That’s correct.

And your roles and function are set out in the AIIMS ICS documentation which you have been taken through?—Yes.

If I take you to page 4, paragraph 9, headed “Reporting: all reporting from the incident to the ICC is ... (reads) communications system”. Again, do you understand that to be consistent with AIIMS ICS principles as you understand them?—Yes.

What is the reason for that?—To ensure the information does get to the Incident Management Team, not to the District Office or the Regional Headquarters of either agency, that the information flow goes to the Incident Management Team.

Is it not also for the purpose that if there is an NRE person working to a CFA sector commander, that that NRE person reports through their sector commander, be that sector commander an NRE or CFA person, rather than reporting through whatever his general reporting might be?—Yes.

It would just be chaotic if that didn't apply, wouldn't it?—It would.

Again, if we go to communications on page 5, paragraph 12, the first dot point there - "The Incident Communications Plan is to be incident based and not agency based". Again, is that consistent with AIIMS ICS principles as you understand them?—Yes.

What is the reason for that principle?—So as there is one, one chain of command, and that it doesn't go to either agency.

As we go a bit further down there is the point there to "Make sure that there are good communication lines up and down the structure that has been set up for the purpose of the fire"?—Yes.

Rather than having agencies going off and using their own communication structures?—Yes.

If we go to dot point 3, I think you have already covered this actually - "ICS role prefixes are to be utilised and not agency call signs. For example, Sector Commander Smith, not Group Officer Smith". Again, is that consistent, do you have that?—Right.

Do you see dot point 3? "ICS role prefixes are to be utilised and not agency call signs. For example, Sector Commander Smith, not Group Officer Smith"?—That's correct.

Is that consistent with AIIMS ICS principles as you understand them?—Yes it is.

Why is that an important principle?—Again, so as the sector commander is clearly identifiable to the people within the sector and it is stepping away from the role of being Group Officer Smith.

Again, digging a bit deeper, it is important so that everybody who listens to that radio understands who it is that is talking, because a sector commander has a particular position within the structure, a particular function and responsibility, and you want to know who it is you are talking to, whether it is a sector commander or a divisional commander or otherwise?—Yes, and it informs the rest of the people on the fire line who is the sector commander or the divisional commander.

Whereas if the communication is just under the name of an agency related name, like a regional manager or a group officer, if AIIMS ICS is working properly in a multi-agency fire fight, those titles are really not of any moment at all, are they?—No.

Again, I won't take you through these, but we have then got, if you look at paragraph 10 "Planning will be performed by an integrated unit", 11 "Resource management to be integrated and managed as part of the Incident Management Team", 13 "Logistics". What I'm getting to, all those functions are to be integrated within an integrated system set up for the purpose of combating the incident, rather than agency based?—Yes.

You were given a summary of some of the evidence that Mr Fullerton was said to have given at page 2900 of the transcript commencing at line 3, Mr Fullerton indicating that he took up the role of sector commander for the north-west sector and he was then asked at line 8, 'I take it that you understood your responsibility as a sector commander, you understood what that entailed in terms of the AIIMS ICS structure?—Correct. You understood that one of your responsibilities as a sector commander was to ensure the safety and welfare of personnel in your sector?—Correct.'

You wouldn't disagree with that answer?—No.

6.4.4

Mr Fullerton was asked:

“As I think you indicated earlier, that in a multi-agency fire such as the one which was being fought in Linton, that’s all personnel, regardless of whether they are employees of NRE, employees of CFA or volunteers; is that right?—Correct, yes.”

Would you disagree with that answer Mr Fullerton gave in his evidence?—Yes, I think that is right.”¹¹⁴

6.4.5

Mr Ferguson was questioned by counsel for the DNRE about the interaction between the MAIM Agreement and the AIIMS-ICS Manual:

“Can you tell me, Mr Ferguson, you are apparently saying the agreement in some sense varies the principles as they are set out in the booklet, in Exhibit 21U, the booklet you looked at yesterday?—Well, I think the multi-agency agreement extends those principles, Mr Redlich.

Is there something recorded somewhere that would demonstrate where those principles have been varied or are diluted?—Well, Mr Redlich, I would probably refer to the current multi-agency agreement between the two organisations, which is quite explicit in defining some of the principles that I have just referred to, a single incident structure and so on. It is quite explicit, I believe, in that regard in trying to achieve an integrated incident control incident management system, as distinct from one which is perhaps more unified.”¹¹⁵

6.4.6

Senior Counsel for the DNRE asked Mr Mahoney:

“I am concerned with your understanding, Mr Mahoney, as at the time of Linton, did you understand that the agreement entered into between the two agencies in some way watered down the principles in AIIMS?—I don’t believe so. ...

Did you have any reason to think that the agreement reached between the agencies altered the responsibilities as they are set out in the manual?—No, it didn’t alter them in my opinion.”¹¹⁶

6.4.7

Mr Graham was asked questions about MAIM:

“Can I ask you just general questions about AIIMS ICS and, in particular, how it works in the situation of a multi-agency incident as was the case with Linton. You were aware of the Multi-Agency Incident Management Agreement between the CFA and NRE?—Yes I am.

If I suggest to you in general terms that the AIIMS ICS system provides for, in the case of a multi-agency incident, that there is one incident organisational structure to be adopted for all personnel present at the incident. —That’s correct.

And those people occupied positions within the AIIMS ICS structure for the purposes of managing the incident, as opposed to what their normal position or rank might be within their agency?—That’s correct.

In other words, you as a senior forester, you may well be appointed as a sector commander or a divisional commander, or a strike team leader, or an operations officer, and it is that particular function or role that you operate in for the purposes of the incident?—That is correct.

Rather than your rank in your own agency?—Yes.

What do you understand the purpose of that principle to be, why does it run that way?—It is run that way so that the trained, assessed and accredited person, the best person for the job is in the position.

Is it also run that way to avoid confusion and duplication as well? —Yes.

So you have one structure and everybody knows who is responsible for what?—Yes.

And it is an important principle of AIIMS ICS at a multi-agency incident that there is no duplication of structure?—Yes.

And why is it important there be no duplication of structure?—To avoid confusion.

Again moving on, in relation to titles to be used for the purposes of the incident, again, are they the functional role that the persons performing for the incident, that's the title they are to use for the incident?—Yes.

So rather than Group Officer So and So, or Senior Forester So and So, it is Operations Officer, or East Sector Commander, that sort of thing?—That is correct.

What is the purpose of that?—To break away from the Brigade Group Regional structure and have one Incident Management Team structure running...

In relation to communications ... is it part of the AIIMS ICS principles that there be an integrated communications plan to apply to the incident?—That is the ideal.

In relation to the communications, the Incident Communications Plan is to be incident based, and not agency based, that's one of the principles of AIIMS is it not?—That is the ideal, yes.

Do you say that's the ideal in a practical situation?—Yes.

Do you also recognise it is the documented way it is supposed to work as well?—Yes.

Also in relation to communications, that the incident control system role prefixes are to be utilized, as opposed to agency call signs, for example, Sector Commander Smith, not Group Officer Smith?—Yes.

What's the purpose, what do you understand the purpose of that rule to be?—To reinforce the fact that there is an Incident Management Team running.

Is it also so that people on the ground can quickly identify when they hear a communication, just who it is and what responsibility that person has within the management of the fire?—Yes.

In relation to resource management ... all resource management requests are to be managed by the one integrated unit as part of the Incident Management Team?—Yes.

And what's the purpose of that?—So that there is a central record of resource somewhere.

Why is it important that be done in an integrated way rather than as a separate agency based way?—So we know who is on the fireground.

In relation to the implementation of AIIMS ICS at the Linton fire, do you say that it was run by way of AIIMS ICS principles?—It was within the AIIMS ICS principles, but on reflection, hearing evidence at debriefs, it could have been done better.

What areas do you think could have been done better?—On the evidence I gained at debriefs there was confusion on the fire line, which I didn't recognise on the ... day ..."¹¹⁷

6.4.8 In the case of the Linton fire there was a universal lack of usage of AIIMS-ICS titles in radio communications. Likewise, outside the IMT in Ballarat there was an almost universal lack of use of tabards identifying those occupying functional AIIMS-ICS positions. One most notable exception was Mr Scharf, who wore a "Strike team Leader" tabard.

6.4.9 DNRE made submissions in relation to the role of deputies and the functional responsibilities of those carrying out nominated AIIMS-ICS roles in the structure, in respect of resources supplied by a different agency.

6.4.10 DNRE appeared to submit that deputies can be appointed into a functional role and become responsible for the officer's agency resources. If the argument is correct it would have the effect of relieving the formal occupant of the functional role of any responsibility in relation to those resources.¹¹⁸

6.4.11 In support of this contention, the DNRE referred to Section 4 of the MAIM Agreement which reads:

"4. Incident Organisational Structure

One incident organisational structure is to be adopted for all personnel present at the incident.

Agencies are to ensure that there is no duplication of structure.

The incident organisational structure will follow AIIMS ICS principles.

Functional AIIMS ICS titles are to be used for all positions. Agency specific titles or prefixes are not to be used.

Deputies may be appointed to functional roles from either agency or from support agencies where appropriate to assist functional roles or in a training/mentor role.”¹¹⁹

6.4.12 The CFA correctly points out in its reply that Clause 4 “*envisages that a deputy may be appointed as a deputy to the person occupying the functional role, not that the deputy would be appointed into a functional role.*” In other words, this provision does not mean that the deputy would fulfil a functional role. Rather, in accordance with the evidence a deputy may be appointed to assist the person who is in that role. Contrary to the suggestion at page 126 of DNRE’s submissions, the CFA submitted, correctly, that the MAIM Agreement is entirely consistent with the evidence of Mr Roche.¹²⁰

6.4.13 The critical distinction is that the occupant of the functional role has specified duties and responsibilities under the AIIMS-ICS system. That individual may seek to carry out those duties and fulfil those responsibilities in a number of ways. One of those ways is to engage a deputy and task that person to carry out various actions. If the deputy fails to carry out the action to the extent necessary for the occupant of the functional role to have discharged his or her responsibilities, that person (the occupant of the functional role) has not fulfilled the duty. A deputy does not assume the responsibilities of the functional occupant under AIIMS-ICS.

6.4.14 In some parts of its submissions, DNRE appeared to accept this point.

“The person holding the position is not relieved of his responsibilities under AIIMS ICS by appointment of a deputy, but is entitled to delegate those responsibilities to a deputy; ie, Mr Britton as deputy to Mr Graham, is not Joint Operations Officer at the Operations Point at Linton.” This is further reflected at T.9166/15 where Mr Graham said: “The allocation of CFA resources to sectors was handled for me by my delegates, deputy and divisional commander”.¹²¹

6.4.15 DNRE incorrectly submitted¹²² that Counsel Assisting “*Put to Mr Leach that the deputy occupied a defacto functional AIIMS ICS position.*” When in fact, the opposite was the case. The DNRE appear to adopt, consistent with the weight of the evidence, the following passage of the evidence of Mr Leach:

Counsel Assisting:

“It is not the role of a deputy under AIIMS ICS principles, is it, to act as a defacto occupier of the functional role for the purposes of the agency that the deputy comes from?—No, not at all. The aim of the deputy is to ensure that as far as possible the two agencies can come together as part of an integrated structure and to share the knowledge that those key people have ...”¹²³

6.4.16 In the same line of questioning, which has been set out earlier but is repeated here, Mr Leach was asked by Counsel Assisting:

“You indicated that it is not the role of a deputy under AIIMS ICS principles to act as a defacto occupier of the functional role position?—Yes.

Why is it important that a deputy doesn’t do that. Why is that an important factor?—Well, it breaks down the chain of command and breaks down the integrated structure you are trying to create. The only time that the deputy should step into the role is in the absence of the person performing the role. In the case of doing that there should be a handover, a briefing if you like, while the person performing the role goes off to do some other duty, and then the deputy would step out when that person returns.

Is that an important factor as well in terms of communication and safety and supervision?—Well, yes, all of those things, and I think one of the big advantages of

*the deputy is having someone sitting outside of the formal chain of command within the structure, not dealing with all of the pressures of the position. They can also perform a bit of an audit role as to how the role is being performed, what other issues need to be dealt and feed them into the person performing the role.”*¹²⁴

Further evidence of Mr. Leach should be noted on this issue:

“If we take Mr Sanders as your deputy, he has given evidence he didn’t have any in line responsibilities?—That’s right.

Consistent with the evidence of what your description of deputy should be?—Yes.

His role was to help you basically?—It was, yes.

Because you are occupying a functional role and he is an additional role to assist you in carrying out the duties of the functional role?—Correct.

*That same applies, I suggest to you, to any deputy who is appointed to any functional role within the structure?—That’s right.”*¹²⁵

6.4.17 The adoption of that evidence, consistent with the weight of evidence, confirms that DNRE does not dispute the basic proposition set out above but rather, in some aspects of its submissions, has confused the issue of the responsibility for the discharge of a function with the manner chosen to carry out a task in furtherance of the discharge of a function. The delegation of the task does not discharge the responsibility. If the delegate fails to carry out the task or satisfy the responsibility, it is the holder of the functional position that has not satisfied the responsibility.

6.4.18 This evidence of Mr Leach is consistent with the AIIMS-ICS Manual¹²⁶ the MAIM Agreement and the evidence of witnesses called at the Inquests. It is also, as submitted by the CFA *“entirely consistent with the evidence of Mr Roche”* on this topic.

6.4.19 Any argument that the appointment of a deputy under AIIMS-ICS somehow relieves the occupier of a functional role of all or any of his responsibilities in relation to resources from another agency, must be rejected as being entirely inconsistent with the evidence led at the Inquests.

6.4.20 Reference also needs briefly to be made to Exhibit 71D. This is a document prepared and tendered by the DNRE during the course of the Inquests for the purpose of identifying and clarifying *“issues which NRE considers to be of importance”*, and to identify any issues with the lengthy statement of Mr Roche. It is notable that in the section of that paper under the heading *“AIIMS-ICS”*¹²⁷ the DNRE did not make any submissions along the lines set out above. In fact, it stated:

*“The Incident Controller must be a competent person from the agency in overall control or a suitably qualified person agreeable to both agencies. At all fires that are operating under the Multi-Agency Incident Management Agreement, the Deputy Incident Controller shall come from the other agency. This is to highlight to all fire fighters that the operation will be fully integrated in decision making and implementation.”*¹²⁸

6.4.21 The DNRE paper then goes on to correctly state:

*“It is not unusual, nor is it outside the principles of AIIMS ICS, to have sectors or divisions fully resourced by personnel from the one agency.”*¹²⁹

6.4.22 It appears difficult for DNRE to argue that it was not in a sufficient position of control over the system of work employed at the fire to give rise to a responsibility for the safety of DNRE officers, CFA employees and volunteers, and any others involved in the Linton wildfire.¹³⁰ In this case a DNRE officer was in charge of the Forward Operations Point.

6.5 Training

CFA

- 6.5.1** The CFA is empowered to provide training by s.23 (1) of the Country Fire Authority Act 1958, which states:

“(1) The Authority may at any time and from time to time –

...

(g) establish schools and facilities or courses of instruction to provide training to any person in the skills required to perform any of the functions of the Authority and permit the use of those schools and facilities by any other body or person; ...”

- 6.5.2** While this statutory provision empowers the CFA to provide training and develop facilities to do so, the duty of the CFA in respect of volunteer and permanent firefighters is to be found in the Common Law and the Occupational Health and Safety Act 1985. Those topics are examined fully in Chapter 20 of this Report. At this stage the intention is to set out what system of training was in place in the CFA prior to the Linton fire.

- 6.5.3** The most comprehensive evidence on this topic is found in the statement of Chief Officer Roche and the report of Mr Noonan, which form the basis of this section of the Report.

- 6.5.4** The CFA is a private training provider recognised by the Victorian Training Board.¹³¹ The courses and materials used in the training provided by the CFA are based on Australian Fire Competencies approved by the National Training Board and the Office of Training and Further Education.¹³²

- 6.5.5** At the time of the Linton fire the training of CFA staff, including volunteers, took place around the State. The training took place at a number of levels of the CFA administrative structures including:

- Brigade;
- Group;
- Regional
- State¹³³

- 6.5.6** The CFA has a number of training establishments around the State. These establishments are located at:

- Fiskville, near Ballan;
- West Side;
- North of Bendigo;
- Carrum Downs;
- Wangaratta;
- Penhurst; and
- Longrenong, near Horsham.¹³⁴

- 6.5.7** With the exception of Carrum Downs these facilities are exclusively controlled by the CFA. In relation to these training facilities Mr Roche said:

“These complexes are controlled exclusively by the CFA, with the exception of the facility at Carrum Downs, which is shared with the Metropolitan Fire and Emergency Service Board. Management of these facilities has been vested in local committees under the supervision of a central Field Training Ground Management Committee. That central committee has been responsible for the development and operation of all training complexes, including Fiskville. Instructors delivering training at CFA training complexes have included career staff from Regions and Stations, external specialists, full time instructional staff based at Fiskville, and casual volunteer instructors who have completed the required training to meet skill profiles for casual instructors.

The decentralised training complexes have been strategically located so that they are available to most Brigades on a state-wide basis. They have enabled a larger number

*of volunteer personnel to participate in structured training without the additional time and expense of travelling long distances to Fiskville. Initially the facilities provided allowed only for basic “hot” fire training. However, they have been progressively extended during the 1990s to provide a wider range of training and this will continue. They will play an important part in the implementation of the minimum skills requirements introduced since the Linton fire.*¹³⁵

6.5.8 Mr Roche then set out a table, which indicated the use of these facilities, other than Fiskville, during the 1997–98 financial year.

<i>Wimmera</i>	<i>10 courses</i>	<i>123 students</i>
<i>Penhurst</i>	<i>12 courses</i>	<i>91 students</i>
<i>West Sale</i>	<i>9 courses</i>	<i>130 students</i>
<i>Bendigo</i>	<i>12 courses</i>	<i>375 students</i>
<i>Wangaratta</i>	<i>21 courses</i>	<i>214 students</i>
<i>Carrum Downs</i>	<i>122 courses</i>	<i>534 students”</i> ¹³⁶

6.5.9 In relation to Fiskville, Mr Noonan observed that:

“The training complex at Fiskville is one of the larger complexes and offers excellent simulated “hot” fire training. The training provided here can simulate actual fires in the following areas;

- House/flats fires*
- Shop fires*
- Service station/fuel fires*
- Railway incidents*
- Traffic incidents*
- Aircraft incidents*
- LPG and natural gas incidents.*

*The training also covers search and rescue, breathing apparatus and various other aspects of emergency services. The venue offers live in accommodation to enable courses to be ran over varying time frames. The only area that these venues can not offer actual “hot” simulated training, to put into practice what is learnt in theory, is in the area of wildfire training.”*¹³⁷

6.5.10 In discussing the evidence he gathered on the training regime in force prior to the Linton fire, Mr Noonan said:

“The CFA training programs that were in place prior to the Snake Valley/Linton fire consisted of requirements issued via sections of the Chief Officers Standing Orders. These Standing Orders stipulated minimum training requirements for the following categories:

- Volunteer Training Program – Recruit Firefighter*
- Volunteer training Program – Firefighter*

*In addition, several other training packages were available and were continually revised and updated. The Standing Orders required each brigade to develop from these training packages those packaged that related to the predominant risk faced by that brigade, ie. grasslands, residential or industrial. This was, as stated in addition to the minimum requirements.”*¹³⁸

6.5.11 The Chief Fire Officer had issued Standing Orders dealing with training in 1992–93. These were updated in 1996 and that amended form was operative on 2 December 1998 when the Linton fire occurred.

6.5.12 The first of these Standing Orders, which is headed “*Training of Brigades*” was SO-3.01 which provided that:

“For the purpose of Regulation 69 of the County Fire Authority Regulations 1992, brigades are to undertake training in accordance with the following requirements.

Training is now to be undertaken in accordance with a program that recognises the risks in the Brigade area, ie: a Brigade with a grassland risk will have a different

program to a Brigade with a residential and industrial risk. Upon satisfactory completion of training by a member, the Officer in Charge is to certify accordingly.

Prepare and conduct a brigade training programme which specifies:

- i. Subject matter
- ii. Timetable
- iii. Category of membership to which it applies

An additional training programme is required in permanent brigades to meet the staff needs.

- The structure and content of the training programme must recognise the risks in the brigade area, and the level of activity of the brigade, the level of skill and personal abilities of members.
- The training programme is to be approved by the Officer in Charge of the Region.
- The training programme may be undertaken within the brigade or jointly with other brigades.
- A record is to be maintained of the training undertaken by each officer and member.
- Upon satisfactory completion of training by a member, the Officer in Charge is to certify accordingly.
- Training received by an Officer in Charge is to be certified by an Officer of the Group or the instructor delivering such training."

6.5.13 On the record keeping function involved in this Standing Order Mr Roche observed that there were a number of problems. He said:

"The documentation of training activities undertaken by firefighters has been managed in a variety of ways over the years. Until 1995, all training records were manual. These manual records were kept in a variety of ways. For most of the 1980s, training reports were completed by Brigades and forwarded via the Regions to Fiskville. These were stored but not recorded. In my experience, not all training was recorded on these training reports. Copies of these reports were usually retained at the relevant Fire Brigade. Since 1995, electronic records have been maintained of training conducted at Fiskville.

In the early 1990s, the introduction of individual training record booklets allowed individuals to record the results of training undertaken at any approved CFA venue. In addition, the Chief Officer's Standing Order 3.01 introduced in 1992 (see below) required Brigades to maintain training records. These were not consolidated into a central recording so it was still not possible for CFA to use this individual data to get a picture of the levels of training across the State.

*The need to ensure that accurate and validated individual training records were maintained, had been a high priority for some time before the Linton fire. It was recognised that the training records were maintained in a variety of ways and locations and CFA had no centralised database for recording training data. Accordingly, in 1996 the CFA commenced a project to develop a CFA computer software application that linked to CFA's existing Resource Management System that would allow individual training records to be attached to the service history of all volunteer and career personnel. The software application "TRAIN" was fully implemented on 1 July 1999 across all Regions, CFA Fiskville Headquarters. Additional resources have been provided to Areas to enable available existing records to be entered into the program. However, due to the significant backlog, this will take some time to achieve."*¹³⁹

One of the important aspects of Standing Order 3.01 is the recognition that the types of risks encountered by different brigades vary. Thus, an urban brigade might attend building fires and chemical fires far more often than grass or forest fires. Indeed, such a brigade may never attend a forest fire. By contrast, a rural brigade may attend many grass fires, some forest fires and very few structural fires. The Standing Order requires that the training be designed in such a way as to give greater emphasis to the type of fire most likely to be encountered by the brigade.

6.5.14 In essence, what was involved was prescribed minimum skills training. This was accompanied by problems identified by Mr Roche:

“The introduction of prescribed minimum skills for CFA personnel, including volunteers, has been the subject of debate among the CFA and its members since the early 1990s when AFC Standards were first developed. It has met with very strong opposition, particularly from the Urban and Rural Fire Brigades Associations and volunteer members themselves. Among other things, they have argued that the time and effort involved in undertaking the necessary training is more than can reasonably be expected of volunteer members and the systems for assessing minimum skills do not take proper account of the vast practical experience of many members of the volunteer force.”¹⁴⁰

6.5.15 Another important Standing Order that was in operation at the time of the Linton fire was SO-3.02. This dealt with the topic of *“Training Requirements for Probationary Members”*. That provided:

“For the purpose of Regulation 50(3)(a) of the Country Fire Authority Regulations 1992, a Probationary member must satisfactorily complete a training course which includes the following subjects:

Brigade Management

Appliances and Equipment

Communications

Firefighting Theory

Safety and Survival

- *Probationary members must complete a training course to the satisfaction of the Officer in Charge of the Brigade.*
- *The Recruit Firefighter modular training package is recommended for this purpose and is available through all Regional Headquarters.*
- *It is suggested that brigades consider joint probationary member training with other brigades so that the training is delivered on a group rather than individual basis.*
- *On completion of probationary training, the Officer in charge of the brigade is to certify that the member has satisfactorily completed the course.*
- *Probationary members are not permitted to attend fires/incidents except with the approval of the Officer in Charge of the brigade. This order is to safeguard inexperienced personnel.*
- *The Officer in Charge of the Region has been delegated the powers of the Authority to:*
 - i. *Determine that a member does not have to serve for a probationary period (Sections 50(1) CFA Regs)*
 - ii. *Determine that a member does not have to complete a training course determined by the Chief Officer (Section 50(3) CFA Regs)*
 - iii. *Vary the probation period.”*

6.5.16 Mr Noonan accurately summarised the operation of these two Standing Orders when he said:

“The Officer in Charge of the CFA Region and/or the Officer in Charge of the Brigade is given the following responsibilities via the Standing Orders;

- *Prepare and conduct a Brigade training Program*
- *Approve the training program*
- *Upon satisfactory completion of training by a member, certify accordingly.*
- *Ensure that probationary members have completed a training course to their (OUC's) satisfaction.*
- *Certify that the member has completed the training*
- *Exercise delegated powers from the Chief Officer.*

As well as this, the Standing Orders recognise that a brigade Captain is best placed to make an assessment of persons training needs in relation to his/her employment.

The Standing Orders do not clearly state who prepares and conducts the training, or who records the training details.

Probationary members are also required to have completed certain training courses, including Safety and Survival before being permitted to attend fires or incidents except with the approval of the Officer in Charge.”¹⁴¹

6.5.17 There are two levels of firefighter in the volunteer training program. They are:

- Recruit Firefighter; and
- Firefighter.

6.5.18 The Recruit Firefighter training course takes place during the probationary period of a volunteer. When the probationary period is completed the training for the Volunteer Firefighter category begins.¹⁴²

6.5.19 The subjects taught and the time spent on each of them is set out below.

6.5.20 The minimum requirements to reach the standard of Recruit Firefighter are the study of:

<i>“ Subject</i>	<i>Duration</i>
1 – Brigade Management	
1.1 Brigade Organisation	60 minutes
1.2 Standing Orders	30 minutes
1.3 Group Organisation	15 minutes
2 – Appliances & Equipment	
2.0 Appliance Operation	
2.1.1 Pumper	60 minutes
2.1.2 Tankers	60 minutes
2.1.3 Quickfill pumps	60 minutes
2.2 Hand Tools and Knapsack Sprays	60 minutes
2.3 Small gear	60 minutes
2.4 Hose and Handling Techniques	60 minutes
2.5 Double Extension Ladder	
2.5.1 Introduction to the Double Extension Ladder	60 minutes
2.5.2 Carrying and Pitching a Double Ext. Ladder	30 minutes
2.5.3 Double Ex. Ladder Climbing Footing Housing	60 minutes
3 – Communications	
3.1 Fire Reporting Service	60 minutes
3.2 Telephone Procedures	60 minutes
3.3 Radio Procedure - VHF Radios	30 minutes
3.4 Taking an Incident Call	30 minutes
3.5 Map Reading	60 minutes
4 – Fire Fighting Theory	
4.1 Extinguishing Media and Methods	60 minutes
4.2 Water as an Extinguishing Agent	60 minutes
4.3 Fire Suppression Methods - Bush, Grass & Building	60 minutes
4.4 Safety and Survival	60 minutes
4.5 Fire Behaviour	60 minutes
4.6 Hazmat Placarding	60 minutes.” ¹⁴³

6.5.21 It takes 20 hours 15 minutes to complete the four training sessions for the Recruit Firefighter Course. When that course is complete and the probationary period for the recruit has expired successfully, the volunteer is accepted into the CFA. It is at this time that he or she can commence Firefighter Level training.¹⁴⁴ The probationary period normally lasts 6 months.¹⁴⁵

6.5.22 The minimum requirements to attain the Firefighter Level involves the successful completion of the following subjects:

<i>“ Subject</i>	<i>Duration</i>
1 – Brigade Management	
1.1 CFA Structure, Scope & Responsibility	30 minutes
1.2 Standing Orders	60 minutes
1.3 Crew Leadership	60 minutes
1.4 Legislation	60 minutes
1.5 Instructional Techniques	2 days
2 – Appliances & Equipment	
2.0 Ropes, Knots and Lines	
2.1.1 Theory	60 minutes
2.1.2 Practical	60 minutes
2.1.3 Rescue Knots, Lifts & Carries	60 minutes
2.2 Foam and Foam Making Equipment	45 minutes
2.3 Fire Extinguishers	
2.3.1 Introduction	60 minutes
2.4 Breathing Apparatus	
2.4.1 Introduction	30 minutes
2.4.2 Compressed Air Breathing Apparatus	60 minutes
2.4.3 Positive Pressure Breathing Apparatus	60 minutes
2.5 Gas and Splash Suits	45 minutes
2.6 Decontamination	60 minutes
2.7 Appliances-Pumping Operations and Priming	90 minutes
3 – Communications	
3.1 Principles of Fire Prevention and Suppression	60 minutes
3.2 Situation Reports	60 minutes
3.3 Aide Memoire	60 minutes
3.4 Size Up	60 minutes
3.5 Mapping	60 minutes
3.6 Radio Procedure	60 minutes
4 – Fire Fighting Theory	
4.1 Principles of Fire Attack	45 minutes
4.2 Fire Behaviour (refer Recruit Firefighter 4.5)	N/A
4.3 Basic Firefighting Tactics	60 minutes
4.4 Building Structure	60 minutes
4.5 Hydraulics, Water Supplies & Hydrant Systems	60 minutes
5 – Fire Fighting Practices	
5.1 Hazardous Materials	45 minutes
5.2 Electrical hazards	45 minutes
5.3 Electrical Hazards	45 minutes
5.4 Flammable and Combustible Liquids	45 minutes
5.5 Forcible entry	60 minutes
5.6 Search and Rescue	60 minutes
5.7 Ventilation and Salvage	60 minutes
5.8 Blacking Out Techniques	45 minutes” ¹⁴⁶

6.5.23 Item 1.5 “Instructional Techniques” takes 2 days to complete. The remainder of the course requires 30 hours and 15 minutes.

6.5.24 The training modules that are used for these courses are manuals prepared under the auspices of the Australian Fire Authorities Council (AFAC) and are known as the “National Fire Curriculum.”¹⁴⁷ These modules were exhibited at these Inquests.¹⁴⁸

6.5.25 CFA Firefighter Training Reference Manual 1 in use at the time of the Linton fire contained the following modules released on the date shown:

1.07	Personal Protection	July 1997
1.09	Map Reading 1	February 1996
1.11	Fire Suppression 1	February 1996
1.12A	Wildfire Behaviour 1	February 1996
1.12B	Wildfire Suppression 2	February 1996
1.14	Search and Rescue	February 1996
1.19	Communications Systems	February 1996
CFA	Chainsaw Operator	July 1997

6.5.26 CFA Firefighting Training Reference Manual 2, in use at the time of the Linton fire contained the following modules on the date shown:

2.16	Hazardous Materials	July 1997
2.21	Fire Prevention 1	February 1996
2.28	Wildfire Behaviour 2	February 1996
2.29	Wildfire Suppression 2	February 1996
3.17	Prescribed Burning 1	February 1996
4.02	Pre-Incident Planning	July 1997
4.04	Incident Control System	July 1997
CFA	Class A Foam	July 1997.

6.5.27 In other sections of this Report reference will be made to relevant parts of these course materials. At this stage it is sufficient to note that shortly before Linton all Volunteer Firefighters who joined the CFA would study these courses as a minimum. The problem, which is considered in Chapter 14.2, is that not all people who joined the CFA before these courses were introduced have been retrained using these materials.

6.5.28 The difficulties associated with this are clearly set out in Chief Officer Roche’s statement.

“Following the implementation of the AFC Standards, CFA developed skills profiles for Brigades based on identified risks in the Brigade area and for individuals based on rank and position. A pilot project was conducted in Region 7, 8, 13 and 14 in 1996. After the pilot project, Training Needs Analyses were approved to be conducted across all regions by Area Training Managers. These Analyses led to the development by area Training Managers of Regional Training Policies and Area training Plans designed to recognise the risks of the Brigade area, the level of activity of the Brigade and the level of skill of members.

At the same time, the CFA’s training department began the process of revising all of the CFA’s training material to align it with the AFC Standards. This involved taking each of the courses run out of Fiskville or at Group or Brigade level and reviewing and revising the reference material, sometimes adding new training modules, and finishing up with a set of materials for each topic, which were packaged into a yellow folder to be made available to Brigades. Each yellow folder contained:

- (a) reference material, which, depending on the topic, could comprise any one or a combination of existing CFA training modules or learning guides, one or more generic modules developed by AFAC, cross-references to or extracts from the CFA Operations Guidelines and Operations Checklists issued in 1995 (the new so-called “Red Book”) and other relative material (such as a copy of the section from relevant legislation);*

- (b) *teaching guides, including lesson briefs, overhead transparencies and handouts; and*
- (c) *assessment guides, which generally comprised a series of open ended questions.*

Distribution of these materials commenced in February 1996. They were first sent to the Area Training Managers who would then arrange dissemination to Brigades based on the Training Needs Analyses. By late 1998, completed packages available to all Brigades included Personal Protective Equipment, Map Reading, Wildfire Behaviour and Suppression, Communications Systems, Breathing Apparatus (for those Brigades with BA equipment) and AIIMS ICS 4.04.

The process of delivery of training based on this new material varied. For the most part, it involved bringing key personnel from each Region to a launch of the new material and those personnel would then return into the field and commence a program of training at Group and Brigade level (a “train the trainer” approach). Busier and more active Brigades often ran their own programs. More isolated Brigades relied on training being organised at Group level or Regional level.

Thus, since 1996, volunteers have been gradually acquiring competencies to the AFC Standards and the CFA has been actively delivering training to meet the training needs as identified at a local level. Further, there has been an increasing use of accredited workplace trainers and assessors. However, by the time of the Linton fire, the implementation of the new training programs was in its early stages, so only a proportion of the volunteer personnel present during the fire are likely to have had the benefit of attending a training program based on the AFC Standards.”¹⁴⁹

6.5.29 Mr Roche summed up the difficulties in implementing the AFAC minimum skills:

“These factors, together with the time and expense involved in providing the training, assessment and record keeping procedures and facilities required to make the necessary training available to approximately 28,000 active volunteer firefighters, had been the main impediment to both a greater level of penetration of the training initiatives being implemented at the time of the Linton fire as well the introduction of minimum skills. However, as a result of the Linton fire, most volunteers now recognise the need to ensure that all personnel on the fireground have achieved a minimum level of competency to undertake safely the tasks they have been assigned. And this, in turn, has cleared the path for the CFA to speed up the process of training used on the AFC Standards and move to a more rigorous system for assessing and prescribing minimum skills for carrying out roles on the fireground.”¹⁵⁰

6.5.30 Those who had not received training under the “National Fire Curriculum” had to rely on training that they had previously received. That training was largely dependent on the reading of the “Operations Guidelines”¹⁵¹ that had been distributed from late 1995 onwards. The difficulty was the ad hoc nature of the use of this publication. Mr Roche described this:

“Although the Operations Guidelines and the checklists, when completed, were widely distributed among personnel, once again this occurred before my appointment as Chief Officer and I did not participate in any discussions or decisions about how the distribution was to occur. As far as I am aware, there was no training developed centrally that was specifically aimed at introducing the Operations Guidelines, although I understand individual Regions or Groups may have run information nights or workshops to discuss the new Operations Guidelines.”¹⁵²

6.5.31 This was the state of training in the CFA at the time of Linton. In Chapter 14.2 the training received by key individuals involved in the deaths of the Geelong West crew is considered in detail.

6.5.32 The position that applied to career personnel was set out in Mr Roche’s statement:

“The process of competency based training for firefighters has followed a similar progression, although the process of assessment has generally been more rigorous. Before 1973, career firefighting personnel were appointed directly to positions in fire stations and Regions without any form of recruit training at all. After 1973 recruit courses for firefighters were introduced. Regional Officers were also required to complete a recruit training course at this time.

Between 1973 and 1991, personnel appointed to positions as firefighters were not appointed to a fire station until they completed recruit training at Fiskville which ranged from two to thirteen weeks. After being appointed to a fire station, a structured "on station" training program further developed the skills of a firefighter. Specialist courses were also available to firefighters at Fiskville. Officer training programs facilitating preparation for Grade 1, 3 and 5 Officer assessments were developed in 1987. All Officer Assessments were conducted in house by a CFA Board of Examiners.

*Since the early 1990s, once accepted into the CFA, career firefighters have been required to serve a 6 month probationary period as well as undertake a 3 level Continuation Training Program over 3 years. Completion of the modules over the 3 years meant that a firefighter would move up progressively from level 1 to 3. After 3 years service, firefighters were eligible to sit the Leading Firefighters Examination, which involved demonstrating competencies in several of the AFC Standards. Further promotions in subsequent years has involved continuing to display current competency against the AFC Standards applicable to the level of promotion being sought."*¹⁵³

- 6.5.33** The training of career firefighters prior to Linton was more controlled and regulated than that of the volunteers. By the time the firefighter was allowed to attend fires he or she had satisfactorily completed the AFAC courses. In addition there was a structured continuing "on the job" training program. Consideration will now turn to training given by DNRE.

DNRE

- 6.5.34** In 1992 the DNRE implemented its Fire Training Management System.¹⁵² By 1994 this system was being used as a model for the development of the National Firefighter Competency Assessment System.¹⁵⁵

- 6.5.35** The DNRE Fire Training Management System is underpinned by the DNRE's "Code of Practice for Fire Management on Public Land". The latter document sets out competency and training requirements:

"2.3.8 RESOURCES: PERSONNEL

200 The Department must set the number and location of its personnel with appropriate work skills and fitness according to the designated performance criteria and the associated specified minimum level of resources.

Competence and Training

201 The Department must:

202 ensure that all its firefighters are competent and have this competence recognised prior to their involvement in fire fighting operations;

203 as far as is practicable, give firefighters practical and operational experience appropriate to the level of training being undertaken.

204 Competency and training for firefighting operations must address relevant occupational health and safety codes of practice, standards, and the correct use of equipment.

205 Competency and training must include familiarity with the environmental aspects of fire control operations.

206 All Departmental firefighters deployed to a fireline sector must be endorsed to at least Basic Firefighter level of National Fire Industry equivalent prior to undertaking firefighting operations.

207 The Department must endorse Departmental "firefighters" required to perform at advanced levels or in specialist roles where it has adopted a system of corresponding endorsements.

208 Unless exceptional circumstances exist, the Department should deploy an employee to perform tasks only within his or her level of endorsement unless the employee is being trained under supervision for a higher level.

209 *The Department should use competency-based course guidelines and regularly validate training and endorsement requirements against operational performance criteria.*" ¹⁵⁶

6.5.36 Mr Noonan carried out an analysis of DNRE training and described the system:

"The following fire fighter accreditations currently exist:

Basic Firefighter

Operations Officer Level 1 (previously Level 1 Firefighter)

Operations Officer Level 2 (previously Level 2 Firefighter)

Operations Officer Level 3 (previously Level 3 Firefighter)

Incident Controller Level 1 (previously Level 1 Controller)

Incident Controller Level 2 (previously Level 2 Controller)

Incident Controller Level 3 (previously Level 3 Controller)

Fire accreditation required varies according to the size and complexity of a fire. Fires are defines as the following:

Type 1 Incident – small, simple fire which is controlled with the resources of the local area. Equivalent to AIIMS Small Incident.

Type 2 Incident – incident is a developing incident if medium size or complexity. Resources from other locations are involved. It is expected that the incident will be controlled within 24 hours. Equivalent to AIIMS Medium Incident.

Level 3 Incident – a large or complex incident where resources from a range of locations are involved. Involves multi agencies and normally is expected to exceed 24 hours duration. Equivalent to AIIMS Large Incident." ¹⁵⁷

6.5.37 Mr Noonan prepared a table setting out the competency required for particular roles in particular types of incidents (Figure 6.2): ¹⁵⁸

Figure 6.2

Fire Role	Type 1 Incident	Type 2 Incident	Type 3 Incident
Incident Controller	Incident Controller Level 1	Incident Controller Level 2	Incident Controller Level 3
Operations Officer	Operations Officer level 1	Operations Officer Level 2	Operations Officer Level 3
Division Commander	N/A	N/A	Operations Officer Level 2
Sector Commander	Operations Officer	Operations Officer Level 2	Operations Officer Level 2
Crew Leader	Operations Officer Level 1	Operations Officer Level 1	Operations Officer Level 1
Crew Member	Basic Firefighter	Basic Firefighter	Basic Firefighter

6.5.38 The Basic Firefighter Course involves studying the following National Training Modules:

1.07 Personal Protection 1

1.12A Wildfire Behaviour 1

1.12B Wildfire Suppression 1. ¹⁵⁹

6.5.39 The course also covers the following areas:

- *"NRE fire suppression principles*
- *Fire Behaviour*
- *Teamwork and communication*
- *Personal protection*
- *Fire suppression techniques*
- *Water in fire fighting*
- *Firefighter safety*

- *Fire survival*
- *Use of aircraft and safety around aircraft*
- *Use of radios*
- *Response to a wildfire.”*¹⁶⁰

6.5.40 A candidate for Basic Firefighter Accreditation is assessed by an accredited assessor. A grading of “*competent*” or “*not yet competent*” is then given.¹⁶¹

6.5.41 To advance to the next level, that is Operations Officer Level 1, an individual must have been assessed as competent to receive Basic Firefighting Accreditation and also to have engaged in at least 15 full days of firefighting as a Basic Firefighter. The firefighter’s experience can be gained at prescribed burns.¹⁶²

6.4.42 The National Training Modules covered during the Operations Officer Level 1 course are:

- 1.09 Mapping
- 1.19 Communications Systems
- 2.28 Wildlife Behaviour 2
- 2.29 Wildlife Suppression 2
- 3.15 Supervising Teams¹⁶³

6.5.43 Other areas studied for the Operations Officer’s qualification are:

- Departmental suppression policy
- Safety
- Leadership
- Fire behaviour
- Map reading
- Fire suppression
- Supervise the construction of a hand trail
- Aviation
- Legal powers and responsibilities
- Fire organisation
- Reporting procedure
- Fire administration
- Communications¹⁶⁴

6.5.44 Candidates are assessed by an accredited assessor.

6.5.45 Those who have reached Operations Officer Level 1 can progress to Level 2 once they have demonstrated an ability to perform as an Operations Officer at Type 1 incidents.¹⁶⁵ A candidate must also demonstrate “*effective deployment and supervision of 2 to 5 crews at wildfires and prescribed burns.*”¹⁶⁶

6.5.46 To advance, a further course of study and accreditation is required. The candidate is required to study the following subjects:

- Leadership and supervision
- Fire behaviour and prediction
- Fire suppression
- Aviation
- Safety
- NRE fire organisation
- Fire Law investigation.¹⁶⁷

6.5.47 To be a candidate for Operations Officer Level 3, a person must be accredited as and have demonstrated his ability to perform as a Level 2 Operations Officer. The candidate must also demonstrate “*effective management and supervision of staff at a fire or in the normal daily work environment.*”¹⁶⁸

- 6.5.48** The candidate is also required to undertake a course based on National Training Module 3.18 “Wildfire Suppression 3”. That course will involve demonstrating competency in:
- Management
 - Fire behaviour
 - Fire suppression
 - Aviation
 - NRE fire organisation
 - Information flow.¹⁶⁹
- 6.5.49** In order to maintain accreditation as Operations Officer Level 3, the person must be assessed every 5 years and must attend a wildfire or prescribed burn in that role every year.
- 6.5.50** The DNRE has a second training scheme, described by Mr Noonan:
- “The second stream of NRE accreditation is in the AIIMS Incident Controller field. Like the competencies listed above, the Incident Controller stream accreditation is through 3 different levels, with each level having a higher or greater competency factor. Details of the Incident Controller levels can be found in the NRE Fire Training Management System.”*¹⁷⁰
- 6.5.51** A comparison of the training schemes of the DNRE and the CFA shows the following:
- The CFA has far more people to train than the DNRE;
 - The CFA is required to train large numbers of volunteers who must fit the training into their daily lives;
 - The DNRE specialises in forest fires whereas the CFA must also deal with other types of fire such as:
 - Motor vehicle fires
 - Flammable liquid fires
 - Hazardous materials
 - Bomb incidents
 - Boiler Pressure Vessels, and
 - Electrical fires.
- 6.5.52** It can be seen from this that the task in training confronting the CFA is vastly more complex than that of the DNRE. Further, the ability of the CFA to provide practical experience in forest fire fighting is limited to the ability for the people to participate in prescribed burns with the DNRE and such wildfires as they are called upon to attend.

6.6 Firefighting Methods

6.6.1 Introduction

6.6.2 The purpose of this section is to describe and examine the methods used by the CFA and DNRE in suppressing fires. It forms a background to chapters of this Report dealing with the various incidents at the Linton fire.

6.6.3 The strategies used to suppress fire fall into two broad categories:

- offensive strategies where the fire can safely and effectively be attacked or extinguished
- defensive strategies where the fire is too remote or too intense to be safely or effectively attacked or extinguished.¹⁷¹

6.6.4 The offensive strategies are:

- Direct attack;
- Parallel attack; and
- Indirect attack.¹⁷²

6.6.5 The suppression of a fire can also involve:

- Construction of a control line;
- Mopping up; and
- Patrolling of the perimeter of the fire.

6.6.6 Each of these topics are considered in this section of this Chapter.

Direct Attack

6.6.7 A direct attack occurs where firefighters are:

- directly extinguishing the fire's edge using water, foam, earth or by beating out the flames
- constructing a control line immediately adjacent to the fire edge.¹⁷³

6.6.8 All firefighters are required to work directly on the edge of the fire, direct attack is mainly used "*on low intensity wildfires that can be easily and safely reached by firefighter.*"¹⁷⁴

6.6.9 Firefighters are taught that direct attack is appropriate where:

- flame height is less than about 1.5-2 metres
- access is possible to the fire edge
- adequate resources are available
- an immediate safe refuge or escape route is available.¹⁷⁵

6.6.10 The advantages of making a direct attack on a fire include that it:

- minimizes the area burnt
- reduces the risk of the fire gaining momentum with changes in weather, fuel or topography factors
- uses any dead edge where the fire may have self-extinguished, to get the fire to a checked condition quickly. But remember, dead edge must be examined and secured as soon as possible
- in some circumstances, allows safe night work
- usually allows retreat onto burnt ground if fire flares up.¹⁷⁶

6.6.11 There are, however, also disadvantages of using a direct attack. These are:

- it is possible only on relatively low intensity fires (or flanks of more intense fires) with flame heights not more than 1.5-2 metres
- crews are more exposed to heat and smoke
- a rapid escape of the fire can occur if fire behaviour changes or a weakness in the control line exists
- it may produce an irregular, winding control line.¹⁷⁷

Parallel Attack

6.6.12 When a parallel attack is used:

*"... a control line is constructed parallel to and just far enough from the fire's edge to allow crews and equipment to work effectively away from heat and smoke"*¹⁷⁸

6.6.13 What is involved in this type of attack is:

- keeping as close to the fire edge as possible (a few metres to 50 metres or more)
- burning fuels between the control lines and the fire as soon as possible
- varying the distance from the fire edge as required to avoid more intense fire behaviour or to bypass obstacles.¹⁷⁹

6.6.14

It is considered that:

- A parallel attack is appropriate where the current or anticipated flame height is between 1.5 and 3 metres. It can be made using hand tool crews and/or mechanical equipment
- Because of the higher fire intensities involved, crews must be able to reach burnt ground or another refuge if fire behaviour escalates quickly.¹⁸⁰

6.6.15

The advantages and disadvantages of using a parallel attack have been described as:

Advantages of parallel attack

Advantages of a parallel attack are that:

- crews are less affected by heat and smoke
- it may allow a flank attack on a hotter (and faster) fire
- straighter control lines may be possible (with fewer obstacles)

Disadvantages of parallel attacks

Some disadvantages of a parallel attack are:

- burning out fuels inside the control line increases risk of fire escape
- the total fire area will be greater
- there is potential for rapid increase in fire intensity, endangering crews.¹⁸¹

Indirect Attack

6.6.16

It is considered that:

“An indirect attack involves falling back some distance from the fire perimeter (up to a few kilometres) and backburning from a strong control line (such as roads, tracks, deliberately constructed control lines).

An indirect attack is appropriate where fire behaviour is severe, for example when flame height is greater than 3 metres, or spotting is occurring. It may only be possible on the flanks of the fire if the head fire behaviour is too severe.”¹⁸²

6.6.17

The advantages and disadvantages of using an indirect attack have been described as:

Advantages of indirect attack

Some advantages of indirect attack are:

- it is the only method effective against large, intense fires
- it enables choice in locating control lines
- it allows use of defensible, existing barriers
- it allows time for control line construction
- crews are not affected by heat and smoke (until backburning commences)

Disadvantages of indirect attack

Some disadvantages of indirect attack are:

- it increases the existing fire area substantially
- it introduces additional dangers associated with backburning (these will be discussed in Chapter 2)
- it does not use any dead edge on the fire perimeter
- it may be difficult to ensure all country between the control line and the main fire is completely burnt out.¹⁸³

Defensive Strategies

6.6.18

By definition a “defensive strategy involves not attempting to attack the fire at all.”¹⁸⁴ It is suggested that these strategies must be used where:

- “extreme fire behaviour is occurring (for example, flame height greater than 4–5 m)
- limited firefighting resources are available
- the fire is remote and not able to be immediately attacked

In the case of extreme fire behaviour or limited resources, the strategy may mean to concentrate simply on the defence of lives and specific assets. It is essential that adequate refuges or escape routes are available. Good communication with your fireline supervisor, sector commander or strike team leader is still vital.

In the case of remote fires, the strategy may simply mean careful observation of the fire until firefighting resources can be deployed to it.”¹⁸⁵

Fire Suppression Strategies in Forests

6.6.19 The strategy to be used in a particular situation in a forest fire is determined by fire behaviour characteristics and other factors such as the ability to gain vehicular access to the fire edge.¹⁸⁶

6.6.20 Forest fire behaviour is influenced by many factors including:

- the complex fuel structure – fine and heavy fuels, often distributed vertically, with potential for tree crowns to also become available fuel.
- the usually significant barrier to wind penetration – wind speed at ground level in forest usually $\frac{1}{3}$ or less of wind speed in the open.
- the often wide differences in fuel quantities and in fuel moisture contents within areas. These differences are a result of variations in topography and vegetation.¹⁸⁷

6.6.21 The general characteristics of forest fires include:

- they have the potential to reach very high intensities (possibly greater than 60000 kW/m) with rates of spread up to 5km/hr
- tall flame fronts, possibly enveloping tree crowns
- spotting under severe conditions (mass short distance spotting from stringybark forests and possibly long distance spotting from candlebark forests)
- possibly a pulsating rate of spread as spotting or intermittent crowning takes effect.¹⁸⁸

6.6.22 The overall objectives to be achieved by the use of the various strategies are:

- knockdown (that is, stop spread of the fire by use of water or fuel breaks or backburning)
- containment (that is, ensure fire is contained within a defined perimeter, preferably a mineral-earth control line)
- mop-up and patrol (that is, progressively treat remaining burning fuels inside the fire perimeter until there is no chance of re-ignition outside the perimeter).¹⁸⁹

6.6.23 The following passage sets out the general issues that are involved in forest fire fighting:

“In forest fires, the head fire is often too intense for direct attack, or is not accessible to vehicles such as tankers. In this case a direct attack on the flanks of the fire should be commenced if possible, working from the rear of the fire towards the head. This may require the construction of a control line by hand or by mechanical equipment. The head fire may be controlled by an indirect attack, probably using backburning, from a well established control line when conditions allow a backburn to be controlled.”¹⁹⁰

Choosing an Appropriate Strategy

6.6.24 The strategy chosen in a particular case varies with the situation applying at the time of the choice and the likely changes to be encountered. The strategy used on different sections of the perimeter of a particular fire may also vary.¹⁹¹

6.6.25 The strategy to be used on a particular part of a fire will depend on:

- fire rate of spread
- fire intensity
- spotting potential
- size and nature of firefighting resources
- fuels, terrain and assets in the path of the fire
- ease of access.¹⁹²

6.6.26 The general approach that is recommended by the texts is:

“Wherever possible, attack the head of the fire first. This is where it is spreading fastest and burning most intensely. If the head of the fire is too hot or spreading too fast, attack the flanks of the fire if possible, working from the rear to the head. This is called ‘pinching out’ the fire.

*Priority must be given to any flank that may become an extended head fire zone if the wind changes direction, for example with the passage of a cold front or low pressure trough.”*¹⁹³

6.6.27 It is emphasised that:

*“The choice of firefighting strategy must be based on current and expected fire conditions.”*¹⁹⁴

6.6.28 The general relationships between forest fire behaviour and the strategy that should be adopted is set out in tabular form in Figure 6.3.¹⁹⁵

Figure 6.3 Forest fire behaviour and firefighting strategy

Fire Danger	Flame Height	Intensity (kW/m)	Significance
Low	0–05	0–50	Fires generally self-extinguish.
Moderate	0.5–1.5m	50–100	Hand tool line should hold the fire. Direct attack recommended.
High	1.5–3.0m	500–2000	Fire too intense for direct attack. Parallel attack recommended.
Very High	3.0–10.0m	2000–4000	Crown fire at upper intensities. Indirect attack recommended.
Extreme	>10,	>4000 (may exceed 60,000)	Crowning, spotting and major runs likely. Control efforts probably ineffective. Defensive strategy recommended.

Backburning and Burning Out

6.6.29 Indirect fire attack strategies generally involve backburning *“to remove fuels between an established control line and the main fire.”*¹⁹⁶ If it succeeds it can stop intense fast moving fires, but if it is not successful it *“may become a second wildfire that endangers crews and accelerates the overall fire spread.”*¹⁹⁷

6.6.30 Another use of fire as a firefighter’s strategy is *“burning out”* which means:

*“...setting fire to consume unburnt islands of fuel inside the fire perimeter, such as in a parallel attack strategy.”*¹⁹⁸

6.6.31 A backburn may only be lit in AIIMS-ICS fire after approval from the Operations Officer or the Incident Controller.¹⁹⁹ The person authorizing the backburn must be satisfied that:

- a satisfactory control line has been established from which to light the backburn
- weather and fuel conditions mean the backburn will be controllable
- adequate resources are present to light the backburn and prevent its escape
- sufficient time exists for the backburn to penetrate far enough so that the junction zone effect will not endanger the control line.²⁰⁰

6.6.32

Backburning is accompanied by many risks including:

- the backburn may escape and create a new fire front ahead of the main fire.
- the backburn creates a new solid front of fire, whereas the main fire may have considerable edge which has self extinguished because of localised fuel conditions.
- the backburn may be located too close to the main fire and not be completed when the main fire arrives.
- the main fire may spot over the backburn if it is not deep enough.
- the main head of fire may miss the backburn if the wind changes direction.
- if the wind changes, a backburn may become an active front and threaten the proposed control line at another location where a backburn may not yet be established.
- erratic fire behaviour may occur at the junction zone between the spreading edge of the wildfire and the backburn. This leads to spotting across the control line if the junction zone is not a sufficient distance in from the control line.
- weather conditions may deteriorate, making the fire behaviour of the backburn difficult or impossible to control.
- a weak line may be present where the backburn hasn't burnt to sufficient depth because of different fuel type or condition.
- the lighting pattern gets out of sequence because some crew members light too fast or others are delayed by obstacles. This can lead to lower lines of fire threatening towards a lighting crew above or having an uphill run towards the control line.
- fire controllers underestimate resources required to control a backburn, or underestimate time required to assemble those resources.²⁰¹

6.6.33

The list of risks involved in backburning indicates that the decision must be made on the basis of sound information about topography, fuel and weather. It is also essential that those making the decision have:

- accurate information about the position of the fire;
- up to date information about fire behaviour, in particular spotting;
- know the position of other resources and crews at the fire to ensure that the backburn does not place them in danger;
- accurate weather forecasts; and
- good scenario analysis to predict options that could occur in the future with the behaviour of the fire.

6.6.34

The course materials summarise the safe conditions for backburning under the following headings:

“Control line issues

Control line issues include:

- **adequate width.** *This depends on local circumstances and whether other factors such as wind direction are favourable or not. Width can be enhanced by wetting fuels on the non-fire side with foam or other retardants.*
- **placement of clearing debris.** *Normally, this should be on the non-fire side. If machines have built the control line, ensure gaps are left in the windrow to allow access for personnel and equipment to chase spot fires.*
- **position on slopes.** *In mountain country, control lines are best placed on either ridge tops or valley floors. Control lines mid-slope invite rapid escape of backburns on the uphill side. Mid-slope control lines are more difficult and slower to construct and present problems for vehicle passing. Backburning on a lee slope may cause problems with erratic fire behaviour (see Module 2.28 ‘Wildfire Behaviour 2’, Chapter 2, section 2).*

Weather and fuel issues

Weather and fuel issues include:

- **wind, relative humidity and fuel moisture content.** *If winds are too strong, humidities too low and fuels too dry, control of the backburn will probably be lost. It is essential to take actual weather readings on site, and know trends in the weather pattern (local forecasts). As a general rule, the McArthur Fire Danger Index should not exceed 12. Possible changes in wind direction must not be able to threaten the backburn. If possible, delay lighting the backburn until evening or overnight when fire danger is moderating.*
- **fuel adjacent to the control line.** *In forested areas, stringybark trees close to the control line provide a big risk of spotting. If possible, rake around them prior to lighting the backburn, or wet them with foam. Dangerous fuels on the non-fire side of the control line can be wetted with foam or other retardants prior to lighting the backburn.*

Resources issues

Resources issues include:

- *numbers of personnel. Sufficient crew must be available to provide light-up personnel, patrol and control personnel as the backburn is extended. If control action is required on spotovers, it is essential that patrol is maintained on the balance of the control line.*
- *nature of resources. In some circumstances, crews with hand tools may be adequate to cope with a backburn. Where heavy fuels or stringybark trees present a high risk of spotting, it may be essential to have equipment to apply foam or water along the control line.*

Time issues

Sufficient time must be available for the backburn to burn out a deep enough area so that when the head fire meets the backburn the intense fire behaviour in the junction zone does not throw spots over the control line.”²⁰²

6.6.35 It is recommended that backburning should not be considered under the following conditions:

- the fire is running under extreme conditions
- long distance spotting is occurring
- the location of the fire edge is not known
- there are no adequate or existing control lines
- there are insufficient resources to construct and hold the backburn
- there is insufficient time to allow penetration of the backburn to a safe depth
- forecast weather conditions will lead to extreme fire danger before the backburn can be secured.²⁰³

Constructing Control Lines

6.6.36 The position on the construction of control lines is that:

“In almost all forest wildfire suppression, construction of a control line will probably be necessary. ... this can be achieved using hand crews or machinery. In either case, the efficiency of the operation will depend on proper use of the resources available.”²⁰⁴

6.6.37 Where the control line is being constructed using machinery such as bulldozers or graders the following factors are important:

- If machines are making a direct attack on the head or flank of the fire, they should be closely supported by tankers.

- Each machine must have an offsider on foot deployed with it, preferably with radio.
- In both direct and indirect attack, machines must have follow-up crews deployed to tidy up, and commence mop-up and patrol as the control line is extended.

In all crew deployment, it is essential that you are fully briefed on:

- your tasks and any time constraints attached to them
- how those tasks fit in with the overall strategy, that is, *"the big picture"*
- reporting relationships, that is, the fireground command structure.²⁰⁵

6.6.38 Almost all forest firefighting involves the construction of control lines.²⁰⁶ The important factors in control line construction are:

- location of the line
- standard of the line (width/vehicle access)
- method of construction (hand/machine/aircraft)
- rate of construction.²⁰⁷

6.6.39 In choosing the site for a control line the individual making the decision should:

- make maximum use of existing natural or artificial barriers – roads, tracks, railway lines, recently burnt areas, green crop areas, streams.
- consider land management objectives.
- balance the rate of spread of fire against speed of line construction. Locate line as close to fire as practical. The longer the line, the greater the chance of escape.
- locate away from areas of dry timber and where possible, locate stringybark trees outside fire control line.
- avoid having line across slope under fire. Falling or rolling material can breach such a line days afterwards.
- locate in places where line construction is rapid – ridge tops, valley bottoms, open timber or edge of grasslands, and wherever it fits the strategy.
- in flat country, try to lay control lines obliquely to line of travel of fire so as to reduce the length of fire front hitting the control line at any one time.
- in hilly country locate on opposite side of valley bottom from fire. Rolling material comes to rest inside burn. Some risk in backburning – if fire escapes over line it has an uphill run.

There are three options when locating control lines on ridges:

- on fire side – anything burning, falling or rolling goes into burnt ground. Backburn will be slow moving downhill.

a. Advantages outweigh disadvantages

- on top of ridge – easy construction. May be able to use tankers. Any escape must travel downhill – rounding up no problem. Falling trees can go into unburnt country.

b. Advantages outweigh disadvantages.

- on side away from fire out of wind – easy to backburn uphill, but eddies may cause turbulence. Anything rolling or falling over line is into unburnt fuels.

c. Disadvantages outweigh advantages.²⁰⁸

6.6.40 The standard of the control line will depend on what is required to cope with adjacent potential fire behaviour. The construction process may involve deciding:

- "what width of line is needed (1 metre? 5 metres? 10 metres?)
- whether the line must be accessible to vehicles.
- whether additional work is required on adjacent fuels. For example, do stringybark trees on the fire side need raking down? Do elevated fuels need to be knocked down?
- whether environmental considerations are important. For example, machine work may be unacceptable in highly sensitive areas."²⁰⁹

6.6.41 Machines that can be used to construct control lines include:

- bulldozers
- graders
- wheeled log skidders with blades
- wheeled tractors with blades, buckets or plough
- mechanical slashers or rollers in sparse vegetation.²¹⁰

6.6.42 When making a choice of the machinery to be used:

“Generally wheeled tractors or graders are only useful on flat ground or in grasslands. Tracked machines (bulldozers) or articulated log skidder type vehicles are needed to move most forest fuels.

Important considerations are:

In direct attack, sweep debris into the fire (to avoid the danger of dragging burning material outside the control line).

In parallel or indirect attack, sweep debris away from fire side of line, clean up heaps around trees with follow-up hand crews.

Make the line suitable for vehicles wherever possible.

Make the line only as wide as necessary. If necessary, construct passing/turning bays for vehicles at regular intervals.”²¹¹

6.6.43 When using machinery the rate of construction will be determined by:

- nature and power of the machinery
- type of fuel to be moved
- size and density of standing trees
- ground and slope conditions
- experience of the operator.²¹²

6.6.44 Aircraft can also be used to construct control lines:

“... by dropping fire retardant. The retardant coats fuels ahead of the fire and prevents them burning, thus effectively creating a control line. This technique is especially useful in checking the spread of remote fires while ground crews travel to them.

Construction of retardant control lines must always be followed by on-ground checking, and if necessary, construction of mineral-earth breaks.

Important considerations are:

- availability of aircraft
- turn around times (filling point > fire > filling point)
- fire intensity.”²¹³

6.6.45 The rate of aircraft construction of control lines will be influenced by:

- turn around times from refilling point to fire and return
- nature and efficiency of support crews and facilities.²¹⁴

6.6.46 Whatever method is used to construct a control line the critical factor is that:

“... the rate of control of line construction must match or exceed the rate at which the fire’s perimeter is increasing.”²¹⁵

Mopping Up and Patrol

6.6.47 Mopping up or blacking out operations involve:

“... making sure that a contained or checked fire does not restart. When the perimeter of a wildfire is extinguished, a strip inside the perimeter must be blacked out to extinguish all smouldering material. The width of this strip will vary. Your Officer-in-

Charge or crew leader will tell you how far inside the control line this work should be taken. The depth will depend on:

- **the size of the wildfire** – it may be possible to mop-up the entire area of small fires.
- **nature of the fuels** – lots of heavy, smouldering fuels inside the mopped-up perimeter increase the risk of re-ignition. The mopped-up margin may need to be deeper.
- **terrain or topography** – control lines on slopes with burnt ground above have a risk of smouldering material tumbling down across the line. Mopping up must be extended further upslope to reduce this risk.
- **weather conditions** – the likelihood of severe weather in the near future may make a deeper mopped-up zone desirable.

A mopping-up operation involves locating and extinguishing any smouldering fuel above or below ground. This is done manually with handtools, or by wetting the fuel, or both. You should:

- extinguish any smouldering and hot materials
- place any smouldering fuel found outside the control line into the burnt out area
- break up fuel concentrations to release the heat
- turn smouldering logs into a position where they will not roll into an unburnt area
- dig out and extinguish burning roots and stump holes
- extinguish any fresh outbreaks

The felling of burning trees, which could fall into unburnt areas or provide wind blown embers, should only be conducted by suitably trained personnel.”²¹⁶

6.6.48 Once the spread of fire is controlled with a control line it is necessary for fire crews to patrol the perimeter. This is done in conjunction with mopping up work.

6.6.49 When patrolling firefighters must look out for:

- burning material within the fire area which could threaten the control line (especially overhead trees)
- spot fires beyond the control line
- weak spots in the control line where further work is required
- overhead limbs in trees which may fall and endanger you
- If you are patrolling in a vehicle, follow these precautions:
- when travelling in smoke or dust, reduce speeds, switch on lights and occasionally sound the horn
- do not block access or escape routes
- when travelling along fire breaks, take note of the nearest turning areas and refuges, and be aware of other vehicles and firefighters on foot.²¹⁷

6.6.50 Firefighters are taught that firefighting requires teamwork. They are taught:

“... You must make sure:

- *that you understand your task, and how it fits in with the work of other firefighters around you*
- *the person in charge knows where you are and what you are doing*
- *you know where other firefighters are and what they are doing*
- *you stay in contact regularly with your crew leader*
- *that you have adequate drinking water*
- *that you know the escape plans in the event that you may have to leave the area quickly*
- *follow your agency's Standard Operating Procedures.”²¹⁸*

- 6.6.51** This section has set out the knowledge a firefighter who has successfully completed the two “Wildfire Suppression” units would have. The information is quite detailed and of a high standard. It allows a framework by which to examine the conduct and actions of firefighters at the Linton fire.

6.7 Operational Guidelines and Watchouts

6.7.1 Introduction

- 6.7.2** There are many hazards that confront the firefighter on a fire-ground. Casualties at fires can arise from:

- heat illness (including exposure to high levels of radiant heat)
- falling limbs and trees
- operating vehicles and equipment
- exposure to smoke.²¹⁹

- 6.7.3** These hazards and precautions to minimise their effect can be summarised as:

“Heat illness

- *radiant heat from the fire*
- *environmental heat (the heat of the air around us)*
- *metabolic heat (the internal heat our bodies generate as we work)*
- *dehydration (excessive fluid loss through sweating without adequate replacement)*

Heat illness can be avoided by:

- *minimising exposure to radiant heat. Do not work closer to flames that you have to. Cover as much skin as possible (you should be wearing overalls or long trousers and long sleeved cotton shirt).*
- *pacing your work effort.*
- *taking every chance when away from the fire edge to loosen clothing to allow sweat to evaporate more easily.*
- *drinking water regularly.*

Falling limbs and trees

- *Falling limbs and trees are a common cause of casualties at wildfires in forest/woodland areas. This hazard can be minimised by:*
- *always wearing a helmet*
- *being conscious of overhead hazards. Inspect trees above your locality for evidence of broken limbs which may fall*
- *being aware of trees in your vicinity with butts or trunks weakened by the fire. Such trees should be identified and felled.*

Operating vehicles and equipment

- *Operating vehicles and equipment on the fireground may produce many hazardous situations. Around vehicles:*
- *Climbing on and off tankers and trucks carries a high risk of slips and falls. Only use marked climbing positions. Do not jump down.*
- *Never get on or off a moving vehicle.*
- *Take care when handling hoses and hose reels.*
 - *– direct high pressure water jets carefully*
 - *– when running hose in or out, look out for couplings*
 - *– keep hands clear of hose reels*

Around machines/equipment:

- *Never ride on bulldozers or other machinery as a passenger.*

- When bulldozers are pushing over trees, keep two lengths clear.
- Never approach a machine until you are certain the operator has seen you.

Smoke

- Heavy smoke at a wildfire can be a serious threat to your well being.
- Always carry your smoke mask and goggles and use them where necessary.
- Avoid unnecessary exposure to heavy smoke.
- If trapped in heavy smoke, seek fresh air pockets close to the ground.”²²⁰

6.7.4 Another major hazard occurs where there is a sudden change in fire behaviour. Firefighters are taught:

“Studies of serious incidents at wildfires show that most life-threatening situations arise from sudden changes in fire behaviour.

Any fire that suddenly

- *increases its rate of spread*
- *increases its intensity (flame height)*
- *changes its direction of spread could threaten firefighters previously working in a safe situation.*

Since fire behaviour is governed by fuel, topography and weather, you should always be observing these factors on the fireline and anticipating their effect on fire behaviour. This will allow you to:

- *avoid moving into a hazardous location*
- *make a timely evacuation of a hazardous location.”*²²¹

6.7.5 Firefighters are warned to particularly take care in the following situations:

- fire accelerating upslope. Working **above** fire in hilly terrain is always potentially dangerous.
- fire intensity increasing in higher fuel quantities, or more elevated fuels. If this leads to mass spot fires occurring around you, you should evacuate the area immediately.
- sudden changes in wind direction or strength. Always observe smoke movement above the fire. You may see a change in wind direction before it arrives at ground level and changes the fire’s direction of spread.²²²

6.7.6 In the context of a forest fire these risks and hazards are managed in a number of ways including:

- The strategy chosen which can reduce exposure to radiant heat or smoke;
- The teaching of fire Orders and Watchouts which are intended to create awareness among firefighters of when they are in situations that place them at risk;
- The “work to the black” rule which requires firefighters to work sufficiently closely to burnt areas to be able to retreat to them if there is a sudden change in fire behaviour; and The so called “Quarter Tank” rule which requires tankers to maintain a sufficient reserve of water to go into “survival mode” when engulfed by flames in situations where all other safety nets have failed.

6.7.7 In the remainder of this section consideration will be given to the Fire Orders and Watchouts.

10 Standard Fire Orders

6.7.8 The 10 Standard Fire Orders are set out in summary form in the “Operations Guidelines.”²²³

- 1 Always stay in contact or tell someone where you are.
- 2 Know where the fire is and what direction it is travelling.
- 3 Know the country or have someone with you who does.
- 4 Plan an escape route.

- 5 Park your vehicle in a safe spot.
- 6 Ensure that your instructions are clear.
- 7 Build a fireline from a safe anchor point.
- 8 Your full set of safety gear is compulsory.
- 9 Don't panic – keep calm and make logical decisions.
- 10 Accidents and ill-health can endanger all the crew.”²²⁴

6.7.9

In effect they represent a checklist of topics dealt with under various headings of the “Operations Guidelines”. They have no statutory force. They were described by Chief Officer Roche in his statement:

“In the early to mid-1990s when the Operations Guidelines were being developed, there was a heightened awareness within the CFA generally of the importance of safety as well as recognition of the fact that the CFA was having and would continue to have an increasing role in forest and plantation firefighting. Those responsible for preparing the Operations Guidelines therefore looked to international best practice when identifying appropriate safety guidelines for inclusion in the Operations Guidelines. The 10 Standard Fire Orders and the “watch-outs” were then and, so far as I am aware, still are, seen as international best practice in this area.

They were originally developed in North America as a result of the Board of Review inquiry into the Mann Gulch fire in the late 1940s. They were reinforced in comments made as part of the Occupational Health and Safety Administration investigation of the 14 firefighter fatalities during the South Canyon fire in Colorado on 6 July 1995 (see appendix 30 to the report by Packham included in the Coronial Brief).

As at the time of the Linton fire, neither the 10 Standard Fire Orders nor the “watch-outs” had any statutory force or other prescriptive operation within the CFA. The “watch-outs” are guidelines for good practice in forest firefighting that should be considered by all personnel on the fireground when developing strategies or implementing tactics. In that sense, they comprise a simple risk assessment methodology for fireground personnel.

The language of the Standard Fire Orders is more prescriptive than the “watch-outs” and even the title “Standard Fire Orders” suggests that they have a status beyond that of the “watch-outs”. However, the title was chosen only because it is how the 10 Standard Fire Orders are known internationally. As I understand it, while they may have force as rules of practice in the US, the breach of which can lead to disciplinary action, as far as I know this was not the case in Australia at the time of the Linton fire, and certainly not in the CFA. Since the Linton fire, both the 10 Standard Fire Orders and the “watch-outs” have been incorporated into a Chief Officer's Standard Operating Procedure (SOP 7.01 – see below) but not into a Chief Officer's Standing Order. Thus, they continue to operate as guides to safe practice on the fireground, and not as prescriptive rules.”²²⁵

The Watchouts

6.7.10

The “Operations Guidelines” in force at the time of the Linton fire contained 13 Watchouts.²²⁶ Shortly before Linton the CFA distributed a booklet entitled “Wildfire Safety and Survival”²²⁷ which had been published in December 1997. That booklet included the Watchouts, which had been expanded to 18 and contained an explanation.

6.7.11

The publication provided:

“FIREFIGHTERS WATCH OUT WHEN:

1. **Building a control line downhill towards a fire.** Fire races up hills. Look at where the fire is going and don't get into this situation. It can be particularly unsafe at the head of a gully where the wind may funnel the fire.
2. **On a slope – rolling material can ignite fuel below you.** There is the possibility of you being caught between the fire you are working on and a new one burning uphill toward you.

3. **The wind changes speed or direction.** A change in wind direction will mean a change in how the fire burns, how it needs to be controlled and how much it threatens your safety. A wind change could change the direction of fire spread or it could turn at the flank of a fire into the fire head.

...

An increase in wind speed will lead to an increase in fire spread and intensity. A drop in wind speed may be the forerunner of a dramatic weather change.

4. **The weather gets hotter or drier.** This leads to decrease in fuel moisture and therefore more intense fire behaviour. A fire that was mild and easy to control at the start of the day can become a major threat as the fuel dries out.
5. **In heavy cover, with unburnt fuel between you and the fire.** Heavy loads of fuel mean very intense fires and rapid rate of spread when they burn.
6. **Terrain or vegetation impedes travel or visibility.** If you cannot move across the ground easily you will need extra time to escape from any problems, or you will need to look for good refuges not far away. If visibility is impaired you cannot be sure of the whereabouts of the fire or how it is behaving. You may not be able to see your workmates or people operating mechanical equipment and they may not be able to see you.
7. **In country you have not seen in daylight.** You may not be aware of potential fire hazards in the area. You will need good briefing information, good maps and good lights, torches etc.
8. **Different parts of the state have very different topography and fuel types.** In these circumstances fire behaviour can be very different to what an "outsider" might predict from looking at a map but should be familiar to local people. Steep terrain can cause unexpected wind channeling and unpredictable wind changes, not necessarily the same as the prevailing winds on the "main fire".
9. **Frequent spot fires occur over your control line.** Spot fires present fire control problems as well as safety problems.
10. **You cannot see the main fire or communicate with anyone who can.** If you cannot see how the main fire is behaving you cannot be sure
 - how it is behaving
 - how effective the work you are doing will be
 - how far away the fire is or
 - how much time you have until it is near you.
11. **Unclear instructions or tasks are given.** Unclear instructions can lead to confusion and misunderstandings about where people are and what they are meant to be doing.
12. **You feel exhausted or want to take a nap near the fire.** If you feel exhausted or sleepy as a result of fatigue or illness then it is not safe for you to remain working at a fire and you should let your supervisor know.
13. **Frontal attack on a fire or constructing a fire control line without a safe anchor point.** When building a fireline, be sure it starts at a safe anchor point like a rock or clearing.
14. **No communication link to crew members or supervisor, and working alone.** Communication between crew members and their supervisor is the key to keeping all members of the crew informed of what is happening.
15. **Uninformed on strategy, tactics and hazards.** A crew needs to have a clear understanding of what they will be doing, what standard of work is expected and what hazards they are likely to encounter to be able to complete their own tasks effectively and safely.
16. **Safety zones and escape routes not identified.** it is no use waiting until an emergency arises to start thinking of a way out of it.

17. **Fire not scouted or potential assessed.** Until a fire has been properly assessed on the ground the full range of possible fire behaviour and possible safety threats will not be understood.
18. **Keep a reserve of water in the tanker for protection and safety of the crew.** never completely empty the tank before refilling.”²²⁸

6.7.12 As explained by Chief Officer Roche in para 6.7.8, “... they continue to operate as guides to safe practice on the fireground, and not as prescriptive rules.”

6.7.13 These Standard Fire Orders and Watchouts also give a framework by which to test decisions that were made by various firefighters at Linton.

6.8 Fire Incident Reporting and Investigation System

6.8.1 Introduction

6.8.2 The AFAC “Incident Control System”, learning manual 4.04 specifies that the following should be done in reporting and investigating special incidents or accidents.

- “indicate the information required: – nature of event – location- magnitude – personnel involved (no names to be broadcast over radio) – initial action.
- obtain information from:– subordinates- personal observation – ground or air observers.
- request assistance needed, such as helicopter, ambulance or tow truck
- submit report to Incident Controller.”²²⁹

6.8.3 The importance of reporting incidents and the use that should be made of the information provided was considered by a number of witnesses at these Inquests.

6.8.4 Mr Greg Leach, who is with the CFA and was the Incident Controller at the Linton fire, said:

“Would you now regard what you know about the Pittong Road as a near miss incident?—Yes.

And ought that incident have been reported up to the IMT?—Yes.

As soon as possible?—Yes.

Why?—Well, I think information about near miss events needs to be communicated because obviously it is an indicator that something has gone wrong, and it may be an indicator, for example, that fire intensity is more severe, which is an indicator the fuels are drier, or the fuel loads are higher, or the weather conditions are affecting the fire worse than what we would have anticipated. It is an indicator that can be used to look at whether control strategies and tactics are appropriate.

I think you have covered that, I suggest to you it is relevant because it is indicative of fire behaviour, that’s effectively what you have said?—That’s right.

And the more information the IMT has got about fire behaviour the better?—Exactly.

In terms of strategies and tactics?—yes.

What about possible impact on the tasking of particular crews, is it important from that perspective as well?—it is, because the tasking of crews will be based around your tactics, you may have to modify the tactics because the conditions are different to what you might have known them to be.

Can I suggest to you, if you don’t know crews have been subject to a burn over, you necessarily don’t know what sort of impact it has had upon them either, do you?—That’s right.

Might it also cause the enforcement or reinforcement of safety issues?—Yes.

Down through the chain of command on to the fire ground?—Yes.

And again I think you have covered this, in a more general sense it is indicative that something has gone wrong?—It is.

It might be a communication problem?—Yes.

Or it might be a tasking problem?—Could be a whole range of reasons, that's why it is important to get some feedback, so you can analyse what the actual issue is.”²³⁰

6.8.5 Mr Mahoney who was an officer of the DNRE and was the Deputy Incident Controller at the Linton fire said:

“Mr Livermore: Mr Mahoney, it is one of the functions of the operations section, is it not, to report special incidents and accidents?—Yes, it is.

We have heard some evidence in relation to the Linton fire about a group of trucks being burnt over by the fire on the Pittong Snake Valley Road and going into survival mode when that happened, have you since become aware of that incident?—I have become aware since the fire.

You were not aware of it on the day?—Not on the day, no.

What systems were in place to enable you to be made aware of such an incident?—Just direct reporting back through the chain of command, through the operations structure.

Is that the type of incident, when a truck has to go into survival mode, is that the type of incident that you would regard as an incident that you should report up the line?—Yes, I think it is. I am not fully aware of the circumstances but, yes, if there is a burn over or if the fire has jumped over some crew, yes, that should be reported.

Why is that?—A number of reasons, it obviously tells the operations section that the fire has crossed the road and it that was part of the strategy at that point, then it hasn't been held, which is, it means the strategy at that time has not worked.

Did you know that such a strategy...?—I didn't, no

... was in place to line up on the road in front of the approaching head of the fire? — I was not aware of that at that time.

Is it relevant for other reasons as well?—Yes, it is.

Firefighting safety, and yes, just to review it so people can be aware of the performance.

Like having a chat to the person responsible as to whether it was an appropriate strategy of not, is that the sort of thing you are talking about?—Yes, that's right.”²³¹

6.8.6 It can be seen that reporting of accidents or near miss incidents is important to the management of the fire. It may indicate many things including:

- The fire behaviour has been misjudged;
- The conditions existing at the time have been misinterpreted.
- That a crew or individual lacks the necessary experience to perform a particular task;
- The tactics are incorrect; and
- Other matters.

All of these matters are important for the purpose of safely supervising firefighters and tactics. Incidents should be reported and analysed in a timely manner. The analysis should then be fed back into the Incident Action Plan.

6.8.6 The systems in place with the CFA and DNRE at the time of Linton will now be considered.

CFA

6.8.7 The “Operations Guidelines” provide little guidance on reporting near miss and accident incidents. In essence it requires the Strike Team Leader to make “sitreps” to the Sector Commander, which presumably would make reference to such incidents.²³² The Sector Commander is then required to report “special incidents/accidents”.²³³

6.8.8 The course materials provided in “Wildfire Suppression 2” provide that:

“Firefighting will always have the potential to lead to injury or even death. As well, serious illness which occurs on the fireline requires immediate action. In these

situations you may be required to react to the situation. Firefighters should always look for changes in the behaviour of fellow crew members that may indicate heat illness or some other form of exhaustion. If untreated it will become serious.

The following procedures will also apply where private citizens are found to be seriously injured or dead during fire fighting operations.

Serious illness or injury

Where anyone becomes seriously ill or is seriously injured:

- *give immediate first aid*
- *send a situation report stating:*
 - *medical assistance required, for example doctor and ambulance*
 - *number of persons affected (important with respect to ambulance[s])*
 - *whether firefighting personnel or citizens*
 - *nature of injuries*
 - *request attendance of senior supervisor*
- *if possible, remove the person(s) from danger*
- *preserve the accident scene for further investigation*
- *do not give out the names of the individuals involved unless necessary*

Death

By the nature of their role, firefighters are likely to be confronted with the death of either a fellow firefighter or a private citizen at some time during their association with their agency. The following procedures are recommended.

Send an immediate situation report detailing:

- *medical assistance required, including a doctor*
- *police required (who will advise coroner)*
- *number of persons affected*
- *request immediate attendance of senior supervisor*
- *request immediate relief of affected crews*

At no time:

- ***should the name(s) of the personnel be broadcast as part of radio traffic (use codes, if applicable)***
- ***should radio traffic include any details that may lead to other agency personnel learning the identity of personnel***

If the person can be left in situ, do not move them. If they have to be moved, ensure that all details are noted and provided to investigators.

Preserve the accident scene.

All personnel directly involved should be relieved as soon as practicable.”²³⁴

- 6.8.9** Those who are accredited to engage in forest firefighting should be aware of these procedures and have learnt them as part of their course.

DNRE

- 6.8.10** The procedures for reporting and investigating accidents and near misses used by the DNRE were set out in document submitted to the Inquests, but not given an exhibit number. That document was entitled “FATALITIES AND NEAR MISS INVESTIGATION” and it provided:

“NRE Policy

The current policy, as attached, outlines the Corporate, management and individual responsibilities for the provision and maintaining of a safe and healthy workplace.

Procedures for Reporting

There is a responsibility for individuals and supervisors to report significant incidents to the Controller in the case of Fire Suppression and to the Officer in Charge in the case of other fire activities.

Reporting of these incidents needs to conform to the Department's OH&S procedures.

- An incident includes near misses, injury, disease or damage.*
- An employee (or agent) must make his/her supervisor aware of incident and complete a report within 24 hours.*
- The supervisor, local manager and the OH&S officer have responsibilities within certain time-lines, including notifying the Victorian WorkCover Authority within 48 hours of Notifiable Incidents.*

To assist with the capture of injuries and 'near misses' on the fireline the Department has introduced the 'Firefighter Notice of Injury or Near Miss' pocket card. The card was first issued to firefighters in the 1999/2000 fire season. This card provides for the quick recording of enough basic information so as to allow for follow-up detailed investigation. The rear of the card summarises emergency first aid and heat stress treatment. A copy of the card is attached.

Procedures for Investigation

Investigations in the past have followed the basic procedure of describing how the incident occurred, the contributing factors to the incident and actions to be undertaken to prevent such an incident re-occurring. This has been enhanced to ensure consistency across the department.

Where a formal investigation is now required an investigation committee is appointed in line with the Department's OH&S procedure to investigate the incident.

- The make up of the Committee depends on the seriousness of the incident. The Committee includes an independent chairperson, the supervisor, the elected Health and Safety Representative, the injured person(s), and one or more of the following – the Regional OH&S Officer, an independent employee, a local manager, a technical expert. In addition witnesses, supported by a written statement, should be invited to give an account of factors.*

Under current procedures the steps involved in an investigation will consist of:

- Describing the chronological sequences of events before, during and after the incident*
- Describing the contributing factors*
- Management systems (planning, adequate and suitable supervision, identification, assessment and control of hazards, induction and maintenance programs)*
- The task (verbal or written instructions or procedures, training)*
- Equipment and materials (plant, machinery, substances, safeguards, protective equipment, housekeeping)*
- The environment (lighting, footing, ventilation, noise, temperature, weather)*
- Human factors (competency, authorisation, decision-making, fatigue, duress, tension)*
- Recommending corrective actions*
- Elimination*
- Substitution*
- Engineering/isolation*
- Administration*
- Personal protective equipment"²³⁵*

- 6.8.11** These were the systems that needed to be complied with during the Linton fire, which involved deaths, injuries and near miss incidents.

6.9 Previous Inquests and Recommendations

6.9.1 Introduction

6.9.2 There were a number of major fires in Victoria just prior to the Linton fire. These included:

- The Berringa-Enfield Fire occurring 25 and 26 February 1995;
- The Creswick Fire occurring 21 January 1997;
- The Dandenong Ranges Fire 21 January 1997; and
- The Mount Martha fire 21 January 1997.

6.9.3 The parties to these Inquests had access to the Reports and Inquest findings in relation to these fires. There was no extensive analysis undertaken of them to see whether or not they were relevant to the issues in these Inquests. This was so because it was recognised that to be probative of issues occurring at Linton there would need to be a detailed analysis of the facts of each incident and then a comparison with events at Linton. Such a process would have unduly extended these proceedings for little return and so that course was not adopted.

6.9.4 These materials, however, are relevant in a limited way which was pursued at these Inquests. The relevance can be distilled from Chief Officer Roche's statement:

*"The need for further enhancements in training materials and delivery were identified as a result of the Fire Agencies Improvement Initiative ("FAII") joint CFA/DNRE project in 1997. The FAII Project involved working parties comprising personnel from each of the CFA and DNRE examining discrete aspects of the investigations into the fires at Heathcote, Creswick, Mount Martha and the Dandenongs on 20 and 21 January 1997. Each working party developed a series of recommendations, which were to be implemented by both agencies in 2 phases over the following 2 to 3 years."*²³⁶

6.9.5 These reports and Inquest findings indicate general problems that existed in the systems used by the DNRE and CFA prior to Linton. They show what difficulties could be anticipated to occur on subsequent fires unless remedial steps were taken. The FAII project was an examination of the difficulties encountered and suggestions for reform. The Final Report of the FAII Project says:

"The aim of the project was to ensure the recommendations from the Review of Significant Fires of 20/21st January 1997, and a suite of other recommendations from fires from both agencies in the last few years, were systematically reviewed and specific action statements formulated.

*These actions statements were then assigned to a person or section within each organisation with the responsibility for implementing the approved action, with associated resources and timelines."*²³⁷

6.9.6 The FAII Final Report was delivered in September 1997, almost 15 months before the Linton fire.

6.9.7 It can be seen that the Reports and Inquest recommendations considered in this section and the FAII Final Report considered in the next section of this Chapter:

- give a means to identify recurring problems; and
- are a guide to solutions to those problems, to improve firefighter safety in the future.

That is the manner in which they have been used in this Inquest.

6.9.8 The Berringa-Enfield Fire

6.9.9 The Berringa-Enfield fire occurred in CFA Region 15 on 25 and 26 February 1995. It is believed to have started as a result of an escaped spark from a BBQ. The fire damaged an estimated 11,000ha of which only 2800ha were on private land. The firefight was a joint operation between the CFA and DNRE with the CFA being the support agency.²³⁸

6.9.10 Chapter 3 of the CFA report on this fire dealt with “OPERATIONS” which were analysed and a number of problems were identified. Recommendations were also made to deal with the problems that were identified.

6.9.11 The first topic dealt with was “FIREFIGHTING TACTICS”. A general summary of the events of the fire shows:

“Firefighting tactics comprised a mixture of direct attack in forest and grassland, and backburning from roads, tracks and dozed control lines. Direct attack was necessary during most of the fire due to erratic weather conditions and the need to protect assets on the perimeter of forested areas.

Within ten minutes of the first report of fire, Leigh Group appliances were fully crewed. Early situation reports prompted rapid mobilisation of further local resources, and good on ground communications between CNR and CFA Group Officers helped management of the initial attack. The arrival of additional resources as strike teams assisted their rapid deployment to fireground activities. However the formation and attendance of many of the strike teams was not preplanned.

Upon arrival of the first CNR crews an early decision was made to sectorise the fire. The CNR acted as incident controller and commanded the northern sector whilst CFA commanded the eastern and southern sectors. The initial incident controller and sector commanders were extremely mobile and had no static control point from which to manage the developing fire.

The Incident Management Team were confident that with the rapid build up of strike teams and associated resources during the afternoon, the fire would be controlled.

The initial objective of the firefight was to hold the head of the fire at the Ballarat-Colac Road. A south-west wind change at 1730 hours, however, redirected the fire front and increased the rate of spread, and meant that this objective could not be achieved.

Erratic weather conditions during the next few hours caused unpredictable fire behaviour and the fire spread over a wide area. The Bureau of Meteorology had difficulty in predicting these local changes, however data helpful to fireground management was provided by both CFA and CNR portable automatic weather stations up near the fire front.

Firefighting tactics during this period aimed at containing the fire within the forest and protecting assets on the perimeter. As a result, much of the work was particularly hot and dangerous for firefighters due to the direct attack nature of these tactics.”²³⁹

6.9.12 The following recommendations were made on this topic:

- *“Training for Brigade and Group Officers should encourage the establishment of control centres early in an incident to provide an initial focus point for incoming crews prior to establishment of assembly areas and staging areas, and to establish a firm communication link to either a Regional HQ or ICC.*
- *Training for Brigade and Group Officers should encourage the sectorisation of developing incidents to enable better command and control of fireground activities and formalisation of responsibilities.*
- *Regions should be advised of the benefits of calling in CFA Rural Fire research Team to provide on ground weather reports.”²⁴⁰*

6.9.13 The next topic covered was “COMMAND AND CONTROL” which was divided into two areas:

- On the Fireground; and
- Incident Management Team.

6.9.14 On the Fireground the following occurred:

“CNR established fireground control supported by two local CFA Group Officers acting as sector commanders for the eastern and southern sectors. Their local knowledge and previous experience of working together assisted in making this an effective arrangement.

Upon formation of an Incident Control Centre in CNR HQ Ballarat (discussed in Section 3.2.2), a CNR Officer assumed the role of Operations Officer on the fireground.

Difficulties in providing regular situation reports were experienced due to poor VHF radio communication links between the fireground and the Incident Control Centre. A forward control point set up at Berringa, utilising the Ballarat Protective Equipment Van, failed to relieve the problem as the local terrain restricted transmitting signals and the vehicle was not designed for long distance communications. The difficulty in communicating situation reports to the ICC from CFA resources was compounded by there being no CFA Officer acting in the role of Deputy to the Operations Officer on the fireground.

A second control point was set up at Napoleon later that evening using the Mobile Control Unit from Belmont. This provided the first effective CFA link between the fireground and the Incident Control Centre in Ballarat. It also provided a physical focus for information collection and empowered key personnel to exercise command and control.”²⁴¹

6.9.15 To deal with these problems it was recommended that:

- “Future ICS training should highlight the need to appoint deputies for ICS management positions in joint agency incidents to ensure accurate and consistent information flow up and down the chain of command.*
- Preplanning for regions should include identification of potential ‘blank’ spots in radio communications, particularly for the VHF frequency.*
- Continued training of all senior volunteers and staff to ensure standard use of ICS terminology within and between agencies.*
- Regions should recognise the benefits of early deployment of control units.”²⁴¹*

6.9.16 When considering the operation of the IMT at this fire it was said:

“A full Incident Management Team was established at approximately 1345 hours on Saturday at the CNR HQ in Ballarat.

The Incident Control Centre also housed the Displan coordinator and a media liaison officer. The media liaison officer was appointed by CNR and issued regular situation reports to the media. Printed media releases were issued on CNR logo letterhead. The information released was not, however, made available to Region 15 HQ, Ballarat City Fire Station or Ballarat Police station who dealt with hundreds of public enquiries.

Initial CFA/CNR liaison did not establish an incident controller, however, upon arrival of a CFA Officer at the Incident Control Centre at approximately 1430 hours, control was given to the CFA.

Throughout the fire the Incident Control Centre had difficulty managing the fireground because of inadequate radio communications, remoteness to the fire front, lack of facilities for managing CFA resources, and the inappropriate layout of the office for incident management. These factors combined with poor mapping resulted in the failure to maintain a single incident status map, a particularly important requirement during dual agency operations.

The monitoring of resources on the fireground was never considered accurate. The use ICS “T” cards to record the arrival of strike teams and individual resources may have helped.

Personnel from the various agencies combined very well together as the joint agency Incident Management Team, although initially there was insufficient CFA participation due to lack of available personnel.

Early control over the incident was also hampered by the fire crossing the boundary between Regions 7 and 15. This resulted in two command functions being established at the Regional level. This was highlighted by Region 7 staff setting up a control point at Rokewood on the southern edge of the fire and reporting to Region 7 HQ. The appointment of the Incident Management Team at Ballarat resolved this overlap.”²⁴³

6.9.17 To overcome the identified problems it was recommended that:

- *“CFA/CNR liaison meetings to emphasise the need to determine the Incident Controller early in an incident.*
- *Regions should preplan incident management teams*
- *Future ICC be established close to the incident to ensure command and control functions can be carried out efficiently.*
- *Regions should give high priority to preplanning ICC, ensuring that adequate facilities exist for joint operations.*
- *Regions preplan local call back personnel including volunteers, administrative support staff and available operational staff from Regions and stations.*
- *The management of fires at or near CFA Regional boundaries needs to implement one (1) incident control organisation.*
- *CFA and CNR need to, as a priority, develop a short dual agency training course for the ICS functions.*
- *That dual agency ICS kits include a joint CFA/CNR logo media release pro forma.*
- *In dual agency operation, ICS Information Section personnel should provide local emergency service and public enquiry lines with copies of all media releases.*
- *The CFA should develop pre-printed resource “T” cards for Victorian firefighting resources.*
- *CFA/CNR should review the ICS forms with an aim to developing dual agency wildfire forms that are quick and easy to use.”²⁴⁴*

6.9.18 Another topic considered was “COMMUNICATIONS” where it was identified in relation to radios that:

“As was the case in previous major wildfires, the VHF network quickly became congested with radio traffic from individual appliances and arriving strike teams. This, by itself, hampered the relaying of sufficient situation reports to the group, region or later to the ICC. The situation was exacerbated by “blank spots” for radio traffic from several areas of the fireground. This problem had not been identified prior to the fire.

HF radio transmissions were attempted from the Berringa Control Point to region 15 HQ but proved unsuccessful.

Channel 9 was established as a command channel whilst channel 12 (low power channel 42) was used as a fireground channel.

CNR used the state public sector trunking radio for much of their communication to the ICC which appeared to generally work well.”²⁴⁵

6.9.19 It was recommended that:

“Incident controllers should, as standard procedure, give early consideration to the allocation of separate radio channels to divisions or sectors to reduce congestion of the command channel.”²⁴⁶

6.9.20 Many other topics were dealt with in the CFA Report but they are not relevant to the Linton fire. What will become apparent, however, is that the problems listed here as having occurred on 25 and 26 February 1995 occurred again at Linton on 2 December 1997.

6.9.21 The Creswick Fire

6.9.22 The Creswick fire occurred on 21 January 1997 and was the subject of both:

- A joint DNRE and CFA Review; and
- A Coronial Inquest.

6.9.23 A brief summary of this fire is:

“On the 21 January 1997, approximately 1800 hectares of bushland and farmland in and adjacent to State forest near Creswick was burnt in a wildfire.

A CFA tanker was destroyed, livestock was killed and considerable damage was caused to private property fencing.

As a result of examining the fire site, canvassing firefighters and motorists, the investigation team determined that this fire was ignited in at least five locations adjacent to the Melbourne/Creswick Road near the junction of Bush Inn Road.

Given all the circumstances of the fire, it is probable that this fire was caused by hot metal fragments discharged from the exhaust of a passing vehicle.

...

From the areas of origin, the fire front travelled generally in a south-south-east direction over undulating terrain for a distance of approximately eight kilometres.

Fire travel indicators show a rapid increase in flame height from less than one metre in the areas of origin to a height sufficient to remove the foliage from the canopy of the trees as the fire travelled south-south-east.

Firefighters observed numerous spot fires occurring throughout the event including one which developed into a separate fire of approximately 100 hectares in the Glen Park area west of the Melbourne/Creswick Road.

The eastern boundary of the fire was contained to the western edge of the Melbourne/Creswick Road except for one section where it is evidence that a fire front travelled in a north-easterly direction for a distance of 1.5 kilometres.

Firefighters have indicated that this passage of fire occurred when the wind direction changed at about 1830 hours.

The western edge of the fire was contained within constructed control lines.”²⁴⁷

6.9.24 The Operations Review of this fire contained the following summary:

“This fire commenced just south of the Creswick/Bungaree Road near Bush Inn Track and within the Road reserve, burning in a generally north/south line through adjacent State Forest Regional Park and private land over a distance of 8km with a separate spot fire 3km long burning 2km beyond the south-east corner of the head of the main fire.

About 3km from the point of origin, the eastern flank of the fire came out into open private land. This eastern flank continued to remain in mainly private land and was the responsibility of the County Fire Authority in the fire fight. The western flank involved public land almost totally and was the responsibility of the NRE in an inaccessible area that required a dozer trail along most of the length of the fire.

On receipt of the call CFA brigades from Creswick Group and local NRE crews were unable to hold the fire due to spotting. The Glen Park tanker was burnt while down a track in the bush attempting to extinguish a spot fire, fortunately no serious injuries were sustained. This happened within the first 26 minutes of the fire.

Crews continued to mount an attack in the public land, several attempts were made to hold the fire at the east/west roads. However, these were unsuccessful due to the intense spotting. The fire was eventually held in open country assisted by some green crop.

On the wind change at approx. 1830 hours, the eastern flank was held along the Creswick/Bungaree Road. A stand along the same road near Russell’s Dam in the public land involving both the CFA and NRE was unsuccessful. When under the influence of change, the fire crowned across with the resulting ground fire causing damage to two tankers. The crew were able to provide protection for themselves and no injuries occurred. This breakaway extended through both bush and grassland covering approx. 150ha.

Almost immediately the fire was reported, a preplanned joint Incident Management Team (IMT) was set up in the NRE offices. NRE provided the Incident Controller and a majority of the subordinate positions. The Region 15 Operations Manager was the Deputy Incident Controller. This situation did not change and remained in place until all CFA units were released after heavy rain fell. NRE units continued to work on the western flank of the fire.

In an endeavour to manage the sectorisation of the fire, the CFA Ballarat City PE van was sent out to establish a Control Point on Clarkes Hill, which is the next road over from the eastern flank. While the fireground management did improve, the action was too late to achieve what was intended.

Whilst the fire fight by both agencies must be seen as very good, the effectiveness of the locations receiving and deploying support, the communications and the overall management of brigades on the fireground has raised some criticism and cause for concern. Information flow from CFA Deputy Group Officers in the field to the established IMT was generally poor.”²⁴⁸

- 6.9.25** When considering the “INITIAL RESPONSE AND ATTACK” the review panel observed:
“Rapid response by ground resources located at Creswick with follow up by additional Midlands NRE/CFA resources.

Surrounding CFA groups on hearing radio traffic turned out brigades that went straight to the fire ground, in some respects this created a control problem in that local officers on the fireground were unaware exactly what brigades were in attendance.”²⁴⁹

- 6.9.26** As a result of this it was recommended:

“That all brigades be required to report to a reception centre and be briefed before being deployed to the fireground.”

- 6.9.27** The review panel made the following observation and recommendations regarding “INCIDENT PLANNING”.

“Situation reports and intelligence gathering was initially a problem due in part to the extensive spotting and rapid spreading of this fire.

Intelligence gathered by air recce plane not passed on effectively to Situation unit.

Adequate resourcing of Resources units enabled shift change over to be planned and processes put in place. Rain meant that arrangements had to be undone.

In some cases there was conflicting information (computer records vs fax) regarding NRE personnel sent to fire.

Ad hoc staging areas were under resourced which led to poor briefing and tasking of incoming strike teams:

Recommendation:

7.1 That the local group make provisions to receive and brief all incoming strike teams before deploying them to the fireground.

7.2 That strike teams be demobilised through the reception centre.

7.3 That the information be communicated to the IMT.”²⁵⁰

- 6.9.28** The following summary occurs under the heading “INCIDENT OPERATIONS”

“Each agency had an officer in the IMT working jointly and being responsible for their respective areas.

Division of the fire on a broad sense was divided between NRE (forest) and CFA (grass). NRE then developed sectors (Creswick Road and western flank). It was unclear as to the sector break up in the grassland and to who were the sector commanders.

In an attempt to improve the situation, the Protective Equipment van from Ballarat City was deployed to establish a Mobile Control Unit at Clarke’s Hill. In addition to being deployed too late the van is not set up for a MCU operation and requires some modifications with radios to be workable.

Successful implementation of a command channel as opposed to an operational channel did not occur. This made it difficult for Sector Commanders to communicate with each other and to Division Commanders. There is a need to consider equipping on a permanent basis key Operational staff with two mobile radios of 25 watts. The Operations Officer based in the helicopter found it difficult to communicate with key personnel to make tactical decisions.

Some Sector Commanders became involved in the direct fire fight to the extent that the management of the whole sector was less than optimal.

Sector Commanders were not readily identifiable.

Some Sector Commanders experienced problems with other personnel not under their command directing personnel and equipment to perform work not in line with standard procedures.

Hot meals were requested for firefighters but salads were provided. Such meals were considered by NRE firefighters as being inadequate for sustained fire operations.

On ground liaison with the VPC was good.

The supply of contract dozers from local operators was excellent however there is a need for training of operators who do not work in forest situations and/or have not been to fires.”²⁵¹

6.9.29 The identification of these problems led to a number of recommendations being made:

“9.1 That training be conducted in large wildfire management, including the duties of officers of the group, the manning of control points and the operation of reception and deployment centres.

9.2 That if there is a joint IMT, there also be a joint Forward Operations Point on the fireground.

9.3 That if it is the intention to use the Protective Equipment van as an MCU the communications facilities be modified to meet the requirement.

9.4 That operational command vehicles be equipped with two CFA (24 watt) radios to facilitate appropriate communication sectorisation of the fire.”²⁵²

6.9.30 When considering “FIREFIGHTING TACTICS” the review observed:

“Incident resulting in Glen Park tanker being burnt resulted from inappropriate attempt to attack a spot fire ahead of the main fire, without due regard to the approach of the main fire.

In Forest land dozer trails were constructed as close as practical to the fire with tanker support to ensure fire did not spot over as it burnt out to the fire control line.

In Grass direct attack where possible using green summer crops and roads to assist ...”²⁵³

6.9.31 This led to the recommendation that:

“CFA crews can be given training in forest fire fighting.”²⁵⁴

6.9.32 The Report then went on to consider “LEADERSHIP” and the following observations and recommendations were made:

“Indications are that individuals in the IMT gave clear leadership.

Failure to establish a Forward Operations Point led to difficulty in establishing joint control of the operations unit.

NRE sectors had a clear structure reporting to a Divisional Commander.

Initial failure to establish a recognised Divisional Commander for the grassland portion of the fire led to some problems in managing CFA resources in the Operations unit.

Recommendation:

14.1 That command and control training be conducted for officers of the group.

14.2 That pre FDP briefings be conducted to clearly establish the expectations of brigades and groups involved in major fires.

14.3 *That when the fireground management of a group is ineffective, the Operation manager put a suitable career officer in the field as a mentor.”²⁵⁵*

6.9.33 Under the heading “SAFETY” there was the following summary:

“NRE crews on the whole followed the chain of command as opposed to ad hoc instruction from personnel without command roles.

There is a need for training of contract dozer operators who do not work in forest situations and/or have not been to fires.

Air operations were correctly suspended due to severe wind sheer by the Air Attack. Supervisor following consultation with the pilots.

The Glen Park tanker was destroyed within 30 minutes of the fire commencing. The crew were working on a spot fire in the Creswick State Forest when they were caught by fire and became involved in self preservation. No injuries were sustained by the five crew members.

Region 2 tankers were deployed to an area that NRE had withdrawn from due to the expected wind change and subsequent risk of a break out which is what eventually happened. Closer liaison between CFA and NRE on the fireground may have avoided this dangerous situation.

One brigade tore a brake hose to the front wheels of their tanker. The District Mechanical Officers were unable to repair this vehicle, resulting in some dispute when the crew wanted to drive the unit with rear wheel brakes only. Other damage occurred to brake pipes when wire from fences became caught and closed off brake pipes. These were repaired in field.”²⁵⁶

6.9.34 These incidents led to recommendations including:

“...

15.3 *That there be trigger points for the non entry of CFA crews into forest areas.*

15.4 *That consideration be given to fitting fixed water sprays to tankers.*

15.5 *That tankers with petrol powered pumps be retro fitted with diesel powered pumps.*

15.6 *That the need for correct protective clothing on the fireground again be given to brigades.*

15.7 *That safety and survival training be included in future courses for brigade members.*

15.8 *That when the DMO determines a vehicle is unroadworthy, he have the authority to withdraw it from service and take control of the vehicle.”²⁵⁷*

6.9.35 The report then turns to a consideration of “COMMUNICATIONS...”:

“Telephone communications from the ICC and to the line were okay with analogue but not digital. Attempts were made to increase the analogue cells but these were at full capacity already.

Most problems relating to communications concerned the use of radio with the lack of radio discipline probably doing the most to compound the issue for the CFA brigades.

See point 4 Incident Operations re lack of command channel.

Many instances of performance of portables being unsatisfactory even with direct line of site were reported.

Communications between CFA and NRE commanders was hampered by the inability to communicate with each other while continuing to monitor their own traffic as a result of vehicles being fitted with only one radio.

Computer systems (CFA & NRE) operated fine.

Trunking tones tend to be intrusive. Would be advantage to reduce. May also be advantage to differentiate between incoming and outgoing tones.”²⁵⁸

6.9.36 These problems led to the following recommendations:

“16.1 That training be given in radio procedure with an emphasis on disciplined use.

16.2 That Region Communications Plans be reviewed in the light of the problems encountered at the Creswick fire.

16.3 That Group Communications Officers be made aware of the availability of command aircraft, go-to and additional channels available during major fires and training be given as to how the changes are implemented.

16.4 That the reason why portable radios were unsatisfactory be investigated by the Communications Department.

16.5 That the problems of radio communications between CFA and NRE command vehicles on the fireground be investigated.

16.6 That the option of developing different ingoing and outgoing tones for trunking radios be investigated.”²⁵⁹

6.9.37 The report considered many other topics that had no importance to the events at Linton.

6.9.38 An Inquest was held into the Creswick fire at the Coronial Services Centre, Southbank, from 26 to 28 August 1998 by Coroner Jacinta Heffey. In that Inquest the loss of the Glen Park tanker while attempting to put out a spot fire was explored in some detail. The Coroner noted:

“The Inquest explored this incident in some detail. The court had available to it an internal report prepared by District Officer Neville Britton. In it he expressed concern about the decision made by Group Officer Ron Quick to direct the Glen Park tanker to ‘an area of impending danger’.

...

Mr Leach also stated that early, aggressive and direct attack on a fire such as this one in the conditions of that day was the appropriate response given the high likelihood of sudden escalation. From the evidence it would seem that at the time the Glen Park tanker was deployed to the area in question the fire was still low and apparently manageable without exposing the fighters to any significant risk. In the circumstances, Mr Leach did not consider that Mr Quick had made an unreasonable decision.

Having considered the evidence of Mr Quick together with that of Mr Webber and Mr Park I am satisfied that this was the case. ...”²⁶⁰

6.9.39 It is to be noted that the incident involving the Snake Valley ‘A’ tanker at the Linton fire and examined in Chapter 10 of this Report is for all intents and purposes a re-run of the Glen Park tanker entrapment.

6.9.40 These Inquests had the additional benefit of evidence from a panel of eminent fire behaviour experts (not available to the Coroner hearing the Creswick Fire Inquest). In a unanimous report the panel concluded:

“The action of the Snake Valley A tanker in attempting to suppress spot fires on a windward slope, downwind of a head fire, under the prevailing conditions was unwise. The panel finds it difficult to understand how local firefighters did not appreciate the potential fire behaviour in stringybark forest. However the incident does highlight the difficulties that firefighters can have in understanding and appreciating the potential for forest fires to change behaviour.

When spot fires ignite immediately downwind of the head fire they may develop slowly in the lighter and variable winds caused because the prevailing wind is ‘blocked’ by the convection of the main fire. In this zone spot fires can develop in a circular pattern and this can give the firefighter an impression that the prevailing wind

speed has dropped. If firefighters become engrossed with suppressing the spot fires and neglect to monitor the position and behavior of the head fire they can easily be overrun with little warning as occurred in this instance.

Suppression of spot fires ahead of the main fire must be recognised as the most hazardous task in forest fire fighting and should not be undertaken by inexperienced people or without good intelligence (usually from the air observation) about the position of the head fire and other spot fires. In this situation (Snake Valley A) this operation was made even more hazardous by the difficult access and by old mine shafts scattered throughout the forest.”²⁶¹

6.9.41 The subsequent event of the Snake Valley ‘A’ entrapment and the evidence of the expert panel at the Linton Inquests has highlighted the folly of attempting to put out spot fires in the path of the head of a fire.

6.9.42 The Dandenong Ranges Fires

6.9.43 The Report of the Coroner on the Dandenong Ranges Fires was not available to the CFA or DNRE prior to the Linton fire, however, both agencies had participated in the Inquests and made submissions. One of the areas of submission related to communications difficulties encountered by the agencies during the fire. In essence, it was contended by the agencies that the adoption of the FAII recommendations would resolve those problems.

6.9.44 These fires were another indication to the agencies of the perennial problem of communications at fires and the limitations that they impose on the effective management of wildfires.

6.9.45 The Mount Martha Fire

6.9.46 The Mount Martha Fire was examined in a joint CFA and DNRE report. In brief:

“The fire started at about 1721 hours on Monday 20th January 1997, which was a Day of Total Fire Ban for all the state. The fire originated in forest near the west edge of Park Road near the intersection of Churchill Road. The land is part of the Mount Martha public park and is adjacent to the Joseph Harris Scout Park.

At the time when the fire started, there was a significant CFA tanker and aircraft resource committed to a major fire at Langwarrin which had just been contained. Local tankers from the Mornington Peninsula Group were also heavily committed to the Langwarrin fire. An incident management team was already established at Moorooduc, but because of the commitment at the Langwarrin fire the Westernport Group Officer asked the Peninsula Group to manage the Mount Martha fire.”²⁶²

6.9.47 As the fire progresses there was a build up of resources to fight it:

“Strike teams from the Langwarrin fire were arriving. The first strike team was deployed to Ellerina Road to control spot fires on the downslope into Safety Beach.

The second strike team was deployed in a nose to tail line along Bradford Road. Crews then set up hoselines directing streams into the bush and fogs to reduce radiant heat. Shortly after the fire breached onto Bradford Road in a narrow front about 20 metres wide.

The Boneo tanker was deployed on Bradford Road nose to tail with other tankers from the Peninsular Group. Hoses had been deployed from the tanker, but the pump was not operating. Heat from the fire burning up to Bradford Road became intense and as a result the Boneo tanker sustained burn damage to the paintwork and to the interior of the cabin. Crew members were exposed to extreme radiant heat and were forced to take refuge behind heat shields, and on the lee side of the appliance. Crews from adjoining tankers assisted in cooling down the Boneo tanker with hose streams. The details of this incident are being investigated separately.

About this time, crews reported a loss in mains water pressure. This was caused because the pump for the water mains ceased operation due to power supply interruption. The problem was reported promptly to South east Water, but there were delays in their contractors getting access to the fire area to attend to the problem.

Westernport DGO1 was allocated a strike team and took responsibility for detecting and extinguishing spot fires in and around houses between Bradford Road and Ellerina Road.

Pumper strike teams from MFB and CFA were deployed throughout Safety beach, patrolling for spot fires.

About 25 tankers were in attendance at this time, with 5 more tankers, 2 bulldozers and 2 graders en route. The substantial speed and weight of attack was a deciding factor in minimising losses between Bradford Road and Grandview terrace. However, the incident management team had difficulty in identifying and co-ordinating the movements of individual units during the early stages.

Police were warning residents between Bradford Road and Bruce Road of the fire. Numerous residents chose to evacuate.

...

Tactics used at this fire were very successful. They included an aggressive headfire attack, allowing for spotting and individual spot fire ignitions and sectorising on a task/street basis. Pumper strike teams deployed to safety Beach reduced the demand for tankers, and provided a safety margin for residents in that area.”²⁶³

6.9.48 The report contained a number of recommendations. Under the heading “INCIDENT CONTROL” this was said:

“At an early stage the Westernport Group Officer handed control to the Peninsular Group Officer. The group Headquarters was activated very early and Police, NRE, Shire, MFB, Red cross and St Johns all co-located in the Rosebud fire station. This led to excellent co-ordination and communication between services. A concern is that the ICC was tending toward the functions of a Municipal emergency Co-ordination Centre. Care needs to be exercised that only combatting agencies are represented at the ICC. The MECC is a suitable location for support agencies.

The Chelsea MCU was located on the fire ground and became the main forward operations point. Police and a variety of Dispan agencies clustered at this location. Comments from the Police indicate that there was insufficient direction and information being made available at this location. A senior officer (assistant operations officer) could have been located at this point.

Recommendation:

4.1 Clarify the importance and the role of forward operations point, assemble area, staging area and MCU. Communicate this through an update to Operations Guidelines.

Some evacuees were confused about where to go to register. The Incident Controller has indicated that the wording of any evacuation message or warning needs to be precise, consistent and unambiguous.”²⁶⁴

6.9.49 When considering “INCIDENT OPERATIONS” the authors of the report noted:

“A failure to sectorise the fire early resulted in poor information flows from the fire to the ICC. Also, there was a lack of communication between strike team leaders and sector commanders. Some crew leaders complained that they had inadequate briefings and inadequate maps.

Recommendation:

7.1 Early sectorisation, setting up staging and assembly area and organising reception and briefing of incoming crews is vital for safe and effective management of incoming personnel and flow of communications.

Personnel in the ICC complained that information flow from the fire ground to the ICC was inadequate. This may have been related to the failure to sectorise early.

Recommendation:

7.2 Better use of trunk radio. Location of a senior officer at the forward operations point. Use of fire ground situation officers would all assist.”²⁶⁵

6.9.50 When considering “COMMUNICATIONS” the authors of the report noted:

“There was some confusion over communications channels until a communications plan was developed. The group was aware of the range of channels available, however it is apparent that there was no overview on channel allocation.

Recommendation:

11.1 Regional Operations Management Plan to identify when ‘go to’ channels to be used and arrangements for monitoring of such.”²⁶⁶

6.9.51 Summary

6.9.52 It can be seen from this short examination of fires occurring shortly before Linton that there were common problems in them and when an examination is made of incidents that occurred at Linton it will be seen that the same types of problems occurred there. In short, the lessons of the other fires had not been translated into effective reforms in the time that elapsed between those fires and Linton.

6.9.53 It is worth noting at this point that knowledge of many of the difficulties encountered at the fires leading up to Linton was available to the IMT at Linton. This is so because the Deputy Planning Officer at Linton IMT from 5.00pm onwards was Mr Euan Ferguson. Ferguson was the author of the reports on:

- The Berringa-Enfield Fire; and
- The Mount Martha Fire.

6.10 Fire Agencies Improvement Initiative (FAII)

6.10.1 FAII is a joint initiative of the CFA and DNRE designed to give effect to recommendations made in the various reports referred to in the previous section of this Chapter. In the end:

*“The Fire Agencies Improvement Initiatives Project sets out over 100 action statements for the Fire Agencies to consider implementing at various periods prior to 97/98 and future fire seasons. Below is a summary of the major new directions in policy and procedures and the significant enhancements for existing ways of doing things, to be considered by the respective project sponsors.”*²⁶⁷

6.10.2 Many topics are dealt with in the Final Report including:

- Fireground Access;
- Community Activities;
- Operations;
- Training;
- Preparedness;
- Equipment and Occupational Health and Safety;
- Communications; and
- Research.

6.10.3 Those recommendations that are relevant to the events occurring at Linton are considered in more detail in the appropriate Chapters of this Report. In this section, however, a summary taken from the Executive Summary of the FAII Final Report, dealing with important initiatives will be set out.

6.10.4 Under the heading “OPERATIONS” the following initiatives are recommended:

“Both agencies have an agreed protocol for first attack and communication procedures on travelling to and arrival at an incident.

Agencies adopt a common approach to the application of Incident Management teams, particularly the role of the Incident Controller and Operations Officer at small to medium size incidents.

...

Requirement based on information needs to increase the basic number of roles fulfilled in an IMT from the traditional 4 to a minimum of 14 incidents that require an IMT/ICC to ensure all roles of the ICS are undertaken.

Adopt common fire terminology, T card systems in the field, (and as contingency at other levels), and the new ICS forms to ensure consistency of incident reporting streamline information flows.

Implement agreed field identification mechanisms for appliances, personnel, and incident management positions at all levels.

Adopt the common reporting lines of State to Region to ICC/IMT to Ops point to fireground. Increase the emphasis on ACTION PLANNING and the production of documented data (using the new ICS forms) at all levels of management.

Apply training in incident management techniques through joint burning operations arranged at local levels.

The concept of an 'Operations Point' supersede all other existing descriptions of points in the field. Comes with functional role statement, likely ICS roles undertaken, field identification markers, and infrastructure required.

Increased emphasis on setting up of staging areas and the concept of 'checking in' to the fireground to aid all aspects of resource management.

Concept of 'ground observer' to assist in the gathering of fireground intelligence. Role statement and reporting relationships to be given.

*Application of joint agency deployment of portable AWS's to fireground."*²⁶⁸

6.10.5 Another important topic dealt with in FAII is "TRAINING" where it is suggested that:

"Emphasize the Phase 1 activities in pre season training programs of ICS and joint exercises.

Develop a training package specifically aimed at increasing the knowledge and application of tactics for Sector Commanders.

Develop a variety of educational videos and promotional material to support initiatives in operations, equipment use, evacuation policy, fire behaviour for the community, and safety procedures on the fireground.

*Agencies adopt the AFAC national competency standards for firefighting and management training."*²⁶⁹

6.10.6 Finally, when dealing with "COMMUNICATIONS" it is suggested that the agencies should:

"Adopt minimum user competencies and generic communication planning guidelines for a range of incident, scope and complexity.

Implement common labelling of radios and a common set of conventional frequencies.

*Develop and implement emergency management personality on fleet SMR to ensure communication between fire agencies and Police."*²⁷⁰

6.10.7 With the background of the incident control system (AIIMS-ICS), the MAIM Agreement, the FAII Final Report, the Group System, fire fighting methodologies, Operational Guidelines and Watchouts, incident reporting systems and the training materials contained in this Chapter, the Report now turns to consider the events occurring at the Linton Fire.

Origin and Development of the Fire

7.1 Introduction

7.1.1 One of the Inquests considered in this Report related to the fire and was conducted under S.36 of the *Coroners Act* 1985. The other five Inquests related to deaths of each of the members of the Geelong West CFA crew. This Chapter is predominantly concerned with the Inquest into the fire, however, there is inevitably some overlap with the other Inquests given that the five firemen were killed by the effects of the fire.

7.1.2 The major issues raised by the fire are:

- What was the origin?
- Did the Hadler burn, considered fully in Chapter 11, alter the behaviour of the original fire in such a way as to have contributed to the deaths?; and
- Did the Lightfoot burn, considered fully in Chapter 13, alter the behaviour of the original fire in such a way as to have contributed to the deaths?

7.1.3 It is these three issues that are the focus of this Chapter.

7.1.4 A description of the fire was given in Chapter 5. At this point it is useful to give a simple but accurate overview taken from the *“Operations Review of the Linton Fire/Midlands Fire”*¹:

“The Linton fire was first detected by a member of the Snake Valley CFA rural fire brigade at about 1300 hours on Wednesday 2 December 1998. The fire started on private property in long-unburnt open eucalypt forest and burnt into State forest. The fire was driven by strong, hot, dry northerly winds and progressed at an average speed of about 1.1 km/h, until it reached the grassland and forest remnants around the town of Linton at about 1800 hours. the fire travelled a distance of about 5 km in a SSE direction, and was generally less than 1.5 km wide and burnt an area of 660 ha, about 80% of which was in State Forest. A strong south-westerly wind change hit the area at about 2045 hours, but by this time most of the eastern flank had been contained only 400 m on this flank remained unsecured. this unsecured section was driven a distance of about 250 m after the wind change until it hit an area which had been fuel reduced two years previously. the fire effectively stopped at this boundary, and ground suppression was very straight forward. However, in this run of 250 m, two CFA fire tankers were entrapped.

*Five firefighters lost their lives and one firefighter was injured during the course of the fire and another ten were seriously threatened. One firefighter’s ute, one CFA tanker, two small dwellings and a number of outhouses and sheds were destroyed, and significant damage was caused to two other CFA tankers.”*²

7.1.5 In the next Section the origin of this fire will be considered.

7.2 The Origin of the Fire

7.2.1 Introduction

7.2.2 All the evidence indicates that the Linton Fire began on Lot 35 Rowlers Road, Snake Valley at about 12.00 pm on Wednesday 2 December 1998. This was a property owned by Mr Peter Neyland who lived in Melbourne. The property was being developed as a holiday getaway for his family and friends at the time of the fires.

7.2.3 After the ignition of the fire it travelled mainly in a southerly direction from the property towards Linton. It was during this southerly development of the fire that the actions of Mr Hadler's Strike Team along the part of Madden Flat Road between Pittong-Snake Valley Road and Possum Gully Road and those of Lightfoot's Strike Team along the Madden Flat road extension, south of Possum Gully road, became relevant to the fire.

7.2.4 In this section of this Chapter analysis will concentrate on the events on Lot 36 Rowlers Road which lead to the ignition of the fire.

7.2.5 Lot 36 Rowlers Road

7.2.6 This property is a 64 acre bush block purchased by Mr Neyland in about March 1997.³ Mr Neyland said that:

*"Since March 1997 I have regularly visited the block, sometimes in company with my wife and children, and occasionally with friends to clear a site for a holiday house and to build that house. On average I would go up there between 1 and 3 times a month."*⁴

7.2.7 The Panel of Experts described the fuel and topography at this place in the following way:

"The forest on the property where the fire originated was heavily stocked with multi-stemmed stringybark eucalypts. the forest had not been burnt for many years. As a result the understorey was sparse and the quantity of surface litter fuel was at equilibrium levels. Due to the preceding dry period and the high temperature and low humidity on the day of the fire, the surface fuels and outer bark on trees were very dry. Once ignited, the accumulated fibrous bark on the stringybarks would be difficult to extinguish and would produce numerous firebrands and spot fires even under light wind.

*The slope at the origin of the fire was either level or down slope in relation to the northerly wind direction."*⁵

7.2.8 Dr Olga Korytsky, Forensic Scientist with the Victoria Forensic Science Centre, and an experienced fire scene examiner, examined Lot 36 Rowlers Road on 3 and 8 December 1998.⁶ She saw the aftermath of the fire on that property and her statement gives an indication of the structures that were on the property at the time of the fire. The following description of the property at the time of that fire is gleaned from that statement,⁷ and the report of the Panel of Experts.⁸

7.2.9 A dirt track of between 800 and 1,000 metres winds its way through the forest on the property from Rowlers road until it reaches the house site. At the house site there was the framework of a small cottage which was under construction. There were also a few sheds and a caravan dotted around the partially constructed cottage. There were no services such as electricity, water or gas on the property. Three to four metres east of the house was a pit that functioned as a campfire for cooking and heaters.

7.2.10 A few hundred metres to the south-west of the partially constructed cottage was a dam site. This had recently been constructed. This was one candidate for the area of origin of the fire as the debris from the construction of the dam had been burnt off in the manner described below. Another candidate as the source of the fire was a tree some metres east of the partially constructed house, which had caught fire in the manner described below.

7.2.11 Events in the Days Leading Up to the Fire

7.2.12 The events leading up to the fire were described by Mr Neyland in his statement and in a video recorded re-enactment. None of the evidence given in this way was challenged at these Inquests, and it is to be noted that much of it was verified by other evidence. Neyland's account is therefore accepted.

7.2.13 In mid November various construction works occurred on the property. Mr Neyland described them:

*"On the 18th of November, a contractor by the name of Max McBain came to the block with a bulldozer and widened the track down to the house site as well as digging a dam. He was occupied doing this for 2 days. In the weeks preceding his arrival a neighbour by the name of Glen Howlett who lives in Pittong Road Snake Valley, and I cut down approximately 8–10 trees at the proposed dam site. During the digging of the dam, the bulldozer knocked down a further 5–6 trees. As a result there was a large amount of foliage around the dam site."*⁹

7.2.14 After these works were completed, the family and friends camped on the property for a few days:

*"On the 20th of November my wife and 2 daughters and myself went to the property and stayed overnight in the caravan. On the morning of the 21st of November my wife and daughters raked clean 3 sites for the pitching of tents. During the course of the Saturday 2 families arrived and pitched their tents on these cleared sites with the intention of camping overnight. This had been arranged both for social reasons and for the sake of a working-bee to assist me in the pitching of the roof of the frame of the house. On the Sunday we did pitch the roof, and over the afternoon all these visitors left. My family and I stayed in the caravan Sunday night, and on Monday afternoon we left the property and travelled to hall's Gap where we stayed for 5 nights at some holiday flats."*¹⁰

7.2.15 Eventually the family returned to the block and then went home leaving Mr Neyland to do some more work on the property. Neyland said:

"My intention was to remain alone on the block to do further work on the house until the following Wednesday. On Monday morning I travelled into Ballarat with Glen Howlett to buy some roofing iron, some battens and other hardware, which we took back to the property in Glen's tandem trailer, and unloaded those materials near the house site. Glen then left and this was about 11.00 am on Monday morning.

After he left I went down to the dam site to do some burning off of some of the large amount of leafy material around this site. I was concerned to reduce the amount of this material before the commencement of fire restrictions. Because of an incident which occurred whilst burning off in January of this year, I routinely asked Glenn, who is an active member of the Snake Valley CFA whether fire restrictions were yet in place and when he thought they were likely to be. He did assure me on this Monday that there were no fire restrictions, and were not in his view likely to be until some weeks later. The dam is approximately 400 metres south-east of the house site. I lit two fires of piled up leafy material which I had first trimmed with my chain-saw. The first fire was in the gully just short of the dam in a natural clearing. The second fire was about 50 metres west of the first fire. Whilst these fires burnt I did some further trimming of leafy material from the fallen trees, leaving this material in 2 or 3 piles on the side of the dam opposite to the fires. When these fires had burned down to a bed of coals, I left them and went down to the western boundary and lit a third fire of leafy material that I had prepared earlier. This was at the end of a cleared pathway from the house-site to the western boundary, approximately 250 metres from the house site. Beyond this fence were open paddocks, and the clearing had been made with a view to have alternative access out of the block. While this fire burnt down, I spent some time loading the trailer with wood, and I took this trailer load of wood up to a wood-pile near the house-site. I also had the car and trailer at the dam site as it contained my

chain-saw, a can of fuel and bar oil, as well as a rake and a 25 litre container of water, which I always have with me in the car when I am burning off.”¹¹

7.2.16 After loading the wood Mr Neyland worked on the roof of the house, and during the course of the afternoon he said:

“I took my rake and checked on these 3 fires, raking them over and ensuring they were contained within the cleared area. I did this perhaps 2 or 3 times over the afternoon and again in the evening around dinner-time. By this time all the fires were out and I was satisfied that there was no danger before going to bed.”¹²

7.2.17 This is the account of the fire around the first of the proposed sites of the origin, in the days leading up to 2 December 1998. The account in relation to the site near the house is considered next.

7.2.18 Mr Neyland said:

“On Tuesday morning I did some more burning off. It was a clear day with little or no wind. This time I drove down to the dam site and piled into the trailer some of the material that I had prepared the day before. I took this trailer load of material up closer to the house to a cleared area where one of the visiting couples had camped the previous weekend. I did this because I had found it a nuisance to have to walk from the house to the dam and then down to the fence to check on the fires of the previous day. The cleared area was approximately 4 metres by 4 metres about 50 to 60 metres east of the house site, about 20 metres from a wood pile which was between the house site and cleared site. I piled some of the leafy material from the trailer on to the cleared area and set fire to it, adding more material whenever the leafier parts of the branches were burnt. By the time I had in this way emptied approximately half of the trailer, the bark of a nearby stringybark tree ignited and burnt briefly before going out and smouldering. This tree was approximately 5 metres from the fire. It did this in 2 or 3 places on the side of the tree facing the fire, at various heights. I went to the car, got the 25 litre container of water, but I found it difficult to throw water from this container onto the tree. So I went to the house site to get a bucket and tipped water from the container into this bucket and threw this water onto the tree. By this time the height to which the bark had burnt was at a height where I wasn't satisfied with the amount of water I could get to it. At this stage I decided to unhitch the trailer and drive to Glen's house where I knew there would be a couple of fire extinguishers. I knew Glen was working in Ballarat that day, and that he would not be using the tractors where I knew the extinguishers to be. Glen's house is approximately 2 kilometres from our site, in Pittong Road, roughly south-east of our block. I was gone for approximately 5 or 6 minutes. Whilst driving back, it occurred to me that if the extinguishers were not successful in putting out the burning bark, then I would have to get the CFA. When I got back the bark was still smouldering to a height of perhaps 20 feet, and in parts the smouldering had encircled the tree, and this smouldering had passed beyond the first fork of the tree. At about this time I also noticed that an apparently dead branch overhanging this area (though not directly above the fire) had started to smoulder in a knob about a third of the way along the branch. I doused the smouldering bark of the tree and this smoking knob of the branch with a fire extinguisher and almost emptied it in doing so. There did not appear to be any remaining smoking bark. I wanted to ensure that the fork which I couldn't see from the ground was completely out, and to do this I went to the house site and obtained an aluminium extension ladder which had been lent to me by Glen. I used this ladder to examine the fork from above. There was still heat in it, so I used the second extinguisher to drench the fork, and while I was up there, to squirt the top side of the slender branch that had earlier been smoking. After putting the extinguisher back down I got up the ladder and picked off the wet and charred bark from the fork, and finding how easily the bark came away, peeled long strips of this charred bark from off the tree, both from where I was on the ladder, and from the ground. this bark was wet and cold, and the layer of bark I exposed was clean and showed no signs in any place of being hot. I was completely satisfied that no parts of the tree were smouldering.

By this time the fire at which I had been burning off was a bed of coals, onto which I raked the peeled-off bark, and then raked the perimeter in towards the fire. I did not put any more of the material in the trailer onto the fire, and pushed the trailer about 10 metres further away from the fire than where it had been. I had decided that I would burn off the rest of this material either on the next wet day, or after the end of the coming fire-restriction period. It was 12/43 pm when I left this area to go and do further work on the roof frame of the house. From where I was working I could see the tree had burnt, including the small branch that had smoked as well as the bed of coals, and from time to time throughout the afternoon I walked back to rake the coals and check right around the tree, and at no time did I notice any further smouldering of bark on this or any other trees.”¹³

7.2.19 We have now reached Wednesday 2 December 1998, the day of the fire. Mr Neyland said:

“On Wednesday morning I woke at about 5.45 and from 6.00 am until 7.45 I cleaned up around the house-site, packing up tools, etc. I briefly went down to the dam to do some measurements for a jetty I proposed to build and then returned and cleaned up the fire of the previous day. I raked the ash of this fire into a pile and sieved it through a couple of layers of chicken wire into a garbage bin. We use this bin full of fine ash to cover excreta when we use our pit toilet. I filled this bin with fine ash and discarded the larger coals, which by this stage were cold, onto the cleared area. I checked the tree that had been alight and again there was no signs of smoke from my part of it. Then I left. Whilst driving up our track it occurred to me that I hadn’t had a look at the overhanging branch and turned around to go and have a look at that. I was particularly vigilant on these matters because the day was shaping up to be hot and windy. There was already a moderately northerly wind.”¹⁴

7.2.20 Mr Neyland then returned some items he had borrowed from his neighbour Mr Howlett. He was given a lift to the station at Ballarat by Mrs Howlett. He then returned home to Melbourne.

7.2.21 The Fire

7.2.22 The general fuel and weather conditions affecting this fire were considered in Chapters 5 and 19. At this point it is sufficient to repeat the summary in the “Operations Review of the Linton Fire/Midlands Fire”:

“4.1 Fire Weather

4.1.1 Seasonal conditions

Rainfall over the two year period preceding the fire was well below average across Victoria in the region of the Linton Fire, total rainfall for this two year period was amongst the lowest 20% on record.

4.1.2 Forecasts

The Bureau of Meteorology issued a Victorian Fire Weather Forecast at 0630 hrs (AEDT) on Wednesday the 2 December for that day. This forecast was the one current at the time the fire started. In Ballarat, the expected maximum temperature was 29°C, the minimum relative humidity was 17%, with winds averaging 45 KM/h from the NNW and gusting to 55 km/h giving a Forest fire Danger index of 32 and a Grassland Fire Danger index of 0. No wind change was forecast for Ballarat during the forecast period at Ballarat. The commentary on the Victorian forecast was as follows: Warm to hot with a gusty northerly wind. A south-westerly change in the southwest during the late afternoon and then extending along the coast to near Port Phillip Bay this evening. Isolated showers developing in the west later this afternoon and extending to central districts tonight. fire dangers generally high to very high but reaching extreme in the Mallee. A Fire Weather Warning Current.”¹⁵

7.2.23 Nobody was present on the block when the fire ignited. What is known is that at about 1.00 pm it was reported by Mr Harrigan when he noticed smoke in the area.¹⁶ That report and the united response to it is fully dealt with in Chapter 8. From there on reliance must be placed on the evidence of the Panel of Experts and Dr Korytsky to determine how and where the fire began.

7.2.24 The Panel of Experts could not reach a unanimous conclusion on this issue. The Panel said:

"The Panel agreed on the general finding that the fire started in forest on private property, Lot 36 Rowlers Road, Snake Valley. We could not be certain about the point of origin. Burrows favoured the location near a stringybark tree that the owner of the property had set fire the previous day. The tree was east of a partially constructed house.

Tolhurst favoured a location near a recently constructed dam to the west of the partially constructed house (at location 244321) identified by Gilmore and Maughan 9CFA/NRE Report) where the owner had been burning of piles of debris two days earlier. He considered the tree near the house site was closer to the fire boundary to the NE than it was to the NW. He considered that there was no clear reason why the boundary of the fire to the NE could be closer to the point of origin and that there was an uphill run from the tree to the NE which would have resulted in faster rates of spread. He would expect that the boundary in the NE direction would be further away than the boundary to the NW. He considered the fire indicators observed the day after the fire provided the most reliable evidence as to the point of origin.

*Packham and Cheney could not be definitive about the point of ignition."*¹⁷

7.2.25 Dr Neil Burrows was engaged as a consultant by the Coroner for these Inquests to obtain a second opinion on the fire behaviour issues. He went on to participate as a member of the Panel of Experts. In Dr Burrows' initial report he concluded the following about the origin of the fire:

"It is my assessment that the evidence presented in the CFA/NRE Report together with my own observations made recently, that the fire started in forest or private property at Lot 36 Rowlers Road, Snake. The investigation by Gilmore and Maughan suggested that the fire started 'from an area between a recently constructed dam and a partially constructed house' (at location 244321). A video interview with the property owner conducted by the Arson Squad, substantiated that a number of small fires were lit by the owner on the day before the Linton bushfire to burn off vegetation debris. I measured the dimensions of one of these small fires lit near the dwelling and some 3 m from a medium sized stringybark tree that the owner claimed (in video interview) had actually caught fire as a result of the burning off. The debris disposal fire was about 1 m x 2 m. It appeared that flammable material had only been cleared for a distance of 0.5–1 m from around the pile, so it is not surprising that the adjacent tree caught alight.

*From the video evidence, the owner was satisfied that he had suppressed and cooled all smouldering components of the tree before he left the property to return to Melbourne. However, 'hot spots' concealed inside small hollows or crevices in dead limbs can persist, but not give off any detectable smoke or flames. These hot spots are often known as 'sleepers' by firefighters. When warm, windy conditions occur, sometimes days after the initial fire event, these 'sleepers' can glow or even develop into flaming combustion. This may have been the scenario for the start of the Linton bushfire, and is highly plausible. However, there is no absolute evidence that this was the case. Therefore, while there is strong evidence that the fire started in the proximity of the dwelling on Lot 36, I was unable to pinpoint the actual origin of the fire origin."*¹⁸

7.2.26 Dr Burrows went on to conclude:

- "1. I support the finding (CFA/NRE Report) that the fire started in forest on private property at Lot 36 Rowlers Road, snake Valley.*
- 2. From the evidence available to me, I cannot be certain of the point of origin of the fire, or the cause of ignition."*¹⁹

7.2.27 As indicated above Dr Korytsky also carried out an examination of the fire scene to determine the cause of this fire. Her analysis concentrated on the area around the partially constructed cottage and her report contains no assessment of the alternative site of the burn off near the recently constructed dam.

7.2.28 Dr Korytsky came to the following conclusion in her report:

"The severity of the fire damage in the vicinity of the stack of logs or timber east of the shed indicated that the fire originated in or near this stack from where it probably spread to the shed and then on to the other side of the track towards the caravan.

At this seat of fire, in the remains of the burnt timber stack, there was no evidence of flammable liquid, nor was there evidence elsewhere of flammable liquid spread about the premises or discarded containers typically used to hold flammable liquid.

*Furthermore, on the ground there appeared to be randomly scattered patches of fire debris apparently resembling the burnt remains of lopped trees or small timber off cuts as well as burnt remnants of tree stumps; while the adjacent undergrowth and trees that surrounded the burnt timber debris on the ground displayed a much lower degree or little charring. This signified that the random patches of burnt timber debris on the ground were most likely the remains of previous fires, probably from the burning of lopped trees, off cuts and tree stumps during times of clearing on the property."*²⁰

7.2.29 While the tree near the partially constructed cottage could have been the ignition point in this fire Dr Korytsky is the only one to say so with confidence. Her opinion, however, is weakened by the failure to have considered Dr Tolhurst's alternative site.

7.2.30 Dr Tolhurst and his assistants had the advantage of examining the areas where the fire was said to have begun shortly after the events. The panel of experts considered his thesis possible and certainly would not discount it. Clearly Dr Burrows considered the tree near the house as a possible site but was not prepared to exclude Dr Tolhurst's theory. It should be noted that Dr Burrows, like the other two experts on the panel had the disadvantage of not seeing the property shortly after the fire.

7.2.31 In these circumstances it is probable that the analysis by Dr Tolhurst and his team is correct. The fire began at or near the site of the dam. It should be noted, however, that with the doubts expressed by the other experts this conclusion cannot be elevated to the level of a high degree of satisfaction. There is no evidence that some other mechanism caused the fire.²¹

7.2.32 Time of Ignition

7.2.33 There was little doubt among the Panel of Experts as to the time of ignition of this fire.

*"We agreed that ignition of a running fire occurred before the fire was detected at about 1303 hours. Tolhurst, Burrows and Cheney considered that the fire could have been burning up to an hour before being detected."*²²

7.2.34 Dr Korytsky did not give any estimate of the time of ignition of the fire.

7.2.35 It is concluded therefore that the fire ignited at approximately 12.00 noon on 2 December 1998.

7.2.36 Likely Cause of Ignition

7.2.37 The Panel of Experts considered the issue and concluded:

"The most likely cause of ignition was the activation of smouldering combustion from fires lit by the property owner on the previous days. There were two prime sources of smouldering combustion. One was in the piles of debris burnt in the area of the recently constructed dam. Examination by the Panel of the remains of the pile east of the dam identified by Gilmore and Maughan revealed the remnants of a burnt-out stump. Under the dry soil conditions that existed at the time of the fire, roots from an old stump could remain alight for weeks. It is common for roots to burn underground and fires may start where the roots come to the surface many metres away from the stump.

The second source of smouldering combustion was in the dead branch of the tree that the property owner admitted setting alight on the previous day. Although the owner seemed convinced that he had suppressed all combustion in the tree the branch was too high to check with his bare hands, which is a standard practice when mopping up

smouldering material. Smouldering combustion can easily persist overnight in small hollows or crevices without emitting detectable smoke. Smouldering combustion would increase activity when the wind speed increased after 1030 hours and eventually flame, causing sparks or firebrands that would fall and ignite litter fuels. We agreed that either source could have started the fire.”²³

7.2.38 Dr Korytsky also concluded that the likely source was the ignition of an ember. She said:

“... In the circumstances, the fire having started in an area recently used for the burning of lopped trees and their off cuts was a possibility which could not be excluded. In the absence of any other obvious source of ignition, the cause of the fire appeared to be the ignition of available combustible materials in or near the stack of logs or timber on the eastern side of the shed. The probable source of ignition was an ember or a spark from a fire used for the burning of lopped trees and their off cuts.”²⁴

7.2.39 Whichever place was the source of the fire the likely cause of the ignition is the same. It is the activation of “*smouldering combustion*.” The activation implies that otherwise smouldering material would be caused to ignite and burst into flame by operation of the wind. It is at that point that there is a fire as opposed to the precursors to a fire.

7.2.40 The question then becomes: did the conduct or omissions of Mr Neyland, which resulted in the wind igniting the smouldering combustible material left after his burn off of the previous days, contribute to the cause of the fire?

7.2.41 Contribution

7.2.42 It is to be noted at the outset that no party to these Inquests submitted that Mr Neyland contributed to the cause of the fire at Linton. On behalf of Mr Neyland it was submitted that:

“It is submitted that no adverse finding should be made in the Inquest against Mr Neyland unless there exists comfortable satisfaction that negligence has been established which was a cause or contributed to the fire and the five deaths enquired into in this Inquest.”²⁵

7.2.43 The common place truth is that the actions of Mr Neyland (lighting the fires) and the omissions (failing to extinguish the embers) are the cause of the Linton wildfire. The link is so direct that it is not necessary to look at duty or breach thereof to find the cause and hence contribution. However, it is still important to examine Neyland’s actions in order to put them into context. The question is: did he act reasonably?

7.2.44 This issue was clearly put to the Panel of Experts. First, Dr Burrows when asked about this issue said:

“Mr Belson: I just want to go to Dr Burrows and ask you about whether you were aware, at the time you made some suggestions about what a person should do if there was a fire higher up a tree, I was wanting to know whether you were aware that Mr Neyland had a double extension ladder and climbed to the top of the fork of the tree and doused that with water, he then pulled off the bark, which, I understand, is you say precisely what he should do, off away from it until he got to fresh bark which was cold?—I was aware of that, but if a fire starts in a dead limb kind of tree it is sometimes very difficult, firstly, to get to the seat of the heat, if you like, the source of the heat, because it might be well down inside the dead limb, and then it can be quite often difficult to actually be confident that you have actually cooled or put the combustion out completely, extinguished it completely.

The Coroner: From that description, do you think his actions were unreasonable?—I think he took reasonable action given the equipment and so on that was available to him.”²⁶

7.2.45 Mr Cheney in response to the question said:

“The Coroner: Do any of you consider his actions to be – well how do you consider his actions?

Mr Cheney: Well, I would consider he took all reasonable precautions to put it out with his understanding, but again the problem being in that situation you probably have to

*fell the tree if there is a day of extreme, or very high fire danger, high winds forecast for the next day. I mean, I know that is difficult, but that is the practical reality if you have a fire burning high in a tree.”*²⁷

Dr Tolhurst: We are concentrating on the tree but I don't think it was the source of the fire anyway, because the evidence we collected at the time indicated it was another source, the issue of the burning heaps around the dam, and they were never actually doused with water or felt to see if they were extinguished.

The Coroner: What you are saying – if they are the source, what do you say about that?—If they were the source, he went down several times through the day, according to his evidence, to check that they were okay. Essentially, if they were the source, really before he left the property he should have actually made sure they were cold, doused them with water to make sure they were extinguished, and I don't believe in that case he took sufficient precaution in regard to the tree, I think he did as much as he could do, and I think he was a little dissatisfied with what he was able to do with the burning branch, but I think we have got also to look at those burning heaps near the dam which are more likely the source of the fire as well.

Mr Belson: Could I just add then, p.4 of Mr Neyland's statement says that before leaving at about six o'clock on the 2nd that he cleaned up around the house, packed up his tools, and he went down to the dam to take some measurements, he proposed to build, and returned, he proposed to build a jetty and proposed to return and clean up the fire, the previous day he is talking about. He said, "I raked the ashes of this fire ... (reads) ... then I left." Now, I would suggest to you he did take reasonable precautions with that fire in that he attended to raking and sieving the ashes and putting them to an environmentally friendly use.

Dr Tolhurst: The evidence that we saw on the site was there still partially burnt material on those sites, so we saw three actual heaps that had been burnt down near the dam, and I don't believe he is referring to all three of those heaps in that statement.

*But you can't say that he didn't?—I am saying there was still unburnt material on those sites which didn't show evidence that all the coals had been removed from that location. there is photographic evidence in the joint report which shows that.”*²⁸

7.2.46

Mr Belson then continued to press Dr Tolhurst, and at the end of that questioning Dr Burrows also gave an opinion on Neyland's conduct, if the dam site was the source of the ignition:

Mr Belson: Sorry. In particular if you accept he is not a trained expert in this situation, that he is learning bush skills as he goes along, that he has done all that can be expected of him?

Dr Tolhurst: I think from his evidence and from what we could see on the ground he has certainly taken precautions to contain the fire, the clearing of fuel from around his heaps that he burnt, it was evidence that he had taken precautions. His, the evidence that he had water with him when he was there, he was obviously conscious of the difficulty and had taken some steps to educate himself about the situation, but it remains, I suppose, that he probably didn't go quite far enough in this case.

That depends on the individual's knowledge, I suppose?—Yes.

*Mr Burrows: I mean, it is probably unreasonable to expect someone with his background and training and experience to anticipate smouldering combustion, whether it be in the limb of the tree or in the stump that Dr Tolhurst talked about. To be aware of that, given that there may not have been, and there wasn't judging by his statement, any signs of smoke or combustion.”*²⁹

7.2.47

Finally, Mr Packham concluded:

*“Mr Packham: May I say that from the descriptions I saw I believe that he had done everything that was reasonable, and also especially in view of the fact that he had not yet arrived at a restricted period for fires, he has done more than probably he was required to do.”*³⁰

7.2.48

In his submission on behalf of Mr Neyland, Mr Belson emphasised all the things that his client did to ensure the fires he had lit in the previous days were completely extinguished.

- *“He asked his neighbour, Mr Glenn Howlett (who was an active member of CFA) whether fire restrictions were yet in place. He was told there were no fire restrictions. (G. Howlett’s statement p. 550 Court Book and L. Howlett’s statement p. 553 Court Book)*
- *He checked on the 3 fires lit on the 30th day of November 1998 two or three times over the afternoon and again in the evening around dinner time.*
- *When a nearby stringy bark ignited on the 1st day of December 1998, he obtained a 25 litre container of water from his car. It being difficult to throw water from the container onto the tree, he obtained a bucket from the house and tipped water on the tree.*
- *He then drove to his neighbour’s house and obtained 2 fire extinguishers and returned to his block.*
- *He doused the smouldering bark of the tree and the smoking knob of the branch.*
- *He obtained a ladder which had been lent to him by Glenn Howlett.*
- *He used the ladder to examine the fork of the tree from above and used the second extinguisher to drench the fork and also picked bark off the wet and charred bark from the fork.*
- *He returned the extinguisher to the ground and climbed the ladder and removed bark from around the tree exposing layers which showed no sign of being hot.*
- *He raked the remainder of the bed of coals to the centre of the fire.”* ³¹

7.2.49

Whether the point where the ignition occurred was the tree or the site of the dam it is accepted that Mr Neyland did all that a reasonable person would have done to ensure that the fires he had lit on the days before 2 December 1998 were completely extinguished before he left 36 Rowlers road on that day. However the fact is that the fires lit by Neyland left combustible material to re-ignite under the influence of the strong northerly winds on 2 December 1998. Common sense dictates that Mr Neyland contributed to the cause of the fire at Linton.

7.2.50 Contribution to the Cause of Death

7.2.51

The crew of the Geelong West tanker died of the effects of the fire at Linton. If Mr Neyland, as has been found, contributed to the cause of the fire then could he have caused the deaths? Even though Neyland contributed to the cause of the fire, it still would not be the case that he contributed to the deaths. This is so because a reasonable person would not foresee the level of failure of the system of work which occurred at Linton and resulted in the deaths, but in another way, the significant failure of the AIIMS System at Linton was an intervening cause that broke the chain of causation commencing with the ignition of the fire.

7.2.52 Conclusion

7.2.53

The fire at Linton commenced as a result of the ignition of smouldering combustible material on 36 Rowlers Road Snake Valley, by strong northerly winds on 2 December 1998. The ignition occurred at about midday and Mr Neyland contributed to it occurring.

7.3

The Effect of the Hadler Burn

7.3.1

At the outset of these Inquests there was a live issue as to whether the Hadler burn on Madden Flat Road, south of Pittong-Snake Valley road contributed to the deaths of the Geelong west crew. The gist of this proposition was that the effect of the Hadler burn was to extend the front of the fire and push the eastern flank further east than it would otherwise have been. The argument then proceeds, that this meant that the control line on the eastern flats was being constructed in a place where the danger to the Geelong Strike Team was greater than it would otherwise have been.

7.3.2 The Panel of Experts concluded that:

“This burning-out operation increased the width of the fire by around 300–400 m between the Pittong-Snake Valley Road and Sludge Gully. The fire resulting from the breakaway of this operation was drawn into the eastern flank of the main fire and did not have any significant influence on extending the fire to the south.”³²

7.3.3 While the Hadler burn increased the width at the front of this fire and pushed the control line further east than it would otherwise have been, there is no evidence that this increased the danger to the Geelong Strike Team.

7.3.4 It is concluded therefore that the Hadler burn did not contribute to the deaths of the Geelong West Crew.

7.4 The Lightfoot Burn

7.4.1 Another issue that arose was whether or not the Lightfoot burn along the Madden Flat road extension south of Possum Gully Road contributed to the deaths of the Geelong West crew. There was no clearly formulated position about how it could have done so.

7.4.2 The issue is easily disposed of by reference to the opinion of the Panel of Experts:

“This burning-out operation was overwhelmed by the wind shift at 1545 hours and did not have any significant impact on the behaviour of the course of the main fire.”³³

7.4.3 Put another way, events showed that this burning out operation was inadvertently lit so close to the fire front that it did not have sufficient time to take on a character of its own. Shortly after it was lit the main fire swallowed it up.

7.4.4 In these circumstances the fire lit by the Lightfoot Strike Team had no significant influence on the main fire and therefore did not contribute to the deaths of the Geelong West crew.

7.5 Conclusions

7.5.1 The fire was ignited on 36 Rowlers Road, Snake Valley at approximately 12.00 pm on 2 December 1998.

7.5.2 The fire was ignited by the action of a strong northerly wind on some smouldering combustible material more likely to be at a site where the dam was being built on the property. No person contributed to the ignition of the fire.

7.5.3 Neither of the fires lit along the Madden Flat Road contributed to the cause of death of the Geelong West crew.

First Response

8.1 The Fire Report

8.1.1 John Harrigan, an electrician by trade, lived on the Mortchup Road at Chepstowe. On the morning of 2 December 1998 he was working at a house on the Pittong-Snake Valley Road. Around lunchtime he found that he needed more materials to complete the job he was doing and so he decided to go home and get them, as well as have lunch.

8.1.2 After lunch, Mr Harrigan got back into his utility to head back to work. He said in his statement:

“As I drove down my driveway, I got a panoramic view across the countryside, I noticed smoke coming from the other side of Morchup Road in the bush there. When I first saw the smoke it was light coloured and just drifting, waving up into the sky. The smoke then went a greyish colour and then went black. I’m not exactly sure how long it took to go from the light colour to black but I don’t think it would have been more than a couple of minutes. It was a warm day and there were overcast sort of clouds not thick clouds. I don’t remember what the wind was like at that stage. After I saw the smoke go black I drove into Snake Valley to raise the alarm, I decided to drive in because my mobile phone doesn’t work out there and it would have been just as quick as trying to use my phone in the house.

When I drove out of my driveway I couldn’t see the smoke again after that because you drive through the bush there. It took me only a few minutes to get into Snake Valley and I went straight to Diane Foy’s house. Diane has the sub-base for the CFA. I told her about the smoke and where it was. I then told her I would drive up to the area and check it out and open any gates that required to be open. Diane was straight onto the phone and Aaron went to get the Snake Valley fire truck.”¹

8.1.3 At the time of the Linton Fire Ms Diane Foy had been a volunteer fire fighter with the Country Fire Authority for about 15 years. She had been the Snake Valley sub-base radio operator for the past 5 years.

8.1.4 Ms Foy had not received any “actual training” to run the sub-base station but acquired the skills through basic training and was given a book on radio technique. Group Officer Bill Millar also assisted her with radio technique.

8.1.5 The most accurate evidence of the timing and occurrence of events at the early stages of the fire is the log kept by Ms Foy, her daughter-in-law, Christie, and Trish Larkins.²

8.1.6 Ms Foy ran the Snake Valley radio sub-base from her home which was equipped with a CFA radio antenna. It was about 1.03pm when John Harrigan came to Ms Foy’s house and told her that there was a fire near the new tip on Mortchup Road.³

8.1.7 Ms Foy alerted Snake Valley Lieutenant Craig McInnes and her son, Aaron Foy, to take a tanker and “check the fire out.”⁴ She then made arrangements to get the second Snake Valley tanker manned and mobile.

8.1.8

Over the next few minutes the following communications occurred:

- At 1.17pm Ms Foy notified Group Officer Bill Millar at Lake Goldsmith and asked if he could *“get the Group rolling.”*⁵
- At 1.20pm Ms Foy rang the Brewster CFA.
- At 1.21pm Ms Foy rang Langi Kal Kal and at 1324 Crossroads *“and told them to get rolling”*⁶ to Rowlers Road.
- Region 16 Headquarters at Ararat told Ms Foy that they would get a plane in the air.
- At 1.28pm Ms Foy was informed that Lake Goldsmith *“was rolling”*.
- At 1.30pm Ms Foy was told that an aircraft was in the air.
- At 1.34pm Langi Kal Kal told Ms Foy they were mobile; and
- At 1.35pm Beaufort was *“mobile”*.⁷

8.1.9

By 1.35pm the situation was that:

- The local Brigade at Snake Valley had been despatched to the fire;
- Snake Valley was part of the Beaufort Group;⁸
- The following Brigades within the Beaufort Group had also been mobilised:
 - Langi Kal Kal
 - Brewster
 - Lake Goldsmith
 - Beaufort;
- Region 16 Headquarters had been notified and provided air support.

8.2

Location of the Fire and Initial Attack

8.2.1

Mr McInnes and Aaron Foy mobilised the Snake Valley tanker at 1.10pm.

8.2.2

Mr McInnes headed off in the Snake Valley tanker with Aaron Foy towards Mortchup Road.⁹ He could see smoke in the general area of Mortchup Road. He observed the smoke changing from a light coloured smoke to a dark coloured heavy smoke and radioed for more assistance. He headed out past the new tip to Mortchup Road and he saw:

“The fire, the smoke was on the other side of the hill, we had to go out Mortchup Road further to try and identify what area the smoke was in. Did you do that?—Yes, we did that.

What did you do then?—We put it around the ball park of where there was an illegal burn 10 months earlier, 12 months earlier.

That was in Rowlers Road?—That was in Rowlers Road. ... we then headed back in towards Snake Valley, picked up John, turned.

That’s John Harrigan?—Yes.

*Turned in Rowlers Road. We stopped at two houses and went down to see if we could see where the smoke, flames, whatever, were, then we came along across Lot 36.”*¹⁰

8.2.3

By 1.17pm they had arrived at Rowlers Road.¹¹ (see Fig 5.1).

8.2.4

Mr McInnes was asked about the search for the fire and the observations he made of it:

“As you were travelling down Rowlers Road, what could you observe, could you observe anything that gave you an indication as to where the fire was?—Absolutely nothing.

Could you see any smoke?—No. ...

As you went down Rowlers Road you said you stopped a couple of times before you got to Lot 36?—Yes.

What did you do on those occasions when you stopped?—I think Aaron got out and ran to a house clearing there, to see if he could see through the bush as to where the smoke was coming from.

Was that in a westerly direction from Rowlers Road?—Yes.

Who was driving the truck at this time?—At that stage, Aaron.”¹²

8.2.5 Mr McInnes gave evidence that:

“The second time I think I got out of the truck and had a look and I could see smoke on the western side in the bush.

All right?—A fair distance away.

At this stage the truck is driving south down Rowlers Road?—Yes.

You are looking to the west for signs of the fire?—Yes.

So you got to Lot 36 ... you then ran about 700-800 metres down a track, is that effectively the driveway to the house?—That was the driveway.”¹³

8.2.6 Mr McInnes went down the driveway of Lot 36 by himself. He was asked:

“What did you see as you went down the driveway to Lot 36?—I would have to say for 600 metres, nothing, and then another couple of hundred metres, I saw smoke, flames, as I think I put in my statement. There is no turnaround points for a truck to get into there, then I found one, it was probably about 200 metres short of where the actual fire was.

What sort of fire was it? Can you just explain for His Worship what you observed the fire to look like at that stage, in terms of intensity or

direction?—The direction was it was heading south, in a southerly direction, whether it was heading south-east or south-west, I don’t know, it was south. It was going, which means it wasn’t just sitting there smouldering. It was – I actually made that decision later.

Could you see the head of the fire, for example?—Not really, what was surprising was the size of the fire and how come no-one had reported it earlier. I believe that it had been going for some time.

That was your impression?—That was the impression that I got.”¹⁴

8.2.7 Mr McInnes was asked how was the fire behaving. (he was looking at the eastern flank of the fire) He answered:

“Yes. To be perfectly honest, to be down there by yourself, with no communications, I didn’t want to hang around that long without support with me. It was a quick judgment, “there’s the fire”, it was going and there was one turnaround point.”¹⁵

8.2.8 Mr Foy was also asked about his observations of the fire when the Snake Valley tanker travelled down the driveway of Lot 36:

“When you got to the edge of the fire, what observations did you make of that fire?—That it was getting rather big rather quick and we tried to sort of – because we ended up being virtually in front of it, so there wasn’t much we could do.”¹⁶

8.2.9 Mr McInnes was asked about the attempt to suppress the fire:

“You then say in your statement that after that initial observation, “I then went down the track and did some ... ‘knocking down’,¹⁷ at this stage there was not a lot of smoke but the fire was moving fairly quickly”, by that do you mean you took the tanker down there?—We took the tanker down there. I ran back again, I still don’t know who was driving, whether it was me or Aaron, it was one of us. Must have been me. We took the tanker down, turned around at the turnaround point and done some initial knocking down.

Can you describe what you mean by that?—Extinguish ... with water not off the ground, off the truck applying water to the flames.”¹⁸

- 8.2.10** He was then asked:
- “Were you having much of an impact on the fire as far as you could tell?—Very little.
How long did you do that for?—I would only be guessing, 10 to 20 minutes, that’s a guess.
You then say in your statement that you got a radio message from Mr Welsh to get out of that area and to meet at Rowlers Road and Pittong-Snake Valley Road?—Yes.”*¹⁹
- 8.2.11** At the time of making his statement, Mr McInnes believed that the message came directly from Welsh on Channel 16A. McInnes indicated in evidence that he now believed that radio communication was from Peter Wyllie, having heard the evidence of Ms Foy at the Inquests.²⁰ This is also consistent with the evidence of Wyllie.
- 8.2.12** At 1.36pm Ms Foy logged a radio call from the Snake Valley tanker advising not to let any more trucks into Lot 36.²¹
- 8.2.13** Mr McInnes, with Foy and Harrigan, in the Snake Valley tanker, travelled back up the driveway of Lot 36 and then south down Rowlers Road to the intersection of Rowlers Road and Pittong-Snake Valley Road.
- “Is that where you picked up Carol Walker, at that intersection?—I think when we were asked to come out, said we were down to about two-thirds of a tank and that we would fill up with water first at Cochranes Drive ..., then we will meet back at the corner of Pittong, Rowlers Road.
You did that?—And we did that.
When you got back there were there any other tankers there?—Yes.”*²²
- 8.2.14** Mr McInnes gave evidence that there were other tankers at the intersection of Rowlers Road and Pittong-Snake Valley Road, including the Snake Valley ‘A’ tanker, but was unable to say how many.
- 8.2.15** To this point the procedures that were occurring were consistent with a Group Fire.²³ They were also consistent with an AIIMS-ICS fire.²⁴

8.3 Group and Agency Boundaries and Responsibilities

- 8.3.1** The initial attack by the Snake Valley Tanker occurred on private property at Lot 36 Rowlers Road Snake Valley. The property is approximately 1.5 kilometres north of the Pittong-Snake Valley Road. This was within CFA Region 16 and was responded to by the nearest CFA Brigade, Snake Valley.
- 8.3.2** Significant rank holders within the CFA Region 16 Beaufort Group hierarchy were:
- Peter Smithers was “Local brigade”, Snake Valley, Captain.
 - Bill Millar was the Beaufort Group Officer and member of the Lake Goldsmith Brigade.
 - Ernie Welsh was a member of the Crossroads Brigade and Beaufort Group, Deputy Group Officer.
 - Peter Wyllie was a member of the Raglan Brigade and a Beaufort Group, Deputy Group Officer.
- 8.3.3** As described above by Mr McInnes, the fire was travelling in a southerly direction, fanned by a north wind.
- 8.3.4** The east/west running Pittong-Snake Valley Road is the border between CFA Regions 15 and 16. It was only a matter of time until the fire reached (and breached) the Pittong-Snake Valley Road and moved into CFA Region 15.

- 8.3.5** Once across the Pittong-Snake Valley Road the fire entered the Region 15 area of the Grenville Group, based at Linton. Significant rank holders in the CFA Grenville Group were:
- Des Phelan, the Grenville Group Officer;
 - John Kavanagh, a member of the Mannibadar Brigade and Grenville Group Deputy Group Officer (one of the first Region 15 volunteers to arrive at the fire ground);
 - Reinhard Pohl, Grenville Group, Deputy Group Officer.
- 8.3.6** The CFA Buninyong Group is also within Region 15. Its resources were called out to attend the Linton Fire. Significant CFA rank Officers in this Group included:
- Ian Lightfoot, Buninyong Group Officer
 - John Taylor, Buninyong Group, Deputy Group Officer
- 8.3.7** On the southern side of the Pittong-Snake Valley Road, as depicted on the map, Fig 5.1, was a large area of State Forest. The legislative responsibility for fire suppression in that forest was the responsibility of the Department of Natural Resources and Environment for the State of Victoria. (“DNRE”)
- 8.3.8** Mr John Searby was one of the first DNRE Officers to arrive at the fire scene. Murray Fullerton and Lex Bell arrived shortly after.
- 8.3.9** The Region 15 headquarters is in Ballarat. The State Offices in Ballarat, known as the “Glasshouse” was a pre-planned Incident Control Centre. It was there that the IMT for the Linton Fire was quickly established.
- 8.3.10** DNRE Officer, Mr Brad Mahoney was on duty. He alerted and despatched DNRE Officers to the fire. Mahoney was initially the Deputy Incident Controller. He later became Operations Officer at the IMT when the size of the incident escalated. Greg Leach of the CFA was at the IMT and in the position of Incident Controller by about 2pm.
- 8.3.11** It is clear that the response and strategies employed after the failure of the initial attack was based on agency, and in the case of the CFA, Group lines.
- 8.3.12** To demonstrate this it is necessary to go to the accounts given by relevant officers.

Region 16

- 8.3.13** Ms Foy was asked:

“Who was providing instructions to you on what you should do during the day?—To start off with, it was Peter Wyllie.

How did he come to be the person who instructed you on what to do?—Well, he happened to be at Snake Valley working at the time and when I – he heard the first truck go out, he then radioed through to me from his vehicle and said – he must have seen the smoke and he asked me to get the group rolling and the aircraft and that.

So at that early stage it was Mr Wyllie that you regarded as being in control?—Once he got to the fire, yes.

Did that change during the course of the day?—Yes it did.

You have got your log notes there with you?—1407.

What, he asked you to broadcast various messages or do various things?—I think it was mainly to check on what equipment was coming and contact Ararat and things like that.

From that point as far as you were concerned for the rest of the day, was it Mr Welsh that was the fire controller as far as you were concerned or did you become aware of some other ...?—No, later on Group Officer Millar arrived out at the scene and Captain Peter Smithers and between the three of them, they were as far as I thought, they were the three of them conversing together and —

Smithers, Welsh and Millar?—Yes.”²⁵

- 8.3.14** The evidence of Ms Foy and Craig McInnes is that Foy was told by a DGO, at the corner of Rowlers Road and Pittong-Snake Valley Road to go down the Pittong-Snake Valley Road (to an area near Nunn's Paddock) and wait for the fire.²⁶
- 8.3.15** At 1.38pm, Mr Wyllie took over control of the incident. At 1.40pm he asked the group station in Beaufort to organise a bulldozer.²⁷
- 8.3.16** As set out above, Mr Wyllie was a volunteer with the Raglan Brigade of the CFA and the Deputy Group Officer for the Beaufort group. He is a qualified air attack supervisor and had been a Deputy Group Officer for about 18 years prior to the Linton Fire.
- 8.3.17** On 2 December 1998 he was working as a sub-contractor in the Snake Valley area, slashing the roadsides for fire prevention on behalf of the Pyrenees Shire. He could see smoke to the south-west of the Snake Valley township but could not see flames. *"Through my experiences I was confident that assistance would be required to extinguish the fire."*²⁸
- 8.3.18** Mr Wyllie went to the Snake Valley township and attempted to ring Beaufort Group Officer Bill Millar. He then contacted Diane Foy and told her to activate the Beaufort group.
- 8.3.19** He rang Region 16 Headquarters in Ararat and requested an aircraft.²⁹
- 8.3.20** Mr Wyllie spoke to Diane Foy who was able to tell him, as a result of the communications she had with McInnes, that the fire was in the Rowlers Road area.
- 8.3.21** Mr Wyllie proceeded to that area in his ute and made radio contact with Craig McInnes, who told him that access was difficult from Rowlers Road and that they were *"off this road in the bush somewhere."*³⁰
- 8.3.22** Mr Wyllie tried to find an easier way into the fire and he found an open paddock on the western side of Rowlers Road south of Mortchup Road. At that stage the Lake Goldsmith CFA tanker arrived and they got access to that paddock.
- "... in an attempt to go through into the second paddock the tanker nearly got bogged so we decided to go to a high vantage point in the paddock and I then redirected the Lake Goldsmith tanker to Pittong Road at the southern end of Rowlers Road. I remained in the open paddock on the hill where I had reasonably good communications back to the Beaufort Fire Station, Snake Valley sub-base and the fire area."*³¹
- 8.3.23** At about that time Mr Welsh was in the vicinity of the Snake Valley-Pittong Road and the southern end of Rowlers Road. Wyllie:
- "informed him that we were not having much luck with access of Rowlers Road and that our next best line of defence was at Snake Valley-Pittong Road providing we didn't get spot fires across the road. The fire was a low intensity fire and it was my opinion that we had to stop it here."*³²
- 8.3.24** Mr Wyllie stated that it was about at this time that Peter O'Rorke arrived in the aircraft *"and he informed us that there was no spots on the south side of Snake Valley-Pittong Road at this stage."*³³
- 8.3.25** Mr Wyllie considered that:
- "The fire was still a low intensity fire and the amount of fuel (ground) was minimal so to stop it at Snake Valley-Pittong Road was a sound option considering that it was also travelling downhill which usually slows the fire down a bit."*³⁴
- 8.3.26** He also said:
- "... In Cochranes Road the fire units were not really doing anything to counter the fire so DGO Welsh and I agreed to pull all the trucks out of the area and place them on Snake Valley-Pittong Road which would be our next line of defence as there was no other access to the fire and we were still getting reports from the aircraft that it still had not crossed Snake Valley-Pittong Road."*³⁵

- 8.3.27** It was at about this time Group Officer Bill Millar and Snake Valley Captain Peter Smithers met with Wyllie on the hill where he was located, north-west of the fire. Wyllie briefed them on the situation as he saw it, what resources were available and what he was trying to achieve. At that point Wyllie stated that he:
- “left the operational side of the fire to Group Officer Bill Millar and I changed channels and I became Peter O’Rorke’s contact on the ground and then I passed information on to Millar and Smithers. So essentially, at this stage this hill was our main operations command point. I continued to liaise with the aircraft and feed the information to Bill and Peter.”*³⁶
- 8.3.28** Mr Wyllie requested Lee Gleeson (the air attack supervisor from the DNRE) to direct his fire bombers toward any spotting activity on the south of Snake Valley-Pittong-Road. He estimated that about 10 fire trucks were on the Snake Valley-Pittong Road and the fire then spotted over the road.³⁷
- 8.3.29** Mr Millar gave evidence that he went to the north-west corner of the fire and spoke to Wyllie. He said that he asked Ernie Welsh to make sure all trucks were on Channel 16A.³⁸
- 8.3.30** Mr Millar said:
- “I had DGO Welsh on Pittong Road and he kept us updated about the fire approaching Pittong Road. He said the fire was slow moving and that he was sending in some trucks to save some houses.”*³⁹
- 8.3.31** As pointed out earlier, Mr Ernie Welsh was Deputy Group Officer with the Beaufort Group and Captain of the Crossroads Brigade of the CFA. He had been with the CFA for about 31 years and was employed as the Municipal Fire Prevention Officer for the Pyrenees Shire Council.
- 8.3.32** When Mr Welsh became aware of the fire, he contacted the Snake Valley sub-base by radio and asked if he was needed. He was told ‘yes’. He turned out with the Crossroads ‘A’ tanker. Initially he was unable to raise Bill Millar on the radio.
- “I was getting intermittent traffic from Snake Valley and could hear them calling for more tankers.”*⁴⁰
- 8.3.33** At this stage Mr Welsh could sight smoke coming up between the Mortchup Road and Pittong Road and arranged for Crossroads Mobile 1 with a quick-fill pump to attend.⁴¹ About 5 minutes before arriving at the fire he heard radio transmissions between Snake Valley sub-base and DGO Wyllie and knew he was on the north-west corner of the fire just south of Mortchup Road. He contacted Wyllie and told him his position.⁴²
- 8.3.34** Mr Welsh said:
- “I had not received any map reference and only knew to go to Pittong Road. He radioed Wyllie. Wyllie asked him to set up a forward point on the west end of Pittong Road to receive trucks and to deploy them to protect property on Pittong Road, Rowlers Road and Cochranes Road.”*⁴³
- 8.3.35** Mr Welsh stated that:
- “On arrival I noticed there were a number of initial response tankers on Pittong Road. I formed a task force using these tankers to protect the homes as directed.”*⁴⁴
- 8.3.36** Mr Welsh was aware that Westmere Group tankers had “self deployed” and had entered the fire area at the Mortchup/Rowlers Road end. Welsh stated that:
- “DGO Chapman arrived with the Westmere Second Group. I asked him to change to Channel 72 (16A), he refused to do so and stated I had no authority to make him change. I informed him that order came from Group Officer Bill Millar of the Beaufort Group and that the fire was in the Beaufort Group area and failing to change channels would be on his own head.”*⁴⁵

8.3.37 Mr Welsh then deployed on the Pittong-Snake Valley Road between the Rowlers Road intersection and house number 13. It was there that he met DGO John Kavanagh of the Grenville Group. He asked Kavanagh to change radio channels to region 16. Welsh stated: *"He informed me that he was Region 15 and that I was not authorised to tell him to change channels. I told him exactly what I had told Chapman and suggested that he work to the east of DGO Chapman."*⁴⁶

8.3.38 Police arrived and Mr Welsh suggested setting up a road block on both ends of Pittong Road to stop people entering the fire zone. That was done.

8.3.39 Mr Welsh stated:

*"We had in place protection of some 25 homes in the area at this stage. At this stage I lost communication with DGO Wyllie and I was communicating with Snake Valley sub-base solely through that area. The fire was approaching Cochranes Road and through radio contact I realised that homes were starting to be threatened. Beaufort tanker (David Gerrard) informed me that his tanker was unserviceable and asked for a replacement. Due to the number of strike teams on different channels I was unable to respond to his request and told him to get out immediately."*⁴⁷

The IMT

8.3.40 It was at about 1.30pm that Mr Greg Leach was contacted by Kevin Brown, the Regional Duty Officer of the CFA Region 15 in relation to the Linton Fire.⁴⁸

8.3.41 Mr Leach went to the State Government offices in Ballarat (the Glasshouse) a pre-planned incident control centre with appropriate communications and other resources.⁴⁹ By 2.00pm Leach was at the Glasshouse. He met DNRE officer, John Sanders who briefed him on the situation at Linton.

8.3.42 Messrs Sanders and Mahoney were on duty at the Ballarat DNRE offices. At about 1.20pm Mahoney became aware of traffic on the CFA radio discussing a fire at Snake Valley.

8.3.43 Once at the Glasshouse Mr Leach contacted Region 15 headquarters to *"source their personnel to come down as part of the management team."*⁵⁰ He arranged for Neville Britton to attend at the forward operations point at Linton to *"mentor the group and ensure that the incident response is co-ordinated."*⁵¹

8.3.44 Mr Leach was not certain what time the operations point was established but *"I had communications with them at 1430."*

DNRE

8.3.45 Mr John Searby was a DNRE Forest Officer based at Beaufort. On 2 December 1998 he was on duty at the DNRE office in Beaufort. At about noon he was directed to gather as many resources as possible and proceed to the DNRE Depot at Vickers Street, Ballarat. He was accompanied by Stefan Wereszczuk in his vehicle and the Beaufort D4 first attack dozer on a float some distance behind. On his way to Ballarat he noticed smoke to the south of the western highway and he reported it to the Beaufort work centre. Shortly after this he received a radio call from Brad Mahoney at Ballarat. At around 1.30pm Mahoney instructed Searby to proceed to the fire near Snake Valley and provide him with a situation report as soon as possible.⁵²

8.3.46 Mr Searby approached Linton from the east, along the Glenelg Highway and then turned north along the Snake Valley-Linton Road. He then headed west along the Snake Valley-Pittong Road and was, as far as he was aware, the first DNRE officer to arrive at the fire. About 1 kilometre west of Madden Flat Road intersection and about 100 metres north of the Snake Valley-Pittong Road he could see the fire and noticed one or two CFA tankers on private property applying water to the flames. He drove about another 500 metres along the road and found another four CFA tankers which appeared to have just arrived.

- 8.3.47** Mr Searby stated:
- “One of the CFA people present asked me to drive into the forest and to apply water to the flames as they could not gain access with their tankers. I told him that my instructions were to assess the situation and to report back to Ballarat.”*⁵³
- 8.3.48** Mr Searby then drove into the property on the north of the Pittong-Snake Valley Road where he had earlier seen the CFA tankers. The flame height at this location he observed to be about 1 metre and the fire was on the north side of a house being fought by the CFA tankers. The fire was backing downhill with the wind behind it. Searby left his vehicle and walked to the east along the flank of the fire for about 250 metres and could see that the fire was more intense in front of him with heights of 3–4 metres. He ran back to his vehicle and at that stage noticed that Murray Fullerton, another DNRE officer had arrived. Murray Fullerton, a more senior DNRE officer than Searby had been directed to the Linton Fire by Brad Mahoney at 1.45pm.⁵⁴ Fullerton drove to Linton and approached the fire from the west along the Snake Valley-Pittong Road.⁵⁵
- 8.3.49** Mr Searby stated:
- “Looking at the colour and quantity of smoke and the weather conditions at the time, I formed the opinion that the fire had the potential to be a large fire.”*⁵⁶
- 8.3.50** Mr Fullerton drove his vehicle down the Pittong-Snake Valley Road and could see the fire “backing down” a hill at a point about 400 metres west of Rowlers Road. Fullerton said:
- “I noticed half a dozen CFA units parked on the road. I stopped and spoke to a person by the name of John Kavanagh, whom I believed to be a CFA Group Officer. Whilst I was talking to Kavanagh, another forest officer, John Searby, arrived and I directed him to try and locate the origin of the fire.”*⁵⁷
- 8.3.51** After speaking to Mr Fullerton, Searby then attended at Rowlers Road, with the intention of locating the source of the fire and then to track the fire edge as soon as possible, using the Beaufort D4 first attack dozer.
- 8.3.52** Mr Searby radioed Trevor Crowe, the driver of the Beaufort float, and was told he was just turning into Rowlers Road. When Searby arrived at the property at Lot 36 he spoke to a person he believed to be Des Phelan and told him that the DNRE was going to flank the fire.⁵⁸
- 8.3.53** Mr Searby stated:
- “The dozer actually started tracking in a southerly direction, from a point approximately 750 metres north from Snake Valley-Pittong Road. ... as he pushed south off the access track there were one or two CFA tankers close to the float. An unknown CFA person asked me to get the dozer operator to widen the dozer line so that they could be their tankers in to fight the fire. I told him to stay where they were, that we would support the dozer with our slip-on unit. He then suggested that back burning would be a suitable strategy, to which I replied “No! We don’t want to do any back burning at this stage”. ”*⁵⁹
- 8.3.54** Mr Searby then drove the DNRE slip-on unit south along the freshly constructed dozer line and observed that the flame height was increasing. He could see that there were some gullies in front and the changing topography was causing the change in fire behaviour. He radioed the operator of the dozer and told him to fall back. Searby turned his vehicle and started to drive out. Subsequently the dozer stopped at the junction of the access track and Rowlers Road.⁶⁰
- 8.3.55** At about that time Mr Lex Bell, another DNRE employee from Ballarat arrived. He had also been directed by Mahoney to attend at Linton. Having tasked Searby, Murray Fullerton who was effectively in control of DNRE resources, went to Rowlers Road and saw the Beaufort first attack dozer opposite Lot 36. He saw Lex Bell arrive and directed him to catch up with Searby. Searby and Bell discussed tactics and decided that the best option was to track the fire edge north to the point of origin. Bell told Searby that additional resources were coming from Daylesford and Ballarat and that “we needed to find access for them to the northern part of the fire.”⁶¹

8.3.56 Mr Searby then tried to locate suitable access by walking in the bush and noted that fire behaviour at that point was moderate with flame height about a metre. There was a small amount of spotting which they were unable to control as they only had four men in two slip-on units and the dozer.⁶²

8.3.57 At about 2.02pm, Mr Mahoney advised Bob Graham to attend at Linton to be in charge of the Operations Point and liaise with Des Phelan.⁶³

8.3.58 Mr Fullerton gave evidence that he had assumed control of the DNRE resources and that after directing Bell towards Searby:

*"I then met Des Phelan, the person whom I know to be the Grenville CFA Group Officer. We discussed strategies and agreed that I would continue to flank the fire and he would look at the possibility of attacking the head of the fire. He left to check on the possibility of stopping the fire at the Snake Valley-Pittong Road. Around this time I was advised by Brad Mahoney at the Incident Control Centre that Bob Graham was in place at Linton, as Operations Officer. I then made radio contact with Bob Graham and advised him that I was going to try and establish a control line along the north-east flank from near where the fire started. Other Natural Resources and Environment crews began arriving and I held them at Rowlers Road until we had established a safe way for them to get to the point of origin."*⁶⁴

8.3.59 It can be seen from this narrative of the facts that by shortly after 2pm the IMT had established control over DNRE resources at the fire. Those in charge of the resources on the fire line were verbally advised of the chain of command applying to them. Appropriate contact had been made between key supervisors of DNRE resources.

8.3.60 It is also apparent that at this point in time, in implementing a strategy of building a control line around the perimeter of the fire, the DNRE was acting independently of the CFA resources that were there. Those CFA resources were then looking for a task to do. Those CFA resources that were from Region 16 were not under the control of the IMT.

Region 15

8.3.61 Mr John Kavanagh, a Grenville Group Deputy Group Officer, was one of the first Region 15 volunteers to arrive at the fire, in his private Gemini. He radioed Alice Knight, the Grenville Group Radio Operator, at the sub-base soon after his arrival. That radio communication is logged at 1.37pm.

8.3.62 Mr Kavanagh gave the following evidence:

"What was the purpose in your contacting Ms Knight at that time?—I would have been giving a situation report.

Whereabouts were you at that time?—At the edge of the fire on the westerly side on the Snake Valley-Pittong Road.

*I gather from your statement you spent quite a deal of time early in the fire along that road?—That's correct."*⁶⁵

8.3.63 Mr Des Phelan, the Grenville Group Officer was attending the Smythesdale Sporting Complex as a Shire councillor, for its opening. At about twenty to two he saw smoke in the Snake Valley area. He spoke to Diane Foy on his CFA radio in his ute.⁶⁶

8.3.64 Mr Phelan stated that:

*"Bearing in mind that the wind was blowing from the north, it meant that the fire would be heading for Linton. This would have been about two o'clock."*⁶⁷

8.3.65 Grenville Group DGO Kevin Knight was at Smythesdale with Phelan. He lived in Linton. He left and went home and told his sister Alice Knight, who was the Grenville Group radio officer, that help would be needed to control the fire. Alice Knight then called on the Grenville Group, that consists of Mannibadar, Wallinduc, Cape Clear, Rokewood Junction, Smythesdale and Haddon to mobilise resources, having been requested by Phelan to do so.⁶⁸

- 8.3.66** Ms Alice Knight advised the responding brigades to go via Linton-Snake Valley Road (or possibly the Morchup Linton Road) to the Pitting-Snake Valley Road.⁶⁹
- 8.3.67** Mr Reinhard Pohl, the Deputy Group Officer from the Haddon Brigade also radioed Phelan. He said he was heading to Snake Valley. Phelan arranged to meet him at the intersection of Snake Valley and Pittong Road. Phelan said:
- "By this time I had activated our whole group to attend the fire, I had told Alice over the radio to activate the whole group. Smythesdale, Mannibadar and Linton were already at the fire, that meant three of my brigades were there and four were still to arrive. I told Pohl to wait at that intersection until the other four trucks arrived as I had told Alice to send them to that intersection. I then indicated to him that I would go and have a look at the fire and see what it was doing."*⁷⁰
- 8.3.68** Mr Phelan proceeded up the Pittong-Snake Valley Road and arrived at the Rowlers Road intersection where he saw Neville Oddie and he asked him if the fire had passed over the Snake Valley-Pittong Road. Oddie indicated that he didn't know. Phelan went down the Pittong Road and came to the front of the fire *"which was proceeding towards the road, it would be 300–400 metres from the road, I couldn't be accurate as to distance."*⁷¹
- 8.3.69** Mr Phelan then:
- "proceeded up Rowlers Road to see what was going on in that area. The fire was down in the bush, 400 or 500 metres down in the bush to the west of the road burning, it wasn't doing a lot, it was windy but wasn't burning all that fiercely."*⁷²
- 8.3.70** Mr Phelan then went back to the Rowlers Road intersection. It was at this time that he met Murray Fullerton. He said that he told Fullerton to unload the dozer and that *"he would have to get in with the dozer and make a line."*⁷³
- 8.3.71** At that time DGO Pohl with a number of other Region 15 tankers, including Cape Clear, Wallinduc, Rokewood Junction and Haddon arrived. Phelan had a quick-fill pump attached to his ute and then *"unhooked the quick-fill from the back of my ute and gave it to DGO Pohl and DGO Knight to go back to the Pittong-Snake Valley Road and try to stop the fire from crossing that road."*⁷⁴
- 8.3.72** Mr Phelan stated that just prior to doing that, DGO Kavanagh had radioed him and said that he was on the western side of the fire with three tankers, Smythesdale, Linton and Mannibadar. Kavanagh told Phelan that he had been requested (by Welsh) to change radio channels. Phelan continued:
- "We were operating on Channel 15A at that time. I indicated to him not to do this (change channels) till we had organised our group and got them all together because if the fire kept running I would have three of my trucks on their channel and I wanted to get them together and have them as a force and then they could go on Region 15 if that's what they wanted to do. This was about the time Knight had taken his crew through to the front and Kavanagh had brought his three tankers across to the eastern side of the fire."*⁷⁵
- 8.3.73** At 2.12pm there was a radio communication between Mr Phelan and Kavanagh regarding Kavanagh *"staying put"* and *"dealing with some spot fires"*, but sending other tankers to the Linton-Snake Valley Road.⁷⁶
- 8.3.74** At 2.21pm a radio communication between Mr Phelan and Alice Knight with a message for Lightfoot that Phelan was going into the bush at Rowlers Road.⁷⁷
- 8.3.75** At 2.27pm a radio communication between Ms Alice Knight and Lightfoot, giving him directions on where to meet Phelan.⁷⁸
- 8.3.76** At this stage Mr Phelan could see that the fire was *"wholly and solely in Region 16 but I knew if the fire crossed the Pittong-Snake Valley Road it wouldn't be long before it was in Region 15, not that regional boundaries are a thing I was concerned about."*⁷⁹

- 8.3.77** The radio logs record a message at 2.36pm calling for Mr Phelan to meet Bob Graham at the Linton Fire Station.⁸⁰
- 8.3.78** During the course of the fire fight, probably at about the time the ambulance attended for the injured Eric Hollingsworth, Bill Millar and Des Phelan met. Ambulance Officer Joan White was on duty on stand-by at the Linton Community Hall with Phillip Lewis. They were called at 3.31pm to proceed to Linton-Snake Valley Road and Pittong Road intersection.⁸¹
- 8.3.79** It can be seen that up to this point in time Region 15 CFA resources were operating on a group basis, the decisions on tactics and allocation of resources were being made at the fireground by Group Officers.

Region 15 and 16 Interaction

- 8.3.80** There is conflict in the evidence regarding the “*arrangement*” between Region 15 and Region 16 allocation of responsibilities from the outset. Apart from a brief discussion between Messrs Anderson and Millar at around 4pm, there was, effectively no attempt to bring the Region 16 resources of the CFA under the control and command of the IMT. In fact, few if any of those managing the fire in Region 16 knew that there was an Operations Point at Linton, an IMT at Ballarat or a Staging Area at Linton.
- 8.3.81** A conversation occurred between Messrs Millar and Phelan around 3.45pm. They had not spoken previously and did not speak again during the course of the day.
- 8.3.82** Mr Phelan says that in the conversation with Millar it was agreed to divide the fire in east/west divisions. Phelan stated that Millar was to be responsible for the west division, both north and south of Pittong-Snake Valley Road and Phelan was to be responsible for the eastern division, both north and south of Pittong-Snake Valley Road.
- 8.3.83** Mr Millar stated that he and Phelan agreed that Millar and Region 16 would “*look after*” the fire north of the Pittong-Snake Valley Road and Phelan would look after the south. The conflict was raised with Millar:

“Are you aware that Mr Phelan says in his statement that when he spoke to you that the division of the fire was east/west, are you aware that’s what Mr Phelan says?—Yes.

He says that he would look after the eastern side if you would look after the western side?—I took it that the east/west portion was the way the road was going east and west. I would look after the northern portion and he would look after the southern portion, south of that road.

But Mr Phelan did actually use the words “east/west” did he?—That was the way the division was, the line of the division between north division of the fire across the fire.

What I am concerned about is what Mr Phelan actually said to you. He used the words “east/west” did he and then you understood certain things from that?—All I understood from that conversation was that we were to look after the north of the fire, north of Pittong Road on that fire, he was going to look after the southern portion from Pittong Road.”⁸²

- 8.3.84** According to Mr Mahoney’s log, he was advised by Fullerton at 3.50pm that:
- “Murray and Des are running eastern division, Region 16 – Western Division.”⁸³*
- 8.3.85** Mr Graham who was Operations Officer, in charge of the operations point at Linton never spoke to Millar. On the evidence of Graham, Millar was purportedly one of only two Divisional Commanders and under AIMS-ICS principles should have been reporting to, being supervised by and taking direction from Graham.
- 8.3.86** No one at the IMT, including the incident controller, Mr Leach so much as even spoke to Millar during the course of the day.

- 8.3.87** In the early stages of the fire there was no unified or seamless command structure in place. There was no communications plan for the fire. The DNRE was carrying out tasks allocated by Mr Graham at the Forward Operations Point. Region 16 resources were being managed by Group Officers from their own region. The tasks and strategies employed were those of the Region 16 Group Officers. At this time the same pattern was emerging with Region 15 resources. The tasks performed on the fireground by CFA crews were determined and allocated on a Regional basis rather than an overall fire incident basis. This is simply not in accordance with what was expected to occur with the AIIMS-ICS system operating as it was designed to do.

8.4 Fuel and Topography at Initial Stages

- 8.4.1** The expert's Joint Report describes the fuel and topography near the point of origin as:

"The forest on the property where the fire originated was heavily stocked with multi stemmed stringy bark eucalypts. The fire had not been burned for many years. As a result the understory was sparse and the quantity of surface litter fuel was at equilibrium levels. Due to the preceding dry period and the high temperature and low humidity on the day of the fire, the surface fuels and outer bark on trees were very dry. Once ignited, the accumulated fibrous bark on the stringy barks would be difficult to extinguish and would produce numerous fire bands and spot fires even under light wind.

*The slope at the origin of the fire was either level or downslope in relation to the northerly wind direction."*⁸⁴

- 8.4.2** In relation to the course and spread of the fire the expert report stated:

*"The fire started to spread actively some time before 1300 hours. By 1400 hours the head fire had crossed the ridge and the track travelling west from Rowlers Lane approximately 1 kilometre south of the origin. By 1409 hours the fire had spotted onto the Lee Slopes (south aspect) of this ridge and was threatening to cross the Pittong-Snake Valley Road. The fire spread slowed on the Lee Slope as spot fires coalesced and the surface fire burnt downslope (probably against an eddy wind behind the ridge) towards a green paddock adjacent to the creek line north of the Pittong-Snake Valley Road. The reduced behaviour as the fire burnt downslope may have given firefighters the appearance that it could be stopped along the Pittong-Snake Valley Road. However, spot fires were continuing to occur and at around 1442 hours the fire crossed the road and developed a head fire on a moderate slope in the vicinity of the bend in Pittong-Snake Valley Road."*⁸⁵

- 8.4.3** Under the heading "The Predictability of Fire Behaviour", the expert panel stated:

*"The panel considered that the mean direction and mean rate of spread of the fire and general spotting behaviour was reasonably predictable. ... By the time the fire had reached the ridge north of the Pittong-Snake Valley Road it should have been apparent that the potential fire behaviour for the day was quite severe and that the fire would continue to spread on an average at 1–1.5 kilometres per hour."*⁸⁶

8.5 Expert Panel's Assessment of Tactics Following the Initial Attack

- 8.5.1** The expert panel gave the following assessment of tactics employed by the CFA following the failure of the initial attack by the Snake Valley Tanker.

"Early in the history of the fire, after the initial attack had failed, the tactics employed were quite inappropriate. The fire fighters showed little understanding of forest fire behaviour and forest fire suppression and appeared to be largely using tactics more appropriate for suppressing grass fires. It should have been immediately obvious from the behaviour of the fire, and particularly the spotting characteristics of the stringy bark forest, that any direct attack on the head fire would fail.

There appeared to be the no assessment of the values at risk and no early planning of a systematic strategy to contain the fire once initial direct suppression had failed. It was assumed that the township of Linton was threatened. However, it should have been immediately obvious that the green condition of the grasslands would contain the fire to forest fuels and that the only threat to Linton would be the remote possibility of a house or garden being ignited by a firebrand from the forest.

The rapid escalation of units responding to the call-out is a well-practiced response that is appropriate for grass fire suppression where arriving units can be deployed effectively on direct attack of the flank fires. However, many tanker units are not equipped to fight forest fires and once initial attack fails there is little effective and safe suppression that can be done until the weather moderates and systematic fireline construction with bulldozers or hand tools is organised. Soon after the start, there were too many resources at this fire. The numbers of units rapidly exceeded the span of control (5–7) of the officers in charge of the fire and in any case there was little that the tankers could do to attack the fire and would have been better deployed in immediate asset protection on the fringes of the forest. As a result, the attack was uncoordinated with units acting individually and putting themselves, and others around the fire, in danger.”⁸⁷

8.5.2 At the time that the fire crossed Pittong-Snake Valley Road it had an intensity of 4000–8000 kW/m². In the “Operations Guidelines” there is a table, which sets out, at what fire intensities it is feasible to carry out various firefighting strategies⁸⁹. In that table it is said that if the fire intensity is 500–2000 kW/m² “Fire too intense for direct attack. Parallel attack recommended.” It can be seen that the opinion of the Panel of Experts is consistent with the “Operations Guidelines” of the CFA, that is, that “any direct attack on the head fire would fail.”

8.5.3 In the context of the experts’ comments, it is also noted that the CFA’s “Operations Guidelines” provides that an officer, on receipt of alarm, should determine:

- Type of fuel – forest, plantation, scrub or grass.
- The time available to contain the fire before it develops into a major fire.
- The approximate amount of equipment needed to contain and control the fire in this limited time.”⁹⁰

8.6 Self Deployment

8.6.1 Mr Welsh gave the following candid assessment regarding the problem of crews self-deploying at the Linton Fire.

“Your Worship, ... After the Linton Fire, I had a real concern with regard to self-deployment. I believe self-deployment by people that just turn up and not go through a staging area – especially in the bush you have time to make decisions, to set up, it isn’t travelling as fast as it does in the grasslands – but self-deployment in the bush when people don’t know other people are there, I think that should be discouraged and we should set up a system where they go through properly a staging area.

So you have described, I think, one incident of self-deployment?—Yes.

Did you see any others?—I saw self deployment on arrival at the fire, yes. It was the second day of summer, Your Worship. The fire wasn’t travelling – a lot of people got there quick. It was – it was unusual – it was in a heavily populated area on the border of two regions. It sort of escalated there. We had a number of trucks on our hands before, I believe, anyone could properly put any system, on that particular day, into effect, and it would have taken a lot of time to get a system or ICS going, that’s an observation I made on the day.”⁹¹

8.6.2 Mr Anderson was asked about the issue of self-deployment:

“How do you address the problem of self-deployment?—The issue of self-deployment, Your Worship, has always been one of those questions.

*I am not talking about the early stages of the fire, I am talking about later on?—The issue of self-deployment has been one that has been there since the sands of time. We have to ensure that we establish very, very quickly the staging area, and that specifically directions are given to appliances to come to the staging area before being deployed to the fire ground. Initially a staging area can be a car boot where someone may collect a T card and assign a unit to a task, but the fact is by doing that hopefully we can start to limit self-deployment. Once again it comes back to Brigade discipline. We have to learn the radio isn't a way of being turned out, just listen to the fire burning some 20 k. away, we have to learn "Stay where you are until you are called." The new Chief Officer's standing orders are starting to address the issues that have been there for a long time."*⁹²

8.6.3 Mr Westwood, a permanent CFA officer manning the Staging Area at the Linton Fire was asked:

"You have been asked this in one sense, I would like to ask you in another sense, can you see any practical way in which you can get to identify those tankers which self-deploy and not come through the staging area after you get there, or alternatively are out there before you can set up the staging area?—No, to answer you immediately, no, I can't.

*The only resort really is to wait and hope they turn up isn't it?—Yes well they have to, they have to come to you some time to get fuel, food, yes, and that's the only way we will find out."*⁹³

8.6.4 CFA, Chief Officer Roche was asked:

*"Questions have arisen on a different topic, that's the question of recording who is on the fire ground, where they are and what their roles are. During the last summer was in fact a bar code resource tracking project trialled in Region 22?—We have been trialling a bar coding system now for probably 2 years. It was trialled in 22 last year, it has previously been trialled in the Region 14 area based in the Melton area. It has also been used to track resources where we had significant resources deployed to the Avalon Air Show two years ago. I expect that we will now be firming up on that system, but that system is only as good as the people who need to be tracked, presenting themselves to be bar coded, if you like. One of the difficulties that we have is people who arrive on the fire ground, particularly in the initial stages of a fire, or people - members of the community who self-deploy, and that's an on-going issue for us, and one which, given the nature of rural Victoria, is extremely difficult to manage."*⁹⁴

8.6.5 The issue of the management and direction of incoming resources after the failure of the initial attack requires consideration. Chapter 11 of the CFA's *"Operational Guidelines"*⁹⁵ deals with the despatching and receipt of strike teams from other regions.

8.6.6 Under the heading *"Despatching Resources"* the *"Operational Guidelines"* urge a consideration of:

- *"How many personnel/resources are required.*
- *Where to report to.*
- *Who to report to."*⁹⁶

8.6.7 Under the sub-heading *"Organise the support"* the *"Operational Guidelines"* items:

- *"Fill out strike team booklets.*
- *Obtain maps for strike team leader and each vehicle.*
- *Brief strike team leader.*
- *Brief crews.*
- *Discuss route with leader and vehicle drivers."*⁹⁷

are identified.

8.6.8 In the CFA “Operational Guidelines” under the heading “Receiving and Deploying Resources” it is suggested that:

“To facilitate the reception of incoming strike teams and resources, it may be necessary to locate a reception officer at the staging area, assembly area or check-in location. Depending on the urgency of the situation, the reception officer may:

- Report arrival of resources to the Planning Officer, or, if appointed, to the Resources Officer.*
- Arrange for safe parking of vehicles.*
- Arrange for refueling and mechanical repairs in consultation with Logistics Officer.*
- Arrange for crew welfare and feeding.*
- Brief strike team leaders.*
- Assemble crews to await further instructions.*
- Provide maps.*
- Provide a local guide.”⁹⁸*

8.6.9 It can be seen therefore, that the basic requirement of requiring incoming resources to report to a nominated point (be it called an assembly area, staging area, fire headquarters, or reception area) is not a new concept.

8.6.10 Prior to the “Operational Guidelines” set out above, the CFA Operations Manual was titled “Tactics and Administration in the Field.” The Manual is not dated but it appears, from the statement of CFA Chief Officer Roche that it was probably published in the late 1960’s.

8.6.11 Paragraph 12.4 of that document is headed “Arrival at Fire Headquarters”. It stated:

- “ 2. Report to the Headquarters or to Support Force Commander if he has proceeded ahead of the force.*
- 3. Hand in information cards and collect all relevant facts available.*
- 4. Ensure that the Support Force Commander has a **full** understanding of the task allotted to the force...*

GENERAL

- (a) Situation Reports are vital - maintain the command structure by passing these up and down the line.*
- (b) Keep in touch with forces at work on either side of the allotted task area.*
- (c) Check in and out through the proper control point or HQ **at all times**.*
- (d) All support forces should accept that many fires will not be running when they arrive. Their role must be of necessity be one of blacking out, back burning, patrol, or even being held in reserve for a period.”*

8.6.12 Paragraph 12.5 of “Tactics and Administration in the Field” dealt with “RECEPTION OF SUPPORT FORCES”. It provided for the following:

“Support Force Requirements:

- (a) Current Situation Report*
- (b) Map or maps of fire area*
- (c) The position of and where to get –*
 - (i) water*
 - (ii) fuel*
 - (iii) mechanic for repairs.*
- (d) Meal arrangements*
- (e) Communication Diagram*
- (f) Location of Control Centres*
- (g) Local Guide (in some situations)*
- (h) Their task.*

Registration

Information cards should be collected and logged and the next Senior HQ notified."

- 8.6.13** The Manual also provides instructions on the deployment of support forces.⁹⁹
- 8.6.14** The September 1997 report of the Fire Agencies Improvement Initiative ("FAII") also picks up the problem of self-deployment. It recommended that there should be:
- "Increased emphasis on setting up of staging areas and the concept of 'checking in' to the fire ground to aid in all aspects of resource management."*¹⁰⁰
- 8.6.15** The FAII draft report recommended:
- " 4. Rename reference to 'assembly area' in ICS terminology and confirm use of 'staging areas'*
- 6. Each appliance must have a pre filled out T card to be handed in at the staging area before entering the fire ground."*¹⁰¹
- 8.6.16** The FAII report also recommended steps to:
- "Enhance the current T card system (resource management kit) to improve real time mapping to occur at incident level. Features are:*
- (i) Magnetic symbols for resources*
- (ii) Weather protectors etc.*
- (iii) Investigate the development of "smart card" technology to produce a single card to itemise the following:*
- Identification and authorisation (photo and DNRE or CFA logos etc.)*
 - Location access*
 - Personal details*
 - Skills*
 - Electronic resource management (airline ticket)."*¹⁰²
- 8.6.17** The report also referred to *"Mandatory to check in (hand card in)."*¹⁰³
- 8.6.18** Under the heading *"Problems encountered with Resources"* the report noted:
- "Knowing what resource has responded.*
 - No news between home base and operations.*
 - Poor discipline in implementing guidelines.*
 - System vs tools.*
 - Shift philosophy from resource training to resource management.*
 - Detailed information on individuals (time despatched and where to and from) to be recorded at Brigade/Group/Work Centre."*¹⁰⁴
- 8.6.19** On the same page of the FAII report is the heading *"System."* It sets out:
- "Check-in point*
 - Discipline*
 - Nested system (minimise duplication)*
- Tools**
- Key cards*
 - Magnetic labels*
 - Computer/bar code*
 - Short term use key cards*
 - Long term tools and other tools – "card" for resources*
 - Check out?"*¹⁰⁵

8.6.20 Under the heading “Operational Control/Staging Areas/Assembly Areas” the report states:

“FGO action:

4. *Staging areas need to be considered earlier in planning operation or management of resources.*
 - *Change “assembly area” to marshalling area (to avoid confusion with an emergency management “assembly areas” for evacuees, public welfare, etc).*
 - *Need to inform with emergency management.*
 - *Stress early sectorisation and active staging of resources at pre-season briefings.”*¹⁰⁶

8.6.21 Under the heading “Resource Tracking and Demobilisation” the report states:

“FGO action: 5

Resources information flow from the Operations Unit to the ICC and back needs improvement.

A common system needs to be developed and promulgated to Operations personnel to help facilitate this. (Phase One)

Key cards, strike team books, and map based systems already exist; these should be joined to produce a simple, workable system of forward resource tracking and management. Any system should incorporate the following principles:

- *Simple system.*
- *Using a “cannon system” of information flow (ie different levels of information flow up and down so information flow is not duplicated).*
- *The same information needs to go to the Planning Unit on a regular basis.*
- *Use pre-prepared key cards, 691 forms etc.*

Longer term issues which need to be addressed as part of this system include:

- *Better tracking of local resources despatched to incident (track what was sent/what went at a group/district level).*
- *Information on despatched resources to ICC – borne into strike teams.*
- *Better discipline in despatch is required (use strike teams).*
- *In principle a strike team is named by the location it comes from not by person.*

Suggested System

- (1) *Group/District to track initial despatch (outgoing) resources and pass on to ICC (including pre-prepared response) via region (ops officer/controller).*
- (2) *Operations to track resources coming in (at operations point, staging area or marshalling point).*
- (3) *Radio check.*
- (4) *Key cards.”*¹⁰⁷

8.6.22 The report goes on to recommend matters such as specification of deployment of resources and revamping current tools for field resource management.

8.6.23 It is therefore clear that the issue of self-deployment and resource tracking has been an ongoing issue within the CFA, and certainly was under investigation before the Linton Fire. If the basic rules that have been in place at least since the “*Tactics and Administration in the Field Volume 1*” are adhered to, even at the first response stage, this problem should not occur.

8.6.24 Under the heading “*Limitations on the Group System*”, Chief Officer Roche in his statement sets out the problem with self-deployment and managing resources under the CFA Group System.¹⁰⁸

“The move to AIIMS-ICS was not a case of change just for the sake of change. Experience in incidents during the course of the 1970’s and 1980’s had exposed weaknesses in the system of incident management based on brigades and groups, particularly when faced with larger incidents crossing group or regional boundaries or between private and public land.

136. Ten years ago, the build up of resources at a fire would be very slow. In a large fire, there may be only 20 trucks operating. This level of resource deployment was generally quite manageable within a group hierarchy. However, the response rate and speed of deployment is now quite different. For example in 1998 there was a relatively small fire in the Macedon area and there were 140 trucks in attendance within two hours. In this environment, the resources will very quickly overwhelm any single person in control. That is why a system that has a span of control of no more than five at each level of the system is essential.

137. Under the AIIMS-ICS, the overall control of the incident is under the command of the Incident Controller. However, it is not part of the role of the Incident Controller to determine tactics if this is beyond what could reasonably be managed by a person in that position. The primary role of the Incident Controller is to determine strategies and objectives. The group system, on the surface, looks quite similar. When a brigade responded to an incident, that incident would be under the control of the Brigade Captain or the most senior officer from the brigade present. As the fire grew the Group Officer would take over control and establish a forward group headquarters somewhere in the field.

138. However, there is no limit to the span of control and no direct recognition that each of the lower levels of the organisation had some degree of independent line management responsibility for those working under them. The group would try to do everything themselves and responsibility for this would largely fall onto the Group Officer. Thus the Group Officer would be responsible for logistical issues ranging from arranging for additional support to come in from outside areas to assist the fire fight through to ensuring fire fighters were properly fed and looked after.”¹⁰⁹

8.6.25 In Exhibit 71D, a document prepared and tendered by DNRE for the purpose of identifying relevant issues and for the purpose of responding to Chief Officer Roche’s statement at page 9, DNRE referred to para 136 of Roche’s statement and submitted:

“The internal structure of the CFA is clearly a matter for that organisation. However, effective forest fire fighting requires a high degree of discipline in the registration and deployment of resources to a fire. Where this is lacking inefficiencies can arise and worse, major safety issues can develop on the fire line. The effective operation of AIIMS-ICS requires that only resources requested by the Incident Controller should be deployed to a fire line. NRE strongly supports the achievement of this situation at the earliest opportunity within the CFA, consistent with the two agency’s commitment to AIIMS-ICS”.

8.7 Conclusions

8.7.1 Following the first report, the Snake Valley Brigade responded quickly.

8.7.2 The initial strategy to suppress the fire consisted of the Snake Valley tanker with Mr McInnes and Aaron Foy endeavouring to find the fire and extinguish it before it had time to grow. They were hampered in their endeavour by the nature of the terrain, access difficulties and most importantly, the intensity that the fire had already established.

8.7.3 The initial deployment of resources by the CFA revolved around CFA Group structures. The DNRE had some communication with the CFA on the fire ground but effectively operated independently during this phase.

8.7.4 The strategy implemented by DNRE of endeavouring to locate the source of the fire and then construct a mineral earth break as close as possible to the fire edge, as the conditions permitted, is consistent with accepted forest firefighting practice.¹¹⁰

8.7.5 Despite the early establishment of the IMT in Ballarat, at and following the first response (putting to one side the issue of self deployment) there were at least three separate management groups within the fire; Region 16, Region 15 and DNRE.

- 8.7.6** No control was put on the number of CFA resources responding. Very quickly there were more CFA resources at the fire than were necessary.
- 8.7.7** AIIMS-ICS principles were not being employed. In particular, no regard was paid to the “*span of control*” dictated by AIIMS-ICS. It was greatly exceeded at important operational locations.
- 8.7.8** Despite being recognised as a problem for many years the issue of self deployment again arose. Ad hoc self deployment is dangerous and operationally inefficient. The issue has been alive for decades. It must be addressed.
- 8.7.9** How to fix the problem has also been identified for years, it involves:
- (i) properly managing requests for attendance of tankers; and
 - (ii) all tankers attending at a specified location (be it called an Assembly Area, Staging Ground or Reception Area) for the purposes of “*checking in*” and being appropriately briefed and tasked.
- 8.7.10** Issues such as those identified in Chief Officer Roche’s statement¹¹¹ once again arose with the fire being managed along group and agency lines, rather than in accordance with AIIMS-ICS principles and the multi agency agreement, the operation of which is described in other Chapters of this Report.

Pittong Road Line-up and Burnover

9.1 Introduction

9.1.1 This Chapter broadly describes events surrounding the attempt, by about 10 to 12 CFA fire tankers, to stop the head of the fire at the Pittong-Snake Valley Road. The road ran roughly east-west cutting across the projected path of the fire as it travelled south towards the State Forest and Linton. Once the fire crossed the road it entered the State Forest. In this Chapter there is also some examination of the evidence of self-deploying by tanker crews in the general area of the Pittong Road. In Chapter 8 the evidence concerning the first response by the Snake Valley tanker was considered. Two factors resulted in the failure of the initial attack:

- The fire had built up significant intensity (as described particularly by the witness Mr. McInnes); and
- The difficulty of gaining access to the fire.

9.1.2 Once the initial attack failed, Deputy Group Officer Peter Wyllie formed the view that *“the next best line of defence was along the Snake Valley-Pittong Road ...”*¹

9.1.3 Mr Wyllie explained this decision in the following way:

“You have said that you contacted Craig McInnes, he told you that access was difficult from the Rowlers Road side of the fire?—Yes.

You then went to the western side and tried to get access from the paddock?—Correct

...

You nearly got bogged?—The first CFA tanker which was Lake Goldsmith arrived and nearly got bogged.

So it was quite clear there was significant difficulty with accessing the fire before it got to the Pittong-Snake Valley Road?—Yes.

*Was it therefore apparent that the first opportunity you would have of stopping the fire would be at that road?—That’s correct.”*²

9.2 Establishing the Command Structure

9.2.1 As set out in the previous Chapter, the Snake Valley sub base log records DGO Wyllie (from Region 16) taking control at 1.38pm.³

9.2.2 Mr Wyllie gave evidence that when he talked to McInnes on the radio:

*“At that stage I was the only mobile there and I suppose I was the highest ranking officer of the group at that stage, yes.”*⁴

9.2.3 And in relation to the assumption of command he was asked:

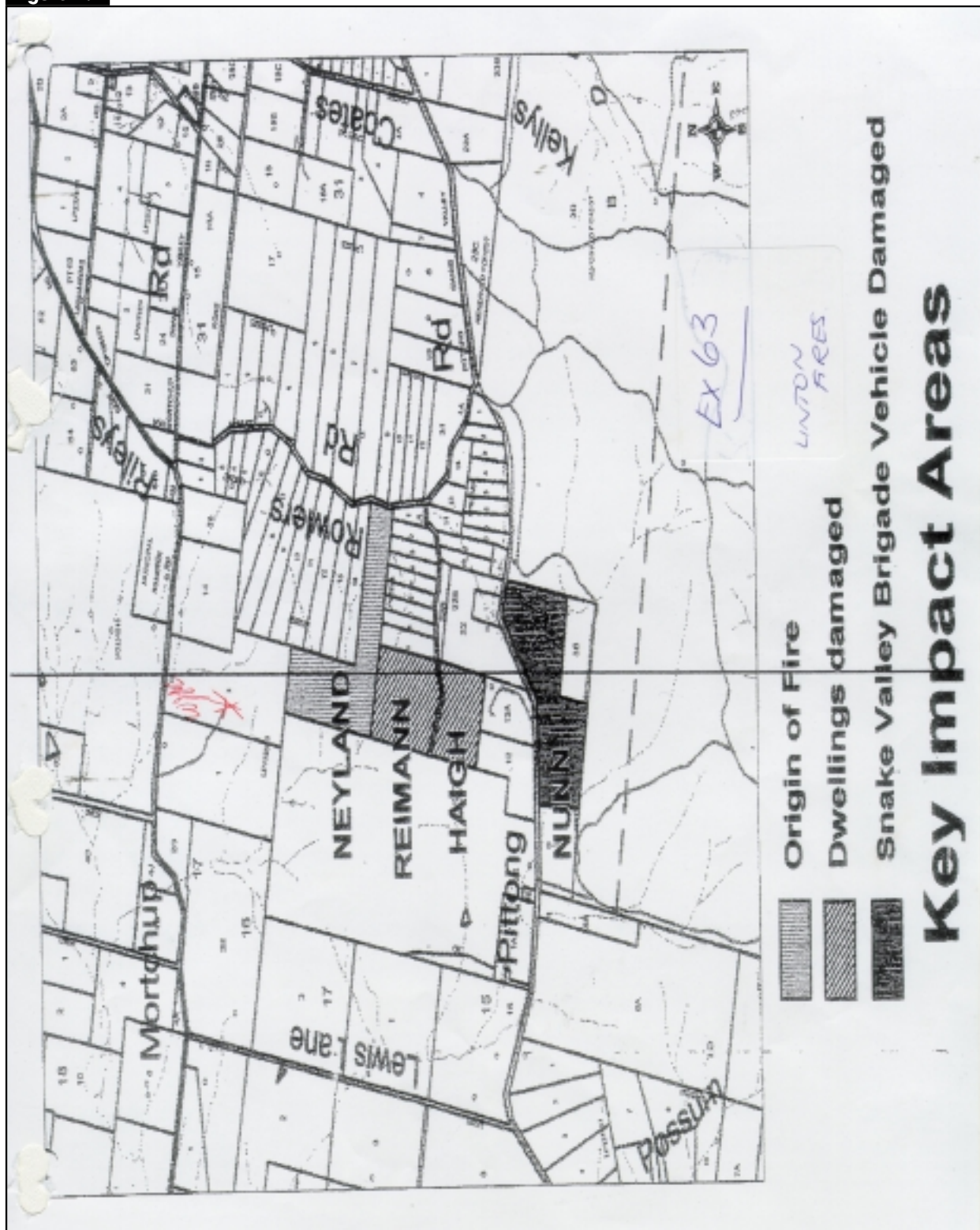
*“Well, you hadn’t quite assumed it but you were starting to assume command?—Yes.”*⁵

9.2.4 After failing to gain access to the fire as described he went to a hill which was to the north-west of the fire.⁶ Mr Wyllie was asked:

*“That was a hill that you used as a vantage point to look at the fire?—Correct.”*⁷

Figure 9.1 depicts the general area. The hill where Mr. Wyllie stood is marked with a cross.

Figure 9.1



9.2.5 Mr. Peter O'Rorke had been Captain of the Lake Bolac Rural Fire Brigade since 1971 and a member of that brigade since 1955. The Lake Bolac Brigade is part of the Westmere Group in CFA Region 16.⁸

9.2.6 Mr O'Rorke used his own aircraft, a Cessna 182Q model, to "*spot*" for the CFA. The aircraft was based at his farm. He performed the "*spotting*" role on a volunteer basis although the CFA did, from time to time, provide him with top-ups of fuel.⁹ He could be called out to "*spot*" at an incident by any Group Officer or any Operations Officer or the Aircraft Officer for the area or the Westmere Group Base Radio Officer.

- 9.2.7** At about 1.00pm on 2 December 1998 Mr O'Rorke was cutting grass along the Glenelg Highway. He received a radio message from his wife indicating there was a fire at Stawell and that John Anderson had asked that he get his aircraft ready to respond to the fire. O'Rorke began to make arrangements to respond and was preparing his aircraft when his wife came into the hangar and told him she had received another telephone call to say that he was no longer required to attend at the Stawell fire.¹⁰
- 9.2.8** A short time later Mr O'Rorke received another call from his wife, on the UHF radio. She told him that John Anderson had telephoned again and had asked that he respond to a fire at Snake Valley.
- 9.2.9** Mr O'Rorke returned to the hangar and took off in his aircraft. In his log he recorded the time that he took off and was above the Lake Bolac airstrip on his farm as 13.45. He radioed the Westmere Sub-Base to tell them that he was departing for the fire at Snake Valley. After he took off he radioed the Westmere Sub-Base and told them he was changing from Channel 74 to Channel 73, this is normal procedure.¹¹
- 9.2.10** Mr O'Rorke's normal procedure when being called out was to endeavour to contact "Fire Control". On 2 December 1998 he stated that:
- "I was able to contact Fire Control, who was Beaufort Group, Deputy Group Officer, Peter Wyllie."*¹²
- 9.2.11** Mr. O'Rorke told Wyllie that he estimated that he would be at Snake Valley by 2.00pm. This was the time he arrived over the fire ground.
- 9.2.12** Mr O'Rorke stated:
- "...I radioed Wyllie and told him I had arrived at the area of the fire. Wyllie told me to fly around the fire and then to provide him with a situation report. I flew a box pattern (ie a square or rectangular pattern) around the fire at around 1000 feet above ground level. I attempted to observe the fire size and direction and to ascertain the location of water points, gates or other access areas and what equipment was on the various parts of the fire front. This is normal procedure when obtaining information or a situation report.*
- Smoke from the fire was not going straight up but was moving mainly along the top of the trees. This made visibility of the area of the fire difficult. Despite this, I could see that the fire was starting to gain a bit of momentum. I could also see that access to the area of the fire for appliances would be difficult.*
- I was asked by Wyllie if the fire was going to impinge on any houses. Despite the problems with visibility, I could see that there was one house that was in the middle of the fire area and that three other houses on the west side of the fire were in jeopardy. Those three houses were numbered on page 100 of the Region 16 Fire Map as house numbers 120, 121 and 122. I communicated this to Wyllie. I also told Wyllie that there were no spot fires to the south side of Pittong-Snake Valley Road at this stage."*¹³
- 9.2.13** Mr Bill Millar, at the time of the Linton fire, had been a Group Officer at the Beaufort Group for 20 years. The Beaufort Group consists of Beaufort, Snake Valley, Brewster, Langi Kal Kal, Raglan, Crossroads and Lake Goldsmith CFA Brigades.¹⁴
- 9.2.14** On the day of the fire he had been baling hay. At about 1.00pm he was sitting in his car having tea with his wife. He noticed smoke coming up from Snake Valley west of Rowlers Road. Within five minutes he could see the fire was "starting to move with the wind" so he phoned his daughter who told him they were organising a strike team for the Stawell fire and that the fire at Snake Valley had been reported and that help was required.¹⁵
- 9.2.15** Mr Millar logged on at 1.26pm and rang the DNRE at Beaufort to try and arrange for a bulldozer to attend the Snake Valley fire. The dozer had already left for another fire east of Ballarat. He then made enquiries to find out what units had been alerted and all of the brigades in the Beaufort Group bar Raglan had been activated. Beaufort Base called him and asked him to attend there but he said he was going directly to the fire as he was aware that the units had a shortage of mobile radio vehicles and that he would "be more use at the scene."¹⁶

- 9.2.16** Mr Millar then went to the scene and met with Wyllie, who he had been speaking to on the radio on UHF prior to arriving at the fire.
- "I asked DGO Welsh, who was at the fire, to make sure all trucks were on Region 16A channel. On arrival DGO Wyllie updated me on his requirements...I had DGO Welsh on Pittong Road and he kept us updated about the fire approaching Pittong Road. He said the fire was slow moving and that he was sending in some trucks to save some houses."*¹⁷
- 9.2.17** Mr Millar had not attended Incident Control System training, as he was unwell when training was conducted and was therefore unable to attend.¹⁸
- 9.2.18** In his statement Mr Millar said that on his arrival at the fire Wyllie was *"effectively the Incident Controller at this stage. Later he was involved in air operations."*¹⁹
- 9.2.19** Mr Millar said that DGO Welsh on Pittong Road was:
- "In charge of operations in this area and he kept us updated about the fire approaching Pittong Road. He said the fire was slow moving and that he was sending in some trucks to save some houses. He also had some tankers on the road."*²⁰
- 9.2.20** In relation to the exercise of control after he arrived, Mr Millar was asked:
- "At that point did DGO Wyllie hand over control to you, effectively?—Well, I wouldn't put in such words, no, no.*
- Who took control from then on after you arrived?—We were all working together. I suppose if it comes to the worst scenario, everything ends up as my responsibility, no doubt."*²¹
- 9.2.21** A passage of Mr Wyllie's statement that read as follows was put to Millar:
- "I then left the operational side of the fire to Group Officer Millar and I changed channels and I became Peter O'Rorke's contact on the ground and I then passed information on to Millar and Smithers."*²²
- 9.2.22** In respect of that passage, Mr Millar gave evidence:
- "That would have been right then, yes, when Peter Smithers, Captain Smithers arrived at the scene where we were."*²³
- 9.2.23** Mr Millar was then asked:
- "Around that time, after Captain Smithers arrived, is that the time there is a change in who is in charge?—More or less, yes. My way of working is that I work in with our DGO's and the captain.*
- Yes?—We work together."*²⁴
- 9.2.24** Mr Millar was then questioned:
- "You are not aware who organised the additional tankers into the region at that stage, it just seemed to happen?—It just seemed to happen."*²⁵
- You became aware that there were other units along with the Westmere Group in there, do you know how it was that they were organised to get there?—I think they organised themselves in the Westmere Group.*
- Were you aware that there was a staging ground at Linton?—Never, no.*
- Were you aware that there was a forward operations point at the Linton Shire Offices?—No, I did not.*
- Were you aware that there was an IMT at Ballarat?—No.*
- Do you think that's a problem?—I think so, yes, but at the start of the fire we were all busy trying to control that fire, not worrying about who was being set up elsewhere, I suppose.*
- Did you ever become aware of what was set up elsewhere while the fire was running?—No, I never knew anything about what was being set up.*

So you didn't know about the Ballarat situation, you didn't know what was at Linton, and you didn't know about the Geelong Strike Team?—No, I did not know anything about that.

That's over the period of time until you became aware obviously?—Until later in the evening, yes.

Do you think that's a problem?—It's got to be a problem, yes.

How were you getting your resources?—Well.

For this fire, without contact through the IMT?—The only resources we were getting were through our own region.”²⁶

9.2.25 In relation to who was in control of the fire from when he arrived, Snake Valley Brigade Captain, Peter Smithers stated:

“I assumed that I was in control of the fire. Normal CFA procedures would be that the captain of the Home Brigade is in charge until something changes.

Was that the case?—I believe so. Although I must admit I met up with Group Officer Bill Millar who had already arrived at the fire and I believe that I worked in conjunction with him for the afternoon.”²⁷

9.2.26 Mr Smithers was asked:

“In relation to Peter Wyllie, did he have any input in relation to that command structure at all?—We were certainly talking together, but it, in the early stages he appeared to be in – mostly in contact with the aircraft and was handling information coming from the aircraft, and passing that onto Bill Millar and myself.

Right, what strategy did you develop to combat the fire at that moment?—The strategy had probably been developed already. And Bill Millar and Deputy Group Officer Ern Welsh, who was down at the Pittong Road area, had originally thought it may be possible to stop the fire at Pittong Road.”²⁸

9.2.27 At this point it should be noted that Mr. Smithers' reference to “normal CFA procedures” appears to be a reference to the Group System of fire fighting as outlined in the manual “Tactics and Administration in the Field.”²⁹

9.2.28 Mr Smithers was asked about the management and control of resources arriving at the fire ground:

“In relation to what units were attending the fire, was that a difficult task?—Yes. Generally is in early on in fires because tankers just appear and there's not a great deal of control of them. They attend to certain areas of the fire, the only way you can find out where they are or who they are is - as they call in by radio and not long after I got there I went down to the Pittong Road area and actually took a list of all of the tankers that were there.

Was there any designated staging area for those units to go to?—Not at that point, no.”³⁰

9.2.29 Mr Smithers gave evidence that he arrived at the control point described by Wyllie, about 1 kilometre north of the point of origin, at about 2.10pm. He then spoke to Millar and Wyllie.

9.2.30 Mr Smithers stated:

“I was briefed by GO Millar. He told me that Snake Valley, Linton and Skipton tankers were at Pittong Road, with DGO Welsh awaiting the fire to come to them as there was very poor access through the bush and the fire was actually spotting ahead of the main front. ...Plan A was to try and stop the fire at Pittong Road. The fire at this stage was burning down the hill towards Pittong Road fairly slowly and this expectation of stopping it at Pittong Road was fairly reasonable. There was a change in the fire behaviour in a very short period of time. It created multiple spot fires south of Pittong Road near the western flank of the fire. I am unable to say exactly what caused the change in the fire's behaviour, but it was possibly wind related.”³¹

- 9.2.31** Mr. Ernie Welsh was a Deputy Group Officer with the Beaufort Group (Region 16) and captain of the Crossroads CFA Brigade. He had been with them for the past 31 years and was employed as the Municipal Fire Prevention Officer for the Pyrenees Shire Council.
- 9.2.32** He described his training over the years as having included an Incident Management Course, DNRE and CFA Wildfire courses, Fiskville Grass Fire and Fog Nozzle courses, Truck Driving courses in respect of which he is qualified as an instructor, along with First-Aid, Hazmat and Road Trauma courses. He said that he had attended *“all types of fires in my career including bush or wild fires.”*³²
- 9.2.33** Mr. Welsh was notified by a neighbour about the Snake Valley fire at around 1.15pm–1.20pm and had only three members available, but turned out with the Crossroads ‘A’ tanker. He tried, but had difficulty contacting Group Officer Millar at the Lake Goldsmith Base due to interference on the Ararat Sub-Base. He said:
- “I was getting intermittent traffic from Snake Valley and could hear them calling for more tankers. I had at this stage sighted smoke coming up between the Mortchup Road and Pittong Road. I used a mobile phone and arranged for Crossroads Two tanker to roll. I also arranged for the Crossroads Mobile One with a quickfill pump to attend.”*³³
- 9.2.34** Mr Welsh made radio contact with DGO Wyllie and heard radio contact between Wyllie and Peter O’Rorke, who was in the Region 16 aircraft and said he was about ten minutes away. He said:
- “I had not received any map reference and only knew to go to Pittong Road.”*³⁴
- 9.2.35** On arrival at Pittong Road Mr Welsh radioed DGO Wyllie who asked him:
- “...to set up a forward point on the west end of Pittong Road to receive trucks and to deploy them to protect property on Pittong Road, Rowlers Road and Cochranes Road. On arrival I noticed there were a number of initial response tankers on Pittong Road. I formed a task force using these tankers to protect the homes as directed.”*³⁵
- 9.2.36** Mr Welsh was aware that the Westmere Task Force had self-deployed and had come in on the Mortchup/Rowlers Road end. He understood Captain Charlie Wetherley was in charge of that group, with Lieutenant Pitcher in the Mobile unit. He stated:
- “DGO Chapman arrived with the Westmere Second Group. I asked him to change to Channel 72 (16A). He refused to do so and stated I had no authority to make him change.”*³⁶
- 9.2.37** Mr Welsh stated that:
- “DGO Kavanagh of the Grenville Group arrived and I asked him to change to our channel as well. He informed me that he was Region 15 and that I was not authorised to tell him to change channels.”*³⁷
- 9.2.38** As mentioned in the previous Chapter, Mr. John Kavanagh, a Deputy Group Officer with the Grenville Group and Brigade member of the Mannibadar Fire Brigade, was one of the first Grenville Group volunteers to arrive at the fire.
- 9.2.39** The Grenville Group (Region 15) consists of 8 brigades including Mannibadar, Wallinduc, Cape Clear, Rokewood Junction, Haddon, Smythesdale and Linton Fire Brigades.³⁸ Mr Kavanagh stated:
- “The Group is in charge of those brigades. For example, if a fire occurs in Mannibadar and moves to another Brigade’s area, then the Group take over in management of the fire working with the local Fire Brigade where the fire originated.”*³⁹
- 9.2.40** On 2 December 1998 Mr Kavanagh was at home monitoring his radio on Region 15A’s command channel. Alice Knight called him to turn out, in accordance with instructions from the Grenville Group Officer, Des Phelan as set out in the previous Chapter.⁴⁰
- 9.2.41** Mr Kavanagh immediately turned out in his own vehicle, which is a Gemini fitted with CFA radio, telephone, UHF radio and warning lights. He arrived at Pittong Road and had only two trucks under his control, which were the Linton and Mannibadar tankers.⁴¹

- 9.2.42** It was at this time that Mr Kavanagh contacted Alice Knight by radio. The communication is recorded in the log as having occurred at 1.37pm. This was soon after Kavanagh arrived at the fire. He was asked:
- “What was the purpose in your contacting Ms Knight at that time?—I would have been giving a situation report.*
- Whereabouts were you at that time?—At the edge of the fire on the westerly side on the Snake Valley-Pittong Road.”*⁴²
- 9.2.43** Mr Kavanagh confirmed that he spoke to Welsh and explained in his statement how he was unable to change radio channels because he was reporting in for the Grenville Group in that area.⁴³
- 9.2.44** Mr Kavanagh stated that his two tankers, namely Linton and Mannibadar “moved over under the command of DGO Wyllie and they changed channels.”⁴⁴ Kavanagh stated:
- “I moved up and down that road operating more or less as a scout for the Group. The fire was slowly coming down Pittong Road in a southerly direction and was about 500 metres or so away from the Pittong-Snake Valley Road. There would have been about 8–10 tankers along the road, mostly from the Westmere and Beaufort Groups within the one Region, Region 16. I met up with Lieutenant Pitcher from the Skipton Brigade, who was travelling as a mobile the same as myself with a radio. I directed him to remain with me as that would give me the Region 16 command channel radio so as I could monitor what was occurring. I suggested to him and other including DGO Welsh that we should commence back-burning operations off the Pittong-Snake Valley Road which would have been about half way within the perimeters of the fire at that stage. By back burning, I mean burning unburnt ground between us and the approaching fire.... That wasn’t accepted by Welsh at that point and the decision was made to put out the fire as it got to the Pittong-Snake Valley Road. Welsh would have made that decision. At that stage the fire was getting quite a bit closer and it had spotted over the road. From Pitcher’s radio I heard that the Snake Valley tanker was in trouble. I heard that it was overrun by fire and it had water and they were going to protect themselves. The Snake Valley tanker I knew was over the road up a slight hill to the south of my position. I could see flashing lights in their direction from where I was standing and I assumed that that was their truck.”*⁴⁵
- 9.2.45** Mr Kavanagh was questioned about the safety of conducting a back burn at that point and it was put to him that it would have been unsafe to back burn from Pittong Road at that time. He answered:
- “Well, that may well have been, yes, it was just I felt we had to be proactive rather than reactive. My concern always is with a fire is, it is always easy to put out a small fire, and to me the first thing in the back of my mind was “we don’t want another Berringa” and we could well have it which we did basically.*
- Was your position in relation to that suggestion to back burn, that it was an option that you raised at the time when there weren’t too many other options in terms of trying to stop the fire?—That’s correct.”*⁴⁶
- 9.2.46** Mr. Alan Pitcher was a volunteer fire fighter with the Skipton Brigade and at the time of the Linton fire was a First Lieutenant. On the day of the fire, he noticed smoke, at about ten past one and telephoned the Snake Valley Fire Brigade. He then contacted Millar by radio “and he gave me the all clear to attend as a mobile from a different Group.”⁴⁷
- 9.2.47** The fire was about 11 kilometres from Mr Pitcher’s property. He attended at the fire ground and contacted DGO Peter Wyllie. Wyllie told him that:
- “It was a difficult position to get into the bush where the fire seat was and he thought that the fire was starting to get out control and he required units from Skipton and further back-up from the Westmere Group.”*⁴⁸
- 9.2.48** Mr Pitcher contacted the Group Base at Westmere and they alerted Skipton that the trucks were required at the fire at Linton. Initially there were two trucks sent from Skipton and

then six more tankers from the Westmere Group.⁴⁹ Pitcher was asked if the tankers from Skipton could enter the fire ground on the Snake Valley-Pittong Road. His instructions were that the tankers were to proceed along that road:

*"The initial idea was to head the fire off along the Snake Valley-Pittong Road and those tankers were to be deployed along that roadway. The fire came quicker than was expected and the tankers couldn't come through where the fire had actually hit the road. So, those initial tankers were employed on the western side of the fire."*⁵⁰

9.2.49 Mr Pitcher described assisting Kavanagh.⁵¹ He said that John Chapman from his Group, the Westmere Group, also attended. Chapman commenced to work in an area near Rowlers Road to put in a control line parallel with Rowlers Road.

*"We actually went along the NRE break that they'd actually put in and we just controlled that portion of the fire."*⁵²

9.2.50 After Mr. Des Phelan had arrived at the fire he stated that he communicated with John Kavanagh who:

*"Radioed me saying that he was on the western side of the fire with the other three tankers, Smythesdale, Linton and Mannibadah."*⁵³

9.2.51 Mr Phelan stated that he told Kavanagh not to change channels till:

*"We had organised our Group and got them all together because if the fire kept running I would have three of my trucks on their channel and I wanted to get them together and have them as a force and they could go on Region 16 if that's what they wanted to do."*⁵⁴

9.2.52 Clearly at this point in time Mr Phelan considered this a group fire and the unified communications plan that was required under AIIMS-ICS was far from his thoughts.

9.2.53 Mr Phelan gave evidence that he:

*"Unhooked the quickfill from the back of my ute and gave it to DGO Pohl and told DGO Knight to go back to the Pittong-Snake Valley Road and try to stop the fire from crossing the road."*⁵⁵

9.2.54 Mr Phelan was asked:

*"Whilst you were up there did you yourself formulate any "grand plan" if I can put it that way for a combined resources stand at Pittong-Snake Valley Road?—No, I didn't."*⁵⁶

9.2.55 Mr Phelan had earlier been asked:

*"Did you at any stage up there meet up with DGO Welsh ...?—No, I had no contact with him at all."*⁵⁷

9.2.56 Mr Phelan was also asked about the role of Bob Graham at the Forward Operations Point. He said that Graham would not have known about the stand on the Pittong-Snake Valley Road because he was not there at this stage. Significantly, he said:

"I only knew about the tankers that I had there, I did not know about any other tankers that were there.

And those were the two or three tankers that you sent up, was that to the eastern side of the fire?—I believe they only went to the eastern side of the fire and that's as far as they went.

And the general thrust of the evidence that we have heard from those who were to the east along Pittong-Snake Valley Road was that the spotting started and continued (Witness nods).

*The decision was made that it was useless and they left travelling easterly, was that the understanding of what your two or three tankers did?—That's correct."*⁵⁸

9.2.57 When asked about the command structure at the fire Mr Phelan said:

“At the bottom of that page you say you returned back to Linton and ‘briefed Bob Graham of what I knew was happening and that I would take the Buninyong Strike Team out to the fire and report back to him as soon as possible.’ What I want to ask you first of all is what did you understand at that time, when you were briefing Mr Graham, what did you understand your role to be in the fire fight?—That’s a bit confusing really inasmuch as I was on the eastern side of the fire, which Region 16 had, I couldn’t make, I could make contact with Diane Foy but she wasn’t being told from the Region 16 point of view what was happening at the fire, so I didn’t know what they were doing. I looked at it from where I sat at the fire that if it wasn’t at that stage I didn’t know whether attack at the Pittong Road had been successful, if it wasn’t successful the fire was coming over the road and heading towards Linton, was going to be my fire, or our Group fire, it was going to be in our Group.

What did you understand Mr Graham’s role to be, you said you’d briefed him, what did you understand his role to be and why was it necessary for you to brief him?—Well I briefed him on what I knew was going on, I knew where the NRE crews were, I knew what tankers we had and where they were, that’s all I could tell him at that point of time.

Did you continue through the course of the day to effectively report to Mr Graham?—I did.

Is that what you understood you were doing, reporting to Mr Graham?—Yes.

And taking directions from him if any directions were to be given?—That’s correct.

What did you tell him at that time? You say in your statement you briefed him of what you knew was happening, can you remember what you told him?—I told him – he obviously knew they were the first attack dozer in, they had some pigs, I think they had a tanker, we - I had two tankers in there too at the start of the fire on the eastern side, and that I had, the rest of the tankers were on the Pittong Road and, well, that was about as much as I could tell him.”⁵⁹

9.2.58 During the time of the Pittong-Snake Valley Road line up the command structure of the CFA was based on the Group System. However, it was not the Group System, because if it was then the Region 15 resources should have been under the direction of the Fire Controller from Region 16. Clearly they were not, as is apparent from the various challenges to the requests from Region 16 that Channel 16A be used. Further, Region 15 resources took their orders from Region 15 officers who were formulating their own action plans.

9.2.59 During this time, DNRE resources were acting under instruction from DNRE officers. There was no integration of CFA resources from the different regions and there was no integration of DNRE resources into a single management structure specific to this fire.

9.2.60 AIIMS-ICS was not operating during this phase of the fire, and there is no evidence that any of those in command took steps to apply that system. It is noted that the introduction of the AIMS-ICS system was intended to resolve some of the command/control problems and unhelpful interaction between the two regions already evident at this stage of the fire.

9.3 Fire Assessment and Decision to Make a Stand on the Pittong Road

9.3.1 The existence of “spotting” is an important guide to forest fire behaviour and an indicator about the tactics that may be appropriate and safe to use in fighting the fire. Fuel load, topography and weather are the other important factors. The decision to make the stand on the Pittong-Snake Valley Road was effectively made by Region 16 command. However, Region 15 also independently decided to help.

The role of Region 16

9.3.2 Mr Wyllie was asked about the fire spotting across the Pittong-Snake Valley Road, and he said:

"Did the fact there might be spotting across the road, that is the Pittong-Snake Valley Road, have an effect on your decision whether to try and stop the fire there or not?—It was just a decision we had to run with because it was our last good access in front of the fire, it was a decision we had to make on the spot.

You had made the decision to stop it, right, on the Pittong-Snake Valley Road?—(Witness nods)." ⁶⁰

9.3.3 Mr Wyllie was asked:

"If there were spot fires going across the road, would that indicate something about the intensity of the fire?—When we made that decision we didn't have any spot fires on that side of the road.

But you were considering were you not that there could be?—Spot fires are one of those things you have to take into consideration all the time.

I am asking you was one of the reasons why you considered the spot fires important because it showed you something about the intensity of the fire?—Not really, because at that stage it was a low intensity fire.

How did you know that it was a low intensity fire?—From reports from the aircraft.

At that stage the aircraft wasn't there, was it, when you first got up to the top of the hill?—Not when we first got to the top of the hill, no.

Isn't that when you are talking to DGO Welsh?—That's correct.

So how did you know it was a low intensity fire?—Just from the observations from where we were and from tankers closer to the fire.

What observations were you making from that hill about the fire, what could you tell about it?—All I could see from my vantage point was smoke." ⁶¹

9.3.4 Mr O'Rourke spoke about his observations and the communications he had with Wyllie:

"Wyllie asked me if they would be able to get any equipment into the area of the three houses. I replied that the only entrance would be off Pittong-Snake Valley Road and that there was a reasonable access road to those three properties on the west side of the fire.

At around this time I noticed that some tankers were assembled along the Pittong-Snake Valley Road. I cannot say how many tankers were there. After the main fire had passed the three houses, the western flank of the fire started moving towards those houses. A couple of the tankers from along Pittong-Snake Valley Road went to prevent the flank of the fire reaching the three houses.

The fire was not a roaring fire but spot fires started to become a problem. The fire burnt in separate strips. The strips would burn quickly and then the fire would slow down while the unburnt area between the strips of the fire burnt out. The number and size of the spot fires started to increase as the fire approached Pittong-Snake Valley Road. This showed that the fire was building ahead of speed. The fire then crossed the road. The fire did not cross the road in one solid front, but in separate strips which joined together after the main front had crossed the road." ⁶²

Mr. Welsh confirmed that he heard on the radio that there was a "bit of spotting." ⁶³

9.3.5 Mr Millar gave the following account in relation to his understanding of how the fire was behaving at this early stage:

"The fire was burning fairly slowly until it reached Pittong Road when it started to spot over the road. Back at my location the Snake Valley Captain, Peter Smithers came in and we spoke regarding how the fire was going and what equipment was in there. I knew of our tankers that were in there. Later I find out that Region 15 tankers and mobiles, along with Westmere Group, were in there. While I was aware there would be other units I did not know where they were or who they were until either later in the fire or in some cases, after the fire." ⁶⁴

9.3.6

Mr Millar continued:

"I was trained that all units work on one channel to co-ordinate the attack in the early stages of a fire but this did not happen. I understand some went on to a Region 15 channel." ⁶⁵

9.3.7

Mr Millar was asked:

"At that point in time he (Wyllie) gave you a report of what was going on and I take it you also made some observations from the hill as to what was going on; is that right?—Yes, yes. I knew that the fire was still going, heading towards Pittong Road, and I also knew that the aircraft had been called for.

Could you see the head of the fire from the hill?—No, I couldn't see anything for smoke.

Were you familiar with that forest area and those private homes in which the fire was going and the fuel loads that were there?—No.

At this time did you have any means of getting information about that?—Only from Captain Smithers, he would have had the information on the area in there.

Was any information passed on to you at that stage, before you started to formulate how you would fight the fire, about the fuel loads that were in that area?—Not to my recollection.

But from what you saw of the smoke, you took the view that the fire was burning fairly slowly?—Yes, yes.

Could you form a view of the intensity of the fire from the smoke?—Well, by the volume of the smoke there was - it was burning reasonable well as far as, you know, intensity, as well as fuel, I suppose, for the amount of smoke that was going up." ⁶⁶

9.3.8

Mr Millar was asked:

"A decision was made to line up along Pittong-Snake Valley Road and to try and stop the fire before it crossed the road; is that right?—Apparently there were arrangements that the only way would be to stop it on Pittong Road. As far as lining tankers up, I don't know whether that was correct or not.

Whose decision was it to try and stop it at Pittong Road?—DGO Welsh, who was in charge there.

Did he discuss that with you before that decision was made?—No.

When did you become aware that the fire was spotting over Pittong

Road?—Possibly when the 'A' tanker was caught, Snake Valley 'A' tanker." ⁶⁷

9.3.9

Mr Smithers was asked:

"Your statement contained some matters about the tactic of an attack on the head of the fire on the Pittong-Snake Valley Road?—Yes.

I suggest to you that basically what it boils down to is that you know Mr Welsh and trust his judgment?—Yes, I believe when people are given tasks to do at the fire front, or anywhere else, you would regard their instructions, you have confidence in them to do their job, you ought to let them get on and do it.

But you had no idea whether that was a correct decision or not a correct decision at the time, did you, you unfortunately just had the information ...?—I don't have a view on it, no, I wasn't there, I didn't see it. I wouldn't make a comment as to whether it was correct or not.

You have some general knowledge as to the fuel load in the area?—Yes.

You knew there was a strong north wind blowing?—Yes.

You hadn't seen the head of the fire?—No.

You hadn't been able to make any observations as to whether the tactic was an appropriate one or not?—No, other than the topography of the area, the ridge runs east/west along Cochranes Lane, it was burning downhill toward Pittong Road.

Have you been back there since, you know that it does come up for a short distance?—Yes, not in fact at the area to the west flank of the side of the fire, in fact the gully doesn't occur until we get east of the cottage with the tin fence around it which is at the bend of the road, or I can give you the grid reference if you want it. So in fact a fair amount of that area where the fire crossed the road, it is in fact flat coming towards the road.

All you know about what happened when the fire crossed the road is what other people have told you?—Yes.

Likewise with the deployment of the Snake Valley 'A' tanker, you didn't have any involvement in decisions deploying that vehicle, did you?—No.”⁶⁸

9.3.10 In relation to the fuel load just north of the Pittong-Snake Valley Road, Mr. Smithers said:

“I would have considered it to be fairly heavy.

Because there hadn't been a fire there for many years?—I had lived there for at that time 16 years, and there hadn't been any fires of consequence in that area. I had in fact attended one fire off Cochranes Lane, to the north. So between the point of origin and the area where the house was burnt down, I had been in a fire in there some years earlier.

The weather conditions on this day, it was a fairly strong gusty north wind blowing, is that right?—In my estimation it was a strong north wind.”⁶⁹

9.3.11 Mr Smithers was asked:

“In relation to the decision to stand on the Pittong-Snake Valley Road and try and contain the fire from the front, you have told us, Mr Smithers, you had a good knowledge of the area, you were aware of the topography, you knew of the wind conditions on the day, you knew of the fuel load in the area which you described as heavy, you described the wind as a strong north wind, are you not able to assist His Worship at all in making any observations about whether that was an appropriate strategy to follow?—And the fire was burning downhill towards the road.

Correct, and are you not able, with all your experience and your personal knowledge of all those circumstances, you are not able to give us any assistance at all as to whether or not that was the right strategy to follow?—Not without seeing the fire.”⁷⁰

9.3.12 Mr Welsh described the lead up to the decision to make the stand. He stated that:

“We had in place protection of some 25 homes in the area at this stage. At this stage I lost communication with DGO Wyllie and I was communicating with Snake Valley Sub-Base solely through that area. The fire was approaching Cochranes Road and through radio contact, I realised that homes were starting to be threatened.”⁷¹

9.3.13 Mr Welsh acknowledged that it was the head of the fire he saw approaching the Pittong-Snake Valley Road but that it *“had the characteristics of a flank, the fire behaviour.”⁷²*

9.3.14 Mr Welsh gave evidence that:

“I honestly believed that the fire would back burn to Pittong Road on the north side of the road and we would be able to, as it got there, extinguish it.”⁷³

9.3.15 This brief description of the evidence shows that the strategy did not factor in fuel loads and the risk of spotting before formulating the plan to attempt a direct attack on the head. Apparently, the observations of Mr O'Rorke set out in paragraph 9.3.4 were not taken into account. Those observations of the fire were a clear indication that a direct attack on the head could not succeed. It is also important to note that no assessment was made of the fuel levels in the path of the fire as it approached Pittong-Snake Valley Road. Apparently, the decision to act was not a considered approach, based on an assessment of the fuel loads, the topography and the behaviour of the fire.

The involvement of Region 15

9.3.16 It appears that Mr. Phelan, in Region 15, independently of Welsh and Wyllie, in Region 16, also looked to the Pittong-Snake Valley Road as a possible stopping point for the fire.

9.3.17 Mr Phelan was referred to a passage of his statement⁷⁴ and asked:

“At the very bottom of that page you indicate that you directed DGO Knight to take his three tankers and his crew through to the front on Pittong-Snake Valley Road and Kavanagh had brought his three tankers across to the eastern side of the fire. Why did you tell Mr Knight to take his three tankers through to the front on Pittong-Snake Valley Road?—When I arrived at the fire and I went down the first thing I did was have a look at the front coming down through the bush and I believe that there was an opportunity to stop the fire there, there was no spotting evident, and I went back up along Rowlers Road and I spoke with NRE Officer Murray Fullerton. Then DGO Knight arrived with the tankers and the rest of our Group. I indicated to him there may have been a possibility of stopping the front of the fire at that point, and I would like him to go down and see whether they could stop it.”

9.3.18 Mr Phelan was asked:

“How did you hope to control it on the road – by what tactic?—The fire wasn’t up in the canopy at all, the flames I observed probably a quarter of an hour earlier were only two or three feet high, and I believed there was a chance, if the fire wasn’t getting into the top of the canopy, there was a chance, but I didn’t understand at the time that the spotting activity was going to be so great.

So did you in effect direct a direct attack on the head of the fire along that road?—Well, I suppose, well I told them to go and it would be a direct attack, yes.

It was your expectation that they would attack the head of the fire from the Pittong-Snake Valley Road?—Yes.

You didn’t actually observe that take place?—No, I didn’t.

How did you find out that that was unsuccessful, the attempt to stop the fire at the Pittong-Snake Valley Road?—Well, I didn’t, at that point of time I didn’t know, but later on, only an hour or so later I was led to believe that the spotting was fairly great, and the tankers that I sent down there was just a waste of time, and there was that much fire going on the other side of the road at that time, they just drove out of there.”

9.3.19 DNRE Officer, Mr Fullerton was asked about the idea of attacking the head of the fire:

“You say you met Des Phelan and then you say ‘we discussed strategies and agreed I would continue to flank the fire and he would look at the possibility of attacking the head of the fire’, when you say you discussed strategies, what strategies did you discuss?—Meaning that I would continue on with the crews that I had flanking the north-eastern flank and that he would see what he could do about the head of the fire.

Did you express any view to Mr Phelan as to the appropriateness or otherwise of attacking the head of the fire?—No, not that I can recall, no.

You then say in your statement “He” Mr Phelan – “left to check on the possibility of stopping the fire at the Snake Valley-Pittong Road”. Did Mr Phelan get back to you at any stage and tell you what he intended to do in relation to attempting to attack the head of the fire?—Not that I can recall.

On the day did you become aware that the CFA intended to mount an attack on the head of the fire on the Pittong-Snake Valley Road?—No, I was only aware that DGO Phelan was looking at that possibility.

I gather from what you say at the bottom of page two of your statement, that the next time you attended on the Pittong Road the fire had already crossed the road?—That’s correct.

Did you find out at all on that day the CFA had mounted an unsuccessful attack on the head of the fire on the Pittong-Snake Valley Road?—As I mentioned before, I know

that Des was going to have a look at the possibility, after going up there later on and noticing the fire had gone over that road, I assumed if there was an attempt there that it had been unsuccessful."

9.3.20

Regarding observations he made upon his attendance at the fire on the Pittong Road, Mr. Fullerton was asked:

"When you first arrived at the fire did you ever get an opportunity to sight what you believed to be the head of the fire?—When I arrived at the fire there was a small amount of fire on the, that came over the hill, it was slowly backing down towards, I can't remember the number of the house, but it was the house that had the tin fence around it.

You were on the Pittong Road at that time?—That's correct.

Was that shortly before you met with Mr Searby?—That's correct.

Did you make any observations at that time or assessments as to the fuel load in the area where you saw the fire burning?—Not any real hard assessments, but I could see that the bush was unburnt bush, heavy fuel loads, but I didn't go and try to attempt to see whether it was, you know 20 tonne per hectare or something like that.

What about the wind, did you make any observations as to the wind?—Yes, the wind was reasonably strong at that time and was coming from the north.

What about the topography?—As I said, the small amount of fire that had come over the rise was backing down a downward slope and then there was like a flattened out area and that's all I remember of the topography at that point on that day.

Did you make any observations as to whether the lie of the land flattened out and rose slightly before the Pittong-Snake Valley Road was reached?—On the day I don't, since I have been back out there I have seen there is an up, slight uphill run towards the road, but on the day, no.

Did you make any observations as to the tree coverage along both sides of the Pittong-Snake Valley Road, by that I mean did you notice there was effectively a canopy of trees that was touching the paths?—Yes, there was a canopy closure on the road there.

Those things we have talked about, the position of the fire, the fuel loading, the topography, are they all factors that would be taken into account before a decision is made to attack the head of a fire?—Well they should be.

If you were making such a decision are those factors you would take into account?—Yes, I would take all those factors into account plus what resources I had available to me.

If we can talk generally about the strategy of attacking the head of a fire, if I suggest to you that is only an appropriate strategy with a fire of relatively low intensity, would you agree with that or not agree with that?—If I was to make that decision, I would need to be there at that spot on that day. As you said, you'd take the canopy closure into consideration, the fuel load, the uphill slope, on that day I was not there studying that situation, so I suggest that it was an appropriate thought to consider but not necessarily to do.

Because before you made the decision to do it you would want to take into account all those factors?—That's correct."

9.4

Command Experience of the Burnover and Assessment of Risks

9.4.1

At about 2.45pm the approaching fire increased in speed and intensity. It engulfed about 10 to 12 tankers lined up on the Pittong-Snake Valley Road as it crossed the road, in places crowning through the trees. Mr Welsh stated that:

"At this stage which was around 3.00pm, I could see the fire. It was approaching very slowly and took half an hour to reach Pittong Road from when we first saw it. I informed all tankers of their duties in that period, I gave them two instructions. One was not to run out of water, two was to stay on properly formed roads and not to fight

the fire on foot but to stay on their tankers. Crossroads quickfill pump had arrived and I set up the quickfill pump at property number 125 at South Pittong Road. All tankers were informed where this was. We waited for the fire to approach. I was on the western edge of the fire and tankers were all in a line facing east, approximately three metres apart. The fire approached and I noticed a CFA tanker to the right hand side opposite me and ten metres from me. This tanker was in a green paddock. I identified the tanker as the Snake Valley tanker. I had no concern at all with his position because he was on a green area and I believed he was in position to be able to protect a number of trucks along Pittong Road if they got into trouble.

My form of defence was a triple back-up of tankers in front of each other could protect each other. I was confident that we could hold the fire at Pittong Road. When the fire approached us and was around 15 metres away, it suddenly reared up into a blanket flames that was around twice the height of the tankers. Visibility was still good because the smoke was up high. The fire crossed the road and I told Snake Valley Sub-Base that we were unable to stop the fire at Pittong Road. There was radio traffic informing us of the number spot fires that had developed south of Pittong Road.”⁷⁵

9.4.2 The Snake Valley communications log, Exhibit 53 records:

“14.50. Spot fires across Pittong Road.”

9.4.3 The entry in the log at 14.53 referred to the Snake Valley ‘A’ tanker being surrounded by fire.

9.4.5 In an interview with Police officers, Mr Welsh was asked:

“Okay, would there have been trucks in the immediate line of the head of the fire coming towards Snake Valley-Pittong Road lined up on Snake Valley-Pittong Road?—Yeah.

How many trucks would have been there on that point on the actual road itself?—Approximately 12.”⁷⁶

9.4.6 Mr Welsh described the number and position of the tankers deployed on the Pittong-Snake Valley Road in the following way:

“Yes, correct if I am wrong, you regarded yourself as having control, if you like, of about 12?—Yes, correct.

But there were other tankers that were self deploying and doing other things that you didn’t regard yourself as having control over?—I had no contact with them because I didn’t know what radio frequency they were on.

These 12 tankers on the actual road itself you were talking about, they were lined up on the Snake Valley-Pittong Road?—As far as I could see, yes.

In the immediate line of the head of the fire coming towards Snake Valley-Pittong Road?—As it turned out, yes.”⁷⁷

9.4.7 Mr Welsh was asked what factors he took into account before making the decision to line the tankers up on the Pittong-Snake Valley Road to attack the head of the fire and he said:

“The fuel load, the topography, most of all the safety of the Fire Brigade crew members in and around that vicinity.

What did you observe the fuel load to be?—I believed it was heavy, I make a different but meaning the same thing in my statement, and what you have, it was considerable to think it was...

You knew there was a strong northerly wind blowing on that day?—Correct.

What about the topography, what did you take into account there?—That it was downhill and where we were on the western end of the fire, that there was very little or no wind that I could feel at all at that particular time.

Did you notice that the topography flattened out and there was a slight uphill rise to the road 70 metres before the road?—I believe it was downhill, because it was unburnt ground I was viewing prior to the fire, and I did not see any incline to the road.

You regarded on this day the question of back burning as being completely out of the question because of the prevailing conditions?—And the situation where I was in at the back burning – if I may add that the smoke might have come across the road, we initially early in the piece had trouble with sightseers, we had trucks still, as I said, self deploying in, and the risk of safety to the crew I felt was too much, along with the, we still had one fire and I make in my statement that I was unprepared to make that decision to make another back burn, it didn't enter my mind.

There was a bit of spotting going on wasn't there as well?—I heard on the radio there was spotting, yes.

Was that a factor you took into account before you made a decision to line the tankers up on Snake Valley-Pittong Road?—I believe you make that decision in the risks of the safety of the fire fighters, yes.

So taking all those factors into account, why was it that you made the decision to place those tankers there?—Because there was a command that I protect the homes, and the control line around the Pittong Rowlers Road, that order came from a senior DGO.

Who was that?—DGO Wyllie.

Did you regard that decision as extending to a decision to line the tankers up and attack the head of the fire?—I did.

Was that the express direction given by Mr Wyllie?—No.

It was your interpretation?—It was.

Did you think, taking into account all the factors we have talked about, that it was too dangerous to do that?—Not on that particular day, no.

You did perceive some danger?—Always perceive some danger when dealing with fire.

That was why you spaced up the tankers as you did?—I make mention of the triple back-up everyone guarding everyone's tail. Other tankers protecting property off the Pittong Road and Rowlers Road, I had any involvement in, we made sure they had an exit point.

Was the idea with spacing the tankers out, that if one tanker became engulfed or got into trouble, there was another tanker to apply water to it?—Safety, yes.

So from that, do I take it that you perceived from your assessment of the factors that that was a possibility, that one or more tankers could become engulfed in flames by the head of the fire?—I perceived if there was a failure of equipment or anything like that, yes.”⁷⁸

9.4.8 The following passage from the report of Dr Neil Burrows of July 2000 was read to Mr Welsh.⁷⁹

“The behaviour of the fire as it approached Pittong-Snake Valley Road from the north was modified by slope and aspect, which probably enticed fire fighters to attempt a direct attack on the head of the fire. However, the fire's behaviour changed dramatically, but not unexpectedly, when the fire commenced burning up a north facing slope aligned with a strong north, north-west wind. The behaviour of forest fires burning in heavy, dry fuels can change quickly with changes in wind speed and a slope. Fire fighters did not anticipate this change in behaviour. Had they appraised the fire environment correctly, I doubt they would have chosen to place themselves in front of the head fire, either to stop the head fire or to suppress the spot fires ahead of the main fire. It was very fortunate that no lives were lost when the fire crossed the Pittong-Snake Valley Road.”⁸⁰

9.4.9 Mr Welsh was asked:

“Mr Welsh, do you agree with that assessment, with the benefit of hindsight?—I do.”⁸¹

9.5 Tasking of Firefighters and Their Experience of the Burnover

- 9.5.1** There were a large number of firefighters working in this area of the fire in the early stages. As indicated, about 10 to 12 tankers actually lined up on the Pittong-Snake Valley Road in the attempt to stop the fire. The following evidence is a selection of the experiences of some of these firefighters. The crews came from both Regions, which appeared to be working independently of each other. Initially, this section will consider the experience of the Region 16 tankers.

The Snake Valley Tanker (Region 16)

- 9.5.2** Having withdrawn from the flank of the fire onto Rowlers Road and moved at the direction of DGO Wyllie to the intersection of Rowlers Road and Pittong-Snake Valley Road, the Snake Valley tanker was then tasked to head west along the Pittong-Snake Valley Road.

- 9.5.3** Mr McInnes, who was driving the Snake Valley tanker, was asked:

“And the Pittong-Snake Valley Road runs roughly east west?—Yes.

Your understanding is that the idea was to try and stop the head of the fire at the road?—Yes.

And that you were to go on the southern side of that road to put out any spot fires?—Yes.”⁸²

- 9.5.4** Mr McInnes recalled driving the tanker down the Pittong-Snake Valley Road, ahead of the Snake Valley ‘A’ tanker, and both tankers turning into Nunn’s Paddock. Upon entering the paddock, according to McInnes:

“We drove through the gate, Snake Valley ‘A’ tanker was behind us. The drive or the track appeared to be a boggy sort of area to me. There was a bit of a swamp land, a dry type of swamp land. It was green. I actually went up and around off the track, Snake Valley tanker ‘A’ followed the track. Snake Valley tanker ‘A’ is a lighter truck than what the tanker is. We put out a spot fire, I believe it was under a tree, 50 metres into the paddock. We then, I believe we cut down a branch that was covering the track that went round further behind the bush, and just made observations of places to go if we had to.”⁸³

- 9.5.5** Mr McInnes was asked:

“Did your tanker ever leave the cleared area and go to the heavily treed area?—No.

Why didn’t it do that?—It would be a lot safer in the clear area. I am presuming that paddock you are talking about is with the trees up here (demonstrating).”

- 9.5.6** Mr McInnes was then asked:

“How long did your tanker stay in that cleared paddock area for approximately?—Half hour, I really couldn’t tell you.

What did you observe Tanker ‘A’ do in that time?—They were sitting up with the back of their tanker facing into the bush. Not right up against the bush or anything like that, they were just up on the hill a bit further....

Your tanker, after about half an hour, your tanker then left the paddock back onto the road, is that right?—Yes, either 20 minutes, 15 minutes, half an hour.

Why did you do that, what caused you and your tanker to leave the paddock?—I was talking to the crew that was with us, they were – they seemed to be excessively concerned about where they were, family, Carol’s house is actually in Rowlers Road, she did not know exactly where the fires were, what was happening, what was going on. At that stage I made the decision we should go up on the road and if need be we will head off out.

So was it your decision after discussions with the crew to head out onto the road?—Yes.

What was your intention as to what you were going to do with your tanker when you got out on the road?—We could still monitor any spot fires that were in that paddock, just basically try and stop the fire and make my crew safe.

Why did you think it was safer on the road than it was in the paddock?—It was the quickest way to get home.

Because the road is quite narrow isn't it?—It is.

It is very heavily treed?—Yes.

Did you have a conversation with anyone?—There is no secret to this, Mr Hollingsworth says when you left the paddock to go back out onto Pittong Road, they radioed for you to come out of the paddock and join them on Pittong Road, do you remember that happening, or anything like that happening?—I remember something like that happening but not actually radioing him....

At this time when you are discussing and ultimately leave the paddock, could you see the fire?—No.

Did you at any time observe the fire burning fairly fiercely to the north of Pittong Road?—Yes.

When did you observe that, how long after you left the paddock?—Time, again, I have no idea as to time. I could tell you that we were sitting down in the road, with a watch, hang on, that's not right. We put out a small spot fire in the paddock under the tree, we going to lay houses down, and tanker 'A' actually drove over and extinguished it." ⁸⁴

9.5.7 Mr. McInnes described the fire moving slowly towards the Pittong-Snake Valley Road and then stated:

"In your statement you say, 'The fire hit a flat spot and took off. We stayed where we were for a minute or so and the flames started to cross the road so we moved out of the way. I do not recall seeing any other trucks at this time?—A minute or so would have been 30 seconds, a minute ...

You saw the fire coming and you decided to get out of there?—I believe I said through the intercom: "We're going to get the hell out of here".

Why did you do that?—It was a bit of a pre-warning the crew in the back, and I believe that they did sit down. To get the hell out of there, the flames had done something that I have never experienced before with a quiet fire, not a quiet fire, but it was coming, it was going and it wasn't nothing – without swearing, it was fire. It hit a flat spot, it took off. I said: "we're getting the hell out of there", turned around and we took off ... I prepared the crew, if you like, it may have been something that I just said in the cabin in the front by myself.

Why did you make that decision rather than to stay?—The chances are we were probably going to cook. It was an unexpected thing that happened." ⁸⁵

9.5.8 Mr. McInnes then described driving out of what he perceived to be the narrow head of the fire and was asked:

"If it was a longer fire would you have had enough time to go into survival mode?—Possibly not." ⁸⁶

And:

"In any event, you thought it was a potentially life threatening situation and you decided to get out of there?—It was enough to make you shit yourself, yes." ⁸⁷

9.5.9 Mr McInnes then drove out of the fire, along Pittong-Snake Valley Road in an easterly direction towards Rowlers Road. He was subsequently involved in some blacking-out activities near the corner of the Pittong-Snake Valley Road and Madden Flat Road.

9.5.10 Ms Carol Walker gave evidence that she was initially on the back of the Snake Valley 'A' tanker, which had five crew. Because there were only three people on the Snake Valley tanker, she moved to that tanker.⁸⁸

9.5.11 Ms Walker described the fire spotting, as it burnt down towards the Pittong-Snake Valley Road. She was asked:

*"So, you'd gone back out onto the Snake Valley-Pittong Road. What have you done then?—Well, we were patrolling up and down with the hoses going from the back of the truck. When it finally got almost down, it started crowning – going up and dropping branches and twigs and stuff down on top of us, Craig said, "We are out of here". Aaron put the hose on the back and we've got out of there"*⁸⁹

The Brewster Tanker (Region 16)

9.5.12 Mr David Morecombe, a farmer, attended the Linton fire as a member of the crew on the Brewster tanker. The Captain of the Brewster Brigade, Graham Matthews, was driving the truck.⁹⁰ They arrived at the fire ground at the western end of the Pittong-Snake Valley Road where they saw that a number of other tankers were stopped.

9.5.13 Mr Morecombe noticed a number of tankers including the Skipton and Lake Goldsmith tanker *"arriving at the same time."*⁹¹ Initially the Brewster tanker drove north of the Pittong Road to try and get to where the fire was, according to Mr Morecombe: *"but it was too tight, the terrain, for our truck, so that we couldn't really get in, couldn't really see the fire... so we went back out to the road."*⁹²

9.5.14 Mr Morecombe was asked:

"How did you come to form part of a line, can you remember any instructions you were given?—As we came back on the Pittong Road ...DGO Ernie Welsh boarded our truck, he was using our truck as a command post, sort of, for a while and he was on our truck when we formed part of the line

*Yes, about who was calling the shots. So in your observation, it was Mr Welsh at that time?—He was certainly on the west side of the fire, he was working with the tankers there."*⁹³

9.5.15 Mr Morecombe continued:

"We sort of ended up forming a line along the Pittong-Snake Valley Road hoping to stall the fire when it reached that spot.

Do you know how many tankers were there lined up?—I couldn't see. Couldn't see. I have no idea. It was quite a few because there had been most of the tankers in attendance probably from both ... at that stage, a number I didn't know how many it was.

*Okay, what happened when you were like that?—Well, we waited, we waited for a while, the fire seemed to take – it might have been because we were in the lee of the hill, the fire seemed to take a long time to burn towards us. It actually seemed fairly innocuous the little fire just sort of only probably knee high flames and it just looked pretty quiet. But just before it got to the road, it was just starting to get within the sort of range of where we could have a bit of a squirt at it with the hoses and it sort of whooshed up in the trees and the next thing it was around us and over the side of the road and everywhere, it just really took off so – I don't know whether the wind just shifted a little – but anyway we were – we were on a fairly wide road thankfully and we gave up any idea of trying to put the fire out of course just put the fog nozzles on and we turned the truck around and drove out because we were near the edge."*⁹⁴

9.5.16 Mr Morecombe gave evidence that he:

"...had the fog nozzle on full"...sort of off to one side just to protect the truck from the flame.

Yes?—And us.

And the driver in the cabin as well?—Yes.

I gather from your answer that you then, with the fog nozzle going, slowly moved out of the fire as well; is that right?—Yes, that's correct. There was no point staying there.”⁹⁵

And:

“Have you ever gone into survival mode before as you did at the Linton fire?—Not really, not where we really needed to, no. There were a couple of times when we had a half fog up, a bit of a fog to protect from the heat while we changed position or something, but I have never really been burnt over like that before, no.

Because as you describe it, I think you describe it at 31, it was above you and all around you; is that right?—It was, yes.

And pretty hot?—It was, yes.

Your perception was that you were at the very western end of where the front came over the Snake Valley-Pittong Road, is that what you were saying?—That is what I would have thought, yes.”⁹⁶

9.5.17 Mr. Graham Matthews was the driver of the Brewster Tanker. He was initially being tasked by DGO's Welsh and Wyllie to work on the western flank of the fire, north of the Pittong Road. He stated:

“Well, we didn't really do a lot. It was pretty inaccessible in some of that area. We went there for probably 15–20 minutes at the most, and then back out onto the road. We were told to go back out there.

Okay, what were you told to do then?—We were told to line up on the road because we were going to make an assault on it as it came to the road.

How many tankers do you think were lined up?—I know there was, I could see at least 8 or 10.

Okay, and how long were you waiting for the fire to come down to you?—Probably another 15 minutes.

And once it did get down to you, what happened?—It just jumped straight over the top of us.

How do you mean it jumped straight over the top of you?—Well you could see it coming then all of a sudden, just started spotting over the other side of the road.

Okay?—We drove into, turned right into a paddock there....

How long after it spotted over the top of you as you waited at the road, like was it straight away you went into the paddock or did you wait there?—More or less, we saw a couple of little spot fires in there and we stopped them.”⁹⁷

9.5.18 Mr Matthews said:

“Yeah, well we couldn't do a lot. It was just sort of, took off. DGO Welsh said it, and I thought it, “let's get out of here”, so we turned back out and ... got back onto the road, where at least we weren't going to have fire all around us Basically we waited there until we backed up a bit. We got out and backed onto the road and backed right up, as far as we could go to get away from a bit of the heat.”⁹⁸

9.5.19 He was then asked:

“Did all of the ten of you stay there?—No, I think some were shifted on to other areas because later on there was only probably three or four of us there.”⁹⁹

9.5.20 Mr. Adrian Gepp was initially on the Skipton 'A' tanker but moved onto the Brewster tanker.¹⁰⁰ He described the activity on the Pittong-Snake Valley Road in the following terms:

“We lined up on the roadway and the fire approached But you couldn't stop it and it spotted onto the other side of the road and so you had both sides of the road on fire.... Well, we went and worked after the fire crossed over, we put out flames on trees just on the other side of the road.”¹⁰¹

The Lake Goldsmith 'A' Tanker (Region 16)

- 9.5.21** Ms Jan Millar gave evidence that she attended at the Linton fire on the Lake Goldsmith tanker 'A'.¹⁰² Shortly after her crew arrived at the Pittong-Snake Valley Road, they saw Ernie Welsh and a number of other tankers. Ms Millar stated that:

*"We got told to monitor that road and make sure nothing jumped, just, yeah, protect all houses if any."*¹⁰³

Ms Millar continued:

*"We got sent down a dirt track to sort of black out a little bit ... to protect a house ... and then I said no, we've got to out because it's too dangerous."*¹⁰⁴

- 9.5.22** She said that the fire was:

"...moving quickly. Yeah, it was mainly grass down low at that stage?—Yes.

*Was it getting up around the trees at all?—Starting to, yeah."*¹⁰⁵

- 9.5.23** After moving out of the dirt driveway, having being directed by Mr Welsh, she described the tankers ("around 10"¹⁰⁶) as being all in a line:

"...Yeah?—Yeah, we all had to make sure it didn't cross, and if we see any smokers, put them out straight away

What do you call smokers?—Oh just bits of fire, flames jumping.

Spot fires?—Spot fire, yeah.

So how many units would have been lined up along the road?—I can't remember exactly but there was a lot.

And were they back to front, or were they two abreast, three abreast or?—No, we were all in a line.

So you have seen the fire come down the edge of the road?—Yep.

And what's happened when it has done that?—Just jumped.

So what do you mean jumped?—It just went straight over the road, we had – the spot fires were jumping metres over.

There's a reasonable canopy of trees along that road there where that took place?—Yeah.

Did it get up into the canopy of those trees at all?—Not right up, no.

No?—No, but it was sort of half way.

Did you see any spotting debris go over the top?—Yeah.

*And were you able to stop the fire at the road?—No."*¹⁰⁷

- 9.5.24** Ms Millar was asked:

"In terms of your position on the road, were there other tankers quite close to your tanker on either side?—We were all parked on one side, so we had access to get through.

When you say "all parked on one side", on one side of the road in a line, is that right?—Yes.

In an east/west line?—Yes.

Was it facing towards Snake Valley or away from Snake Valley?—Away from Snake Valley.

*Thank you, that is a westerly direction?—Yes."*¹⁰⁸

- 9.5.25** Ms Millar was then questioned about the gap between the tankers lined up on the road and her experience of the burn over:

"Again, approximately how far in front, two metres or five metres, ten metres?—There was enough gap so you could move out quickly.

Again, behind your tanker, was there another tanker behind your tanker?—Yes.

I just want you to describe in your own words, you have talked in your statement of the fire approaching the road, the spot fires, the northerly wind, and that "it was sort of like a swelling". Can you describe for His Worship, as the fire approached the Snake Valley-Pittong Road, how it went across the road and what you did?—We seen it coming, with bits of spot fire jumping, so we attempted to put those out. It more or less went over our heads and we just tried to keep on putting the trees out, or the grass, as best we could at that stage.

Mr Welsh has given evidence that he observed the fire crossing the road and it came across in a wave about two tankers high, is that consistent with your observation with the way it went across the road?—It is hard to remember, it sort of happened so quick, yeah.

Did you have a fog nozzle on the back of your tanker?—Yes.

Were you manning one of those?—Yes, I was.

Was Geoff Broody manning one of the branches?—Yes.

Can you recall using the fog nozzle as the fire went across?—I think we did, yes.

Again, what about Geoff, can you remember what he was doing?—I think he did the same also, yeah.

When you say 'did the same', do you mean create a fog pattern of water around the truck?—Yes.

Why was it necessary to do that?—Just to protect ourselves.

When you say protect ourselves from the flames as they were crossing the road?—Yes and the heat.

*And the heat?—Yes."*¹⁰⁹

Crossroads 'A' Tanker (Region 16)

9.5.26 Mr. Neville Wright, a farmer, gave evidence that he was a member of the Crossroads CFA.¹¹⁰ He attended the Linton fire in the Crossroads 'A' tanker with Captain Ernest Welsh and Lieutenant Peter Oddie, who was the driver.¹¹¹ Wright stated that Crossroads 'A' attended at the Pittong-Snake Valley Road somewhere around two o'clock, and was one of the first group of tankers to arrive at the fire.

9.5.27 Mr Wright was asked:

*"When you got there, did Mr Welsh get out of the tanker and assume some position of control?—He did."*¹¹²

*What did your tanker do after Mr Welsh got out of it ...?—We were deployed to a house that they thought might have been threatened further towards our east. We went around there, there was already trucks there, quite a few trucks."*¹¹³

9.5.28 Mr Wright was the only person on the back of the Crossroads 'A' tanker. He was asked:

"I gather from your interview and tell me if any of this is wrong, but at some stage, not long after you got to the fire, you were deployed along the Pittong-Snake Valley Road with a number of other tankers waiting for the approaching fire front to come to the road, is that right?—That's correct.

Are you able to recall how many tankers were in that group of tankers with you?—No, I couldn't give an accurate estimate of that.

Do you recall whether there was any tankers close to your tanker?—We were reasonably close we were, you know, lined up within a truck's length of each other.

Was that to your understanding, part of the tactic?—That was part of the tactic.

*What was the purpose of that tactic?—To try and stop it getting over that gravel road."*¹¹⁴

9.5.29 He explained his experience of the burn over:

"What did the fire do as it approached the road towards the tanker, were you able to put it out or not?—We were able to put some out, but it kept persisting, it might have gone up a tree or two and then it started to spot over on the other side of the road.

You say in your interview with the police, that your concern was that the fire was going to come through the bush. You said: "Well it's sort of in there, it sort of died down, it was you know, a fairly slow fire. Then you get a gust of wind and up she comes. Then she come through the road, we couldn't hold her there, sort of crowned out through the trees and did get over into this side". I assume by "this side" you mean the other side?—That's right, across the road.

Mr Welsh, in his statement, described the fire as going through like a blanket of fire at about two tankers high. Would you agree or disagree?—I felt from where we were, the head of the fire was further towards Snake Valley. I feel our truck wasn't in the main brunt of the head of the fire.

Why did you have that perception?—I could see that there was more smoke and action up that way, I suppose you would say.

It still crowned out through the trees getting over?—It did.

Because the trees on that road virtually touch in a lot of places don't they?—They do.

What did you do as the fire was going over, crowning through the trees, you were still on the back?—That's right.

What did you do?—Well, apart from trying to put the fire out, at times I had the fog nozzle on to keep things a little bit cool. Apart from that there wasn't much you could do, it crowned up quicker than you could catch up with them.

Did you have a full tank of water?—We did, Your Worship.

The point of having the fog nozzle on, did you direct some of that towards the cabin to keep Mr Oddie cool in the cab?—Yes.

That is in accordance with your Survival Mode training with the CFA?—Yes.

Did you see any other tankers lined up along the road doing a similar sort of thing?—No I did not, did not take notice of what others were doing. I was doing my own job.

At the more intense part of the fire, you would have expected them to be doing the same thing?—I would have." ¹¹⁵

9.5.30 Mr. Thomas Oddie was a primary producer and had been a member of the Crossroads CFA Brigade since 1976. He had been a member of the Skipton Fire Brigade since 1963. He received a call about the Linton fire and went to the Fire Station at Crossroads where Ernie Welsh and Neville Wright were in attendance.¹¹⁶ They took the tanker to the fire and ended up in Pittong Road *"and we needed to establish where the fire really was."* ¹¹⁷

9.5.31 When they arrived at the Snake Valley-Pittong Road Mr Oddie was asked:

"Who was giving instructions at that stage to do what?—Right as we were arriving at the fire scene, Captain Ernie Welsh who was with us, was asked to try and set up a Fire Control Point.

And who was he asked by?—He was asked by ... I'm pretty sure that it was by the Beaufort Group Headquarters or Peter Wyllie, I think it was DGO Wyllie." ¹¹⁸

Then Mr Welsh left the vehicle and they "were instructed to go up to Rowlers Lane." ¹¹⁹ Oddie stated that:

"There was a fair bit of confusion at that stage as to how to get into the fire and where it was safe to get into the fire, bearing in mind that none of us knew where those tracks went. If you went in there, could you get out." ¹²⁰

- 9.5.32** Mr Oddie said they went up to Rowlers Road and:
*"Then we were called back after, I'm not sure how long it'd be. We didn't put any fire out up there because there were that many vehicles in there trying to work out where to go. There was some confusion."*¹²¹
- 9.5.33** At this stage they could not see the whereabouts of the fire. Then the crew was instructed:
*"...again by radio and I can't remember by who, to come back onto the Pittong Road and we came back to that point ...There was a fair bit of standing around for a while waiting for some instructions, but the fire was obviously getting closer to the Pittong Road. The officers in attendance I think, there was Group Officer Millar and Captain Welsh and a number of other people from other Brigades ... I'm not sure, there was a number of tankers. I know, I've heard it said there was up to 27 tankers in that area. There may well have been but they certainly weren't all on the Pittong Road at that stage."*¹²²
- 9.5.34** Mr Oddie said that after a time:
*"We were instructed, a number of vehicles were asked to park along the road and see what we could do about stopping the fire crossing the Pittong Road...
And where did that instruction come from?—That came from Ernie Welsh.
So what was the strategy, did he give an outline of what he was going to do?—Certainly did. We were instructed to space ourselves out along that road to conserve our water but put out, if we could, any fire that crossed the road and we were instructed to not leave the road."*¹²³
- 9.5.35** Mr Oddie said that at the time the instructions were given:
*"We thought we had a pretty fair chance of holding it at that road."*¹²⁴
- 9.5.36** He was asked about the fire behaviour and said:
*"I thought it was quite reasonable. It was burning up the trees but as it came to the road, there seemed to be an increase in the wind and the lifting of it and it just went straight over the top ... It was quite spectacular really."*¹²⁵
- 9.5.37** He continued:
*"It sort of – it spotted across the road at a low level and I'm sort of battling to remember but I seem to recollect that it did get up into the crown of the trees too."*¹²⁶
- 9.5.38** Mr Oddie was also asked about the Snake Valley tanker, south of Pittong Road and said:
*"When they got into trouble, yes, we were because we saw them coming out through the bush ... after they'd been in a bit of strife we saw them coming out, yeah."*¹²⁷

Skipton 'A' Tanker (Region 16)

- 9.5.39** Mr. Stewart McKerrow was a volunteer member of the Skipton Brigade. He was called out to the Linton fire. Both the Skipton tanker and Skipton Tanker 'A' attended at the Pittong-Snake Valley Road. McKerrow was driving the Skipton 'A' tanker, following the Skipton tanker. He could not recall who was in charge of the group of trucks initially, but recalled Alan Pitcher and said:
*"We were taking instructions from Alan later on."*¹²⁸
- 9.5.40** Skipton 'A' went into a paddock towards the western edge of the fire and then *"ended up turning around and coming back out and being called out to come along – to position ourselves along the Snake Valley Road."*¹²⁹
- 9.5.41** Mr McKerrow said that they were called out *"to position ourselves along the Snake Valley Road, as the fire was coming ... to try and diminish ..."*¹³⁰
- 9.5.42** Mr McKerrow described the fire as *"zig zagging at the time"* and that *"the wind, the circulation of the wind, and also spotting."*¹³¹ He described the group of trucks lining up *"a reasonable distance apart."*¹³² He was not sure how many trucks there were, lined up.

9.5.43

Mr McKerrow was asked:

“So the fire’s come down to you on the road?—Yes.

What’s happened there?—Right... it was starting to get a little bit torrid at one stage.

*What do you mean?—It appeared the fire was coming - now, I can’t remember exactly when we turned around, but we actually were facing in an easterly direction, and we started to consider, “well if things got hot, which is the best way to get out” and I know that I actually turned the truck around facing a westerly direction.”*¹³³

9.5.44

Mr McKerrow described the situation in the following terms:

“The fire was beginning to spot over the top of us and I was talking to the crew in the back, the two in the back of the truck and they had the fog nozzles on....

There’s a canopy of trees over that road, isn’t there?—Yes, there is.

*Did the canopy catch on fire above you at all?—It either did or it, yeah, well at some stage it did.... not that I actually saw it, but it was spotting over into the southerly paddocks.”*¹³⁴

9.5.45

Mr McKerrow was asked about activation of the fog spray:

*“And what’s happened when the crews had the fog nozzle, how long did this last for?—Possibly 10, 15 minutes, I’m not sure of that.”*¹³⁵

Once that fire had cleared there, what were you doing after that?—Right, after that intensity in the fire had passed, we were just watering down the back burn, like, any trees that were still alight after the fire had gone past.

*M’mmm?—Gone over us and gone past. And at that stage we realised we needed more water so we headed off in a westerly direction to one of the watering points.”*¹³⁶

9.5.46

The accounts given by the witnesses set out above describe the conditions experienced by Region 16 personnel towards the western flank of the fire. From the evidence it appears that some of the tankers were self-deploying and setting their own operational priorities until called upon to make the stand on the road.

9.5.47

As already indicated, in section 9.3 of this Chapter it appears that Mr Phelan, independently of Welsh and Wyllie at Region 16, also looked to the Pittong-Snake Valley Road after the initial attack had failed. As indicated, Phelan deployed three of his Region 15 tankers to the road. Kavanagh, under Phelan’s command, took control of the Region 15 resources in the vicinity and tasked the three tankers to the road. One of the tankers concerned was the Wallinduc Tanker.

Wallinduc Tanker (Region 15)

9.5.48

On the day of the fire, Mr. Gregory Featherstone was shearing at the farm of Michael Collins. They saw smoke from Collins’ property and attended Linton. Featherstone, Collins and Bruce Pope ended up on the back of the Wallinduc Tanker. Ian Getson and the driver, Keith Urch were in the cabin.

9.5.49

The Wallinduc tanker was directed to the eastern end of the Snake Valley-Pittong Road. Mr Featherstone described the scene, on the Snake Valley-Pittong Road as *“spot fires like leaves flying across and then lighting up in the bush”* going across the road.¹³⁷

9.5.50

Mr Featherstone stated that they endeavoured to put the fires out with the hose and using the rakes that were on the back of the truck but *“then more and more was coming, so I realised that it was a wasted effort because you just couldn’t – for everyone I put out there was two more occurring sort of thing.”*¹³⁸

9.5.51

Mr Featherstone was asked where the fire front was when this was occurring and he answered:

“... probably I would say a fair way back, the spot fires could have been jumping anything up to 500 metres I reckon at times with the leaves and that, so yeah, at least a couple of 100 metres back up into the bush.

What I’m getting at is whether you were able to see the front or the head of the fire approaching or whether it was just the spot fires coming over that you were able

*to see?—Yeah, basically, like, the spot fires were occurring all the way along, so, sort of it was a fair, they become the head of the fire, I suppose, because each one of them lit up and then they got bigger and bigger and eventually it was probably travelling faster than it would normally sort of thing.”*¹³⁹

9.5.52 Mr Featherstone was asked about going through a fence to get across to the spot fires and answered:

*“There was some I went through, because I know I dislocated me shoulder.”*¹⁴⁰

He was asked:

“Mr Collins came off the truck over to you?—Yes.

You told him what to do to put your shoulder back in?—Yes, he did that, yes.

You both proceeded back onto the truck?—Yes.”

9.5.53 The questioning continued:

*“Was there some urgency in getting back to the truck and moving because of the approaching fire front of the fire?—Yeah there was – like I had to get – the fire was coming towards us, so, like I said, he come over and I said to him “Me shoulder has come out” and he put it back in.... That’s why we done that and hopped on the truck and moved down the road I think.”*¹⁴¹

9.5.54 Mr. Keith Urch had been a CFA volunteer since 1967 and was First Lieutenant at the Wallinduc Brigade. On 2 December 1998 he noticed smoke coming from the Linton Snake Valley area and saw the smoke colour change. Initially he rang his wife to ask her to find out what was happening and she told him that at that stage trucks from his group were not required. Urch continued to work and heard on the radio in his utility that the Grenville Group being called. He contacted Alice Knight, who told him that she would have a crew ready for him if he could bring the Wallinduc tanker to Linton Fire Station.¹⁴² This is where he met Getson, Featherstone and Collins.

9.5.55 Mr Urch was directed to go up the Linton-Snake Valley Road to meet Kavanagh. They were on the Pittong-Snake Valley Road and Kavanagh *“give us instructions that we were to wait there until the fire came out to the road.”*¹⁴³

9.5.56 They waited on the Pittong-Snake Valley Road, to east of Rowlers Lane. Further down the road to the west there were other tankers, *“one’s from the Skipton Group were down on this end, I think.”*¹⁴⁴ They waited for *“probably 20 minutes, perhaps”*¹⁴⁵ for the fire. *“We were waiting for it to come out because it’s in a gully and it was burning downhill, it was burning very slowly.”*¹⁴⁶

9.5.57 Mr Urch stated:

*“We sat there for a long time and couldn’t see the front. After we’d been there a little while you could feel the heat building up a little bit and it was starting to spot a bit. There was an odd spot jumping over us and lighting, you know.”*¹⁴⁷

And:

*“So there was quite a few, probably four or five or half a dozen volunteers from various trucks were getting out and putting out the spots in the near vicinity to the road and eventually the spots were spotting well in and it just wasn’t safe to go in to put them out, it was probably spotting 200 odd metres in.”*¹⁴⁸

9.5.58 Mr Urch described the northerly wind as:

*“Somewhere between a strong breeze and a gale, for a period.”*¹⁴⁹

9.5.59 After deciding that it was too dangerous to remain where they were, Mr Urch stated:

*“Well, we got instructions from John Kavanagh that we were to go back, and we were to burn along Madden Flat Road, a back-burn.”*¹⁵⁰

9.5.60 Mr. Ian Getson had been a CFA volunteer for about 20 years. He received a phone call at his home in Linton from the Group Communications Officer to “get down to the fire station as

quick as possible. The fire's going".¹⁵¹ He was told that he would help man the Wallinduc tanker, which is what he did. He stated:

*"We were told ... to go in along the Pittong Road ... we went in there and there was a few trucks, how many I got no idea because there was a lot of smoke about. And someone asked us to go and check an old derelict house and we didn't for a start, we hesitated because it looked empty, and it didn't look much to get in there, and I went to see if it was abandoned, and my immediate reaction was to move because I think, "well, shit, if we get caught in there, we're jump in the van, because that's the only way out"*¹⁵²

9.5.61 He stated that whilst they were in the truck on the Pittong-Snake Valley Road, John Kavanagh who was "I think he was sort of partly in charge there ..." ¹⁵³ said:

"Just sit here till we find out what's happening." ¹⁵⁴

9.5.62 Mr Getson alighted from the truck and looked over the bank and "on the southern side of the road, and all I could see was spot fires. And I thought, 'well, we're wasting our time up here, because the fire's already gone behind us.'" ¹⁵⁵

9.5.63 As mentioned above, Mr Collins was also on the Wallinduc tanker. He described being at the eastern end of the Pittong-Snake Valley Road and returning onto the road after checking a house. He was asked:

"Where did you go from there?—We waited there for the fire to come. At some stage as spots started to jump the road we tried, actually young Greg Featherstone jumped off the truck with a bag and tried to, because it was further from the road that could be sprayed, he climbed through a fence to try and knock it out.... Then more patches started to appear, and I said "We're wasting our time here" back on the truck because I realised it was a bit too far. They were spotting too far for us to spray from the road." ¹⁵⁶

9.5.64 The tanker then moved further to the east, out of the line of the fire crossing the Pittong-Snake Valley Road.

9.6 Observations on the Burnover

9.6.1 The evidence above demonstrates that after the failure of the initial attack, CFA Region 16 personnel and Region 15 personnel independently of each other considered trying to stop the head of the fire at Pittong/Snake Valley Road. It is not surprising that this course was considered, as the road was a natural barrier to the movement south of the fire.

9.6.2 The fire was less intense towards the eastern flank when it crossed Pittong Road, allowing the Region 15 tankers to withdraw beyond the eastern flank as the fire continued to spot and crossed the road.

9.6.3 Whilst the CFA Groups, Brigades and tankers were endeavouring, in an unco-ordinated manner, using only information from their own observations, to attack the head of the fire, the forest fire "experts" within the DNRE, independently of the CFA set about constructing a mineral earth barrier around the fire, working from as close as possible to the point of origin. It is ironic that those with the best skills to carry out an assessment of the strategy to attack the head of the fire on Pittong Road were not involved in the decision making process.

9.7 Examples of Self-deployment

9.7.1 The following evidence describes the experience of a number of crews who were self-deploying in the area of the Pittong-Snake Valley line up. In some cases crews were tasked by more senior officers, and when having followed up on the particular instruction they found, for some reason, it was not possible, they self-deployed to other tasks. Generally, there was little evidence of attendance at a Control Point for tasking. The evidence discloses the types of tasking problems that face crews, in the early stages of a wildfire, when they arrive at the fire ground without focussed central control.

The Smythesdale Tanker (Region 15)

- 9.7.2** Mr Glenn Carter was called out to the Snake Valley fire in the Smythesdale tanker. He had been advised that it was a hay-shed fire.

*"As soon as we got to Snake Valley, we realised immediately it was no hay shed fire ... we could see that straight away.... just from the volume of the smoke and that."*¹⁵⁷

- 9.7.3** Mr Carter told his radio operator, Brent Marshall to contact the Grenville Group and:

*"Advise them that we had a large going fire. And we were gonna require an awful lot more people to go. Because at the time we only knew that Linton was on the road from Grenville Group. We didn't know what Snake Valley was up to."*¹⁵⁸

- 9.7.4** They approached the fire ground on the Snake Valley-Linton Road and stopped near the Mortchup Road.

*"We stopped there and observed and decided that we'd try for a flank attack. And we'll start trying to get on to the flank, so that because we're taught not to go into the head of the fires. We came down the Snake Valley-Pittong Road. And we went through – there was ... at that time ... no indication of any fire coming down the hillside at that time."*¹⁵⁹

- 9.7.5** The Smythesdale tanker proceeded past Rowlers Lane and the crew met up with the Linton tanker.

*"We then had a bit of a chat to see what we were going to do. They decided to see if they could get up there."*¹⁶⁰

- 9.7.6** Mr Carter stated:

*"We decided we actually went up a bit but realised that this country terrain was impossible."*¹⁶¹

- 9.7.7** At this stage they were on the western flank of the fire. Mr Carter was asked about the weather conditions and stated that:

*"The wind was blowing from the north but it wasn't too bad at that time. The wind had actually dropped and the wind earlier that day had been shocking."*¹⁶²

*Was the area dry itself?—Yeah, very dry."*¹⁶³

We decided that we couldn't do anything about it, and that we'd seen houses – we'd seen a house that was there, we realised that would be under threat fairly shortly."

*That house was on the northern side of the Snake Valley-Pittong Road marked 161 or 483 on the map.¹⁶⁴ They travelled back down the Pittong-Snake Valley Road and saw the Beaufort tanker turning into an access road behind a house and decided "to join up with them."*¹⁶⁵

- 9.7.8** Mr Carter described that they then started:

*"Doing some sort of attack as best we could. We couldn't see much. We could probably just see a line of fire just burning slowly towards – wasn't moving very fast, because fire behaviour as you know coming downhill is a lot slower."*¹⁶⁶

- 9.7.9** At that time, Mr Carter was only aware of Smythesdale, Linton and the Beaufort tankers at the fire scene.

*"At that time there was nobody else, at that time, that we knew of."*¹⁶⁷

- 9.7.10** Mr Carter stated that they remained endeavouring to protect houses north of the Pittong-Snake Valley Road. They decided to start a direct attack at the rear of the houses on the head of the fire as:

*"The fire was just starting to creep slowly down the hill towards the back of the house."*¹⁶⁸

- 9.7.11** Mr Carter was asked to describe the fire behaviour and he described the fire as:

*"Actually spreading in fingers" it was "very mild. It wasn't very spectacular at all."*¹⁶⁹

9.7.12 They started trying to extinguish the “fingers” of the fire as it came down the hill.¹⁷⁰ He said:

“We saw that there had been another finger come down this way and had taken out that weekender.

What was spotting like at that stage?—No spotting.”¹⁷¹

And continued:

“I think we used about three hose lengths up to the front of the fire, but we knew that was safe enough ... that if something happened, we could get back because at that time we were extremely aware that it could turn very suddenly because ... because of the wind. We knew that the wind probably we know having lived in the area, the winds change very quickly around that area.”¹⁷²

He stated that:

“We were aware that the winds were high on that day.”¹⁷³

And described seeing:

“An NRE bloke” who was “stalking, he stalked through, walked right through the fire front you know, walked through the flames and walked off into the scrub.”¹⁷⁴
(John Searby)

9.7.13 Mr Carter then described that they started “...to get more hose to start the flank attacks, and then the wind changed. ... It swung north-west, and that’s when the spotting activity started to pick up.”¹⁷⁵ He corrected this statement in his evidence, saying that the wind swung from the northwest to true north.¹⁷⁶ Apparently this was when they “realised we were gonna lose it ... because immediately this flank started to push that way more to the east.”¹⁷⁷

9.7.14 Mr Carter was asked about the increased spotting:

“And immediately the spotting activity picked right up. We immediately had spotting in amongst the bracken. We were actually standing in knee high bracken and that immediately started to spot and we immediately recognised that we were under threat straight away before even the front would have moved over the hill.

So you decided to get out of there?—Yes, decided to leave.

What threat did you think you were under that caused you to leave?—Well, one of our watch-out situations is when you are starting to get heavy spotting around you, you know the front is coming and is coming very big and you know that straight away.

So, was your perception of the increased intensity of the fire?—Yes.”¹⁷⁸

9.7.15 Mr Carter said that before the front crossed the road they moved towards the eastern side of the fire. He stated:

“Well, I mean the front was going and was passing in front of us and we knew there was nothing going beside us. It was basically like a wall just moving in front of us.

So across the front of you?—Across the front of us....

Facing in an easterly direction, is that right?—Facing in a westerly direction so the cab was actually facing the head. We were well over so if we had to turn we could turn on the road.

Could you see, was the fire head coming across in fingers or was it just one big fire front?—Just one big fire front at that time, yes.

So the fire didn’t come over the tanker?—No.

It came past the front of the tanker?—Yes, probably 10 or 15 metres in front of us.”¹⁷⁹

9.7.16 In relation to the Snake Valley ‘A’ tanker, the entrapment of which is dealt with in detail later in this report, from the Pittong-Snake Valley Road, Mr Carter could see the Snake Valley ‘A’ tanker in the bush to the south of the Pittong Road. He saw the tanker heading in a westerly direction. He was asked:

“This is before the front?—Yes, before the front went through.

And you were concerned about them because you could see the front coming?—Yes, we could see the front, we knew definitely the front was coming through.”¹⁸⁰

9.7.17 Mr Carter stated that at that time, on the Snake Valley-Pittong Road he saw a number of trucks that he “couldn’t even estimate” that were:

“Just whizzing aimlessly past. I sent one of our blokes down to try and stop them and see if we could get a couple more up there and start you know, an anchor point ... but unfortunately we couldn’t stop them. ...I was told later a lot of them ended up in a paddock here trying to do something but we never got another tanker.”¹⁸¹

9.7.18 Mr Carter was asked about who was in control of the fire:

“Was there anyone calling the shots, was there anyone that had nominated themselves as the Incident Controller at that stage or anyone that was predominantly giving instructions?—I think there was probably about a group of three or four of us senior fire fighters who were, you know directing what we could ... as to what we knew we could see in front of us ... what was going on down the track, we didn’t know, but we wanted to, we were dealing (with) where we were.”¹⁸²

9.7.19 Mr Carter also recalled seeing an aircraft that “shot straight over the top of us” in a north-westerly direction “and that would have been at the time of the wind change.”¹⁸³ He stated that once “...the wind changed the spotting activities started to increase.”¹⁸⁴ Also that they “...knew we were gonna be in trouble pretty quickly so we immediately ...said we better pull out.”¹⁸⁵ Because “we knew we were gonna get run over pretty quickly.”¹⁸⁶

9.7.20 Mr Carter described the departure of the Smythesdale tanker in the following terms:

“And we decided – at one stage they were going to abandon the equipment, and I said ‘No, we’ve got time to save the equipment, because we may need it later,’ although as it was, the equipment was often pulled on to the wrong trucks. I mean, Beaufort ended up with some of ours and we ended up with somebody’s – we actually swapped there later when we met in Snake Valley. We pulled the equipment up, and at that time large heaps of bracken were going up behind us. There was ... spots were starting and well, you know it’d be just, as you know bracken is probably one of the most explosive combustible things out this way. Just goes ‘phoo’ and you’ve got fires.

So a very small spot fire just grows quickly?—Yeah, very quickly and that – if we’d stayed there more than another ten minutes, we would have been cut off from the trucks.”¹⁸⁷

9.7.21 Mr Carter stated that they “...immediately took off and went into a cleared area, green area in front of this house.”¹⁸⁸ The house was identified as number 161 on the map, on the Snake Valley-Pittong Road. Carter stated that:

“We wanted to try our best to save this house. But it wasn’t – unfortunately, they had dry grass right up to their back doors and that, so what we were gonna do was wait till the fire had run over the top and then go in and you know, stop any flare-ups, burn-offs whatever The fire started to run over the top, we then shifted out onto the road I think. ...we shifted out onto the road and that was pretty much about the first time we run across somebody who was taking charge. It was a bloke in a ute. We assumed him to be a DGO from Region 16 or something.”¹⁸⁹

9.7.22 Mr Carter also stated that:

“There was a weekender which was burning and they started lining trucks, several trucks along here. Unfortunately I don’t remember names.¹⁹⁰...There were several trucks there. We’d actually stayed on the road and just off from where the front was starting to move through”¹⁹¹

9.7.23 Mr Carter estimated that there was “at least half a dozen to a dozen” trucks that were lined up along the road. He was asked:

“And what were they doing?—Well, we just sat there and waited. We knew it was gonna go through. I do remember one message coming from Grenville Group stating

*that the fire had now jumped the Pittong-Snake Valley Road....There was no direction as to what we would do. We were actually ordered, at one stage, to try and do something about it, but what could we do? You could water as much as you like and it wasn't gonna stop it, and it was only gonna put our lives in danger. So we just sort of edged, got to the edge of where the fire was moving. And we just waited till it got through."*¹⁹²

9.7.24 Mr Carter then stated that they "turned half the trucks on the spot fire that had occurred here." Indicating the intersection of Madden Flat and Pittong-Snake Valley Road. Carter stated:

*"We could see it clearly through the trees. It was building pretty big."*¹⁹³

This was the Hadler back-burn that the Snake Valley 'A' tanker encountered and avoided during the last period of its escape. He was asked:

*"It was a spot fire was it?—It was, well yeah, it was a spot fire at the time. That's what we were told."*¹⁹⁴

9.7.25 Mr Carter said that Smythesdale tanker then:

*"Attacked it and we turned around to attack it, but the bloke there then ordered us to go through to the other side and see what was happening there ... so we went, we drove though which is not much of a hassle ... it was hot but it wasn't really that hot, you know. Not more than usual."*¹⁹⁵

9.7.26 Mr Carter was described the fire having gone over the southern side of Pittong-Snake Valley Road "so it was over the – it was over the road and gone. It was heading into the bush. We then went into this paddock here and done some blacking out."¹⁹⁶ Then they:

*"found some abandoned equipment ... I think it belonged to the Crossroads Brigade tanker. We found that out later."*¹⁹⁷

And:

*"saved it from being destroyed, which was fortunate, because the Branch apparently cost about \$240, that was left. We then started blacking out. We blacked out around the corners and then we came out of the paddock ... we were joined by a second tanker, we started blacking out. They were an old Acco, unfortunately I can't remember their names, could have been Rokewood Junction's, I'm not sure but it was an old Acco."*¹⁹⁸

9.7.27 Mr Carter said that they then went looking for the Grenville Group tankers toward Rowlers Road and:

*"But as we're going up there, another tanker said, "No" he said, "all the Grenville Group have gone back to Linton to protect the town." So we decided that we told him "Look, we'll go back, we'll go down to Linton and try and hook up with a Strike Team or somebody rather than try to work ourselves. So after that we went down, went back to Snake Valley Linton Road."*¹⁹⁹

9.7.28 Mr. Brent Marshall, who was also in the Smythesdale tanker, was asked about the control structure at the early stages of the fire. He stated:

*"In the early stages there really wasn't an official Incident Controller. Because we were working from two different regions, there was no radio communication between those two trucks or anything like that ... so really, you just do what your instinct tells you at the time, that's what I thought would be the best way of doing it. It still believe that it's the best way of doing it so that's what we did."*²⁰⁰

9.7.29 He described trying to protect a house from the Pittong-Snake Valley Road. He stated:

*"We waited again. These fires we couldn't get access to and we weren't inclined to go over the road because it was obviously in the bush, you are not going to have fire right round you and try to put out a spot fire, but we just waited on the road. There were more trucks coming at this stage up the Pittong Road.... and as the fire became hotter, I suppose, we just made a decision to get out."*²⁰¹

The Mannibadar Tanker (Region 15)

- 9.7.30** Mr. Terrence Cahill was a member of the Mannibadar CFA Brigade. He was called to the Linton fire and met the Mannibadar tanker on the west side of the Pittong Road. He got on the back of the truck. He was asked:

"Who was there." He said "A young bloke. There was – James Flanagan was driving, Ken McBeth was in the passenger seat and a young bloke, Phillips, was on the back and then Clem and I." ²⁰² James Flanagan was the Captain of the Mannibadar Brigade.

- 9.7.31** Mr Cahill was questioned:

"So you're on the back of the truck there at this stage, you know there's a fire?—Yeah.

Do you know roughly where it is?—Yeah.

Where's that?—Approximately half a k or a k further in the bush." ²⁰³

- 9.7.32** Mr Cahill was asked:

"So was only your unit there, your truck on the side of the road?—No, there was well, there could have been 20 other trucks.

Right?—All parked in a line." ²⁰⁴

- 9.7.33** Mr Cahill stated that they kept calling trucks to go further along into Pittong Road towards the fire, towards Snake Valley. ²⁰⁵ As the fire approached the Pittong Road from the north, he said:

"It was just crawling along ...

How high were the flames?—Sometimes they'd get into the tops of the trees ... otherwise it was just on the floor...." ²⁰⁶

- 9.7.34** Mr Cahill said that they saw a house and "no-one knew it was there." He said that:

"The flames were pretty close so we went in and put them out and proceeded further on to the north side of the house on a ridge and put that out and the house was secured and we were called back - went back onto the Pittong-Snake Valley Road." ²⁰⁷

- 9.7.35** At this stage there were just "...a couple of trucks and then we were called in further towards Snake Valley on the radio." ²⁰⁸ Mr Cahill then said that they were called along the Pittong Road, just "further in to where all the trucks were lined up again" and "That's when we seen the Snake Valley truck with all the front burnt on it." ²⁰⁹ The fire had "had crossed the Pittong-Snake Valley Road and was heading south towards Linton." ²¹⁰

Pura Pura Tanker (Region 16)

- 9.7.36** Mr. Douglas Smith of the Pura Pura CFA Brigade attended at the fire. He described being directed onto the Pittong-Snake Valley Road to try and stop the fire crossing the road. He was asked:

"So you only heard that you believed the strategy was to stop the fire on that road?—Correct.

And what do you think happened there?—Well, it had obviously jumped over." ²¹¹

- 9.7.37** Mr Smith stated:

"And then we were put in to try and put it out there but it was not possible." ²¹²

And:

"But the fire had got through there and it was burning, they couldn't stop it there then – so we were relegated up onto another – up onto the east flank then." ²¹³

- 9.7.38** Mr Smith was then asked:

"There has been mention of a number of trucks lined up on the Snake Valley-Pittong Road that's prevented this fire from travelling south, did you see those trucks at all?—Yes, yes, yes.

How many trucks would have been there?—I don't remember.

Would there have been half a dozen, a dozen or 20?—Probably, look could have been 10 ... in that vicinity plus or minus.

And what did they look like they were going to do, were they standing there ready with hoses or were they just sort of standing around?—Well, they were all ready ... they were all ready to be directed into wherever.”²¹⁴ So we were directed, several were sent there and I don’t know where the others went but it was too much of a challenge and I think it was a bit – I think they considered it too dangerous, so they pulled us out.

Did the fire spot across the road or did it crown and go through the trees?—A bit of both.”²¹⁵

- 9.7.39** Mr Smith stated that his crew entered a paddock on the southern section of the Snake Valley-Pittong Road. He was asked:

“When you entered that paddock and you were driving sort of in a southerly direction, was there a sort of hill over to the left and the forest started to take off from there?—Well, we didn’t get far enough off the road to see that.

What happened?—We’d no sooner got in there and they made a fairly ... – fairly quick decision to get us out of there and it was ... – out of control fully. It had too much of a control for us to put out.”²¹⁶

Haddon ‘A’ Tanker (Region 15)

- 9.7.40** Mr Reinhard Pohl had been the Captain of the CFA Haddon Fire Brigade for about 10 years prior to the Linton fire. He was a Deputy Group Officer with the Grenville Group. On the day of the fire he was at work as Assistant Principal at the Haddon Primary School. At about 1.40pm he saw smoke coming from the Snake Valley area. He contacted Grenville Group Base and spoke to Alice Knight. She told him that she had just turned out his Brigade to the fire.

“Given the conditions of the day which was a dry gusty north wind, I informed Alice I would turn out in my own vehicle.”²¹⁷

- 9.7.41** Whilst en route to the fire Mr Pohl had a conversation with Des Phelan and they agreed to meet at the intersection of the Snake Valley/Linton Road and Snake Valley/Mortchup Road.

“On arrival, Des asked me to remain at the intersection to direct incoming tankers from the Grenville Group while he went to assess the situation. Three appliances arrived at the intersection. They were Haddon ‘A’, Rokewood Junction and Cape Clear. I directed these appliances to Rowlers Lane which was where Des Phelan asked them to be sent.”²¹⁸

- 9.7.42** Mr Pohl stated that:

“On my arrival in Rowlers Lane, I had a quick meeting with Des Phelan and he issued me with some instructions to basically remain with the two appliances to look after the left flank of the fire in conjunction with the Department of Natural Resources and Environment.”²¹⁹

- 9.7.43** It appeared to Mr Pohl that there was nothing that he could do to assist the DNRE because its bulldozer wasn’t wide enough for the CFA trucks.

“So we then just went a little bit further down the road and sat next to a couple of houses to protect them if it was necessary.

Is this in the Rowlers Lane area?—Yes.”²²⁰

- 9.7.44** Mr Pohl said he contacted the Snake Valley Sub-Base and:

“I was under the impression that Region 16 had a fire control established and that they were running the fire. That we were looking after the east flank and I was trying to talk to them with regards to exactly what my role was to be.”²²¹

- 9.7.45** Mr Pohl noticed the fire creeping closer to the houses and:

“I think I asked them to send us a strike team because we were beginning to run out of water and the fire was getting closer, close to the houses.”²²²

9.7.46 Mr Pohl was then asked about his understanding of the chain of command at that time. He said:

“Well, my understanding was while Des was investigating what the fire was actually doing, that he had left me in charge of that flank, so my immediate superiors I suppose would have been the Fire Control, which I assumed at that stage to be the Region 16 people.

Did you find a person who was occupying that position?—My understanding was that it was Group Officer Millar.

Did you get in contact with him?—No, as I said, I didn’t call him personally. My understanding was when a Fire Control is established, that you call Fire Control, so I didn’t call Group Officer Millar, I just called Fire Control and got no reply.” ²²³

9.7.47 Mr Pohl said that he then took the Haddon ‘A’ and Linton tankers back to Linton to regroup with the other Grenville Group tankers. He was asked about the Rokewood Junction and Cape Clear tankers and said:

“Well, Des had taken the other ones that had come into Rowlers Road with him to do whatever they were intending to do near the front of the fire, and I picked up those other tankers that I referred to later when we regrouped.”

Rokewood Junction Tanker (Region 15)

9.7.48 Mr Ray Hadler, the Rokewood Junction CFA Brigade Captain, gave evidence he met Reinhard Pohl at the corner of Linton-Snake Valley and the Pittong Road. He stated that he was told that the fire was still in Region 16, on the north side of the Snake Valley-Pittong Road and *“we were to proceed west down Snake Valley-Pittong Road and get in touch with DGO John Kavanagh.”* ²²⁴

9.7.49 Mr Hadler stated:

“We were to speak to Kavanagh about stopping the fire crossing the road onto the south side. On the way to Kavanagh, I saw the fire was spotting ahead of the main fire, and we extinguished a couple of spots on the way down. By this time the main fire was nearly at the road and there were a number of other fire trucks on this road putting out spots. At this stage the fire started spotting over the south side of the road and I think it was at this stage that John Kavanagh came to me in his vehicle. We spoke briefly about trying to put out spot fires on the south side of the road because we had a four wheel drive truck, we thought we might be able to get up the bank to get to them, but we couldn’t. By this time it was starting to get quite hot there so we pulled back towards Snake Valley. I took my truck to the intersection of Snake Valley-Pittong Road and Rowlers Road out of the fire line. A few other trucks came the same way and some went towards the west.” ²²⁵

9.7.50 Mr Hadler was asked:

“Did you observe the fire crossing the Snake Valley-Pittong Road from where you were up at Rowlers Road?—Yes.... From where we were the fire didn’t really cross the road in a wall, it more spotted. There were spots spotting to the north side of the road and to the south side of the road so that they basically all joined up and that was basically how it crossed the road. There was no great wall of fire that crossed the road from where we were.

And you were east of the eastern flank of the fire?—That’s correct.

Did you receive any directions from anyone as to what you were to do with the Rokewood Junction tanker?—Not at that stage, no, not once the fire had crossed to the south side.

What did you do then, did you try and get hold of someone in authority to find out what to do?—Basically we sat there for a little while and with some other tankers that were in the area.” ²²⁶

9.8**Knowledge of the IMT of the Early Fire Management**

- 9.8.1** It is now appropriate to turn to the evidence concerning the knowledge of the IMT of what was occurring during the early part of the fire suppression effort.
- 9.8.2** As indicated in other parts of this Report, the Incident Controller Mr Leach stated that he and John Sanders arranged for the establishment of a Forward Operations Point at Linton. Leach stated:
- “Exactly what time the Operations Point was established I am not certain but I had communications with them at 14.30.”*²²⁷
- 9.8.3** Mr Leach also stated:
- “At 15.00 hours based on a Situation Report from the Operations Point, it became clear that the fire was going to spread significantly into the Linton State Forest and it was clear that our initial control objective of holding the fire at Pittong Road would fail. Des Phelan and Bob Graham had determined initially the control strategy of halting the spread of the fire at Pittong Road.”*²²⁸
- 9.8.4** Mr Leach was questioned about the above statement and agreed that the reference to Phelan and Graham was probably not accurate.²²⁹
- 9.8.5** Mr Leach was asked about the communication that he had with the Forward Operations Point at 2.30pm.
- “Was there any discussion in that communication about the strategy being attempting to halt the fire at the Pittong-Snake Valley Road?—I don’t believe so, because at that stage there wasn’t a lot of intelligence at the Operations Point about what was happening in the fire ground. It was more about getting a structure in place and formalising the Operations Point, working out who would fill the functional roles etc...”*²³⁰
- 9.8.6** Mr Leach was asked about his statement that:
- “At 15.00 hours based on the Situations Report from the Operations Point it became clear that the fire was going to spread “and so on”. “It was clear that” and you have changed it in the amended version, from “our” to “the”, “the initial control objective of holding the fire at Pittong Road would fail.” Who did you have that conversation with at three o’clock?—That was information that had come in from the fire ground via Des Phelan. I can’t say whether the conversation I had was with Bob Graham or Neville Britton, I think it may have been Neville Britton.*
- When you made your statement you had it as being “our initial control objective”, what was the reason for the change in that quote “the initial control objective”?—When I first went to the IMT and John Sanders and I looked at a map of the area, without any knowledge of the actual fire, just looking at the potential control lines, Pittong Road presented itself as a potential control line that ran in an east west direction. We didn’t determine a control objective because we weren’t sure where the fire was, and when - before the IMT took any real control of strategies and tactics. The fire had already reached Pittong Road. It wasn’t the IMT’s control of it, but I know in hindsight that there was a stand made on Pittong Road.”*²³¹
- 9.8.7** Mr Graham was asked about his knowledge of the objective of holding the fire at Pittong Road. He said:
- “I can only comment on the fact that it happened before I was in place at Linton.”*²³²
- 9.8.8** It would seem that the IMT had no input into the deployment of the Region 16 and Region 15 tankers on the Pittong Road to attack the head of the fire.

9.9 Incident Reporting

- 9.9.1** Evidence referred to elsewhere in this Report relating to the failure of the IMT to become aware of a number of near-miss incidents is relevant to this issue. The following evidence of Incident Controller Leach is fairly representative. Incident controller Mr Leach did not become aware of the stand made on Pittong Road on the day of the fire.²³³ He learnt about it afterwards. He was asked:

“Would you now regard what you know about the Pittong Road as a near-miss incident?—Yes.

And ought that incident have been reported up to the IMT?—Yes.

As soon as possible?—Yes.

Why?—Well, I think information about near-miss incidents needs to be communicated because obviously it is an indicator that something has gone wrong, and it may be an indicator, or example, that fire intensity is more severe, as has been indicated the fuel was drier, or the fuel load of the fire, or the weather conditions were affecting the fire worse than what we would have anticipated. It is an indicator that can be used to look at whether controls, strategies and tactics are appropriate.

What about possible impact on the tasking of particular crews, is it important from that perspective as well?—It is, because the tasking of crews would be based around your tactics, you may have to modify the tactics because the conditions are different to what you might have known them to be.

Can I suggest to you, if you don’t know crews have been subject to a burn-over, you necessarily don’t know what sort of impact this has had upon them either, do you?—That’s right.

Might it also cause the enforcement or reinforcement of safety issues?—Yes.

Down through the chain of command onto the fireground?—Yes.

And again I think you have covered this, in a more general sense, it is indicative that something has gone wrong?...It is

It might be a communication problem?—Yes.

Or it might be a tasking problem?—It could be a whole range of reasons, that’s why it is important to get some feedback, so you can analyse what the actual issue is.”²³⁴

- 9.9.2** A number of crews were required to either use their fog sprays for protection or drive out of danger. This should have been regarded as a serious problem and reported through the chain of command to the IMT. However, throughout the fire, Region 16 command were not aware of the existence of the IMT at Ballarat.

- 9.9.3** The stand and burnover on Pittong Road was the first of a number of “near-miss” incidents about which the IMT did not become aware on the day of the fire. It is demonstrative of the lack of proper and detailed communication through the chain of command, in accordance with AIIMS principles. For the IMT to carry out its function it was essential that the fire behaviour and the tactical decisions that led to this and other “near-miss” incidents were reported. It is the most basic of information that should be relayed up and down the incident chain of command and the failure to do so is further evidence of problems with communication and supervision lines. Had this happened, and had the incidents been assessed, even briefly, by experienced and competent officers in command, it is very likely that the operational and safety management issues that eventually resulted in the Geelong West entrapment would have been avoided.²³⁵

9.10 Examination of Strategy Employed

- 9.10.1** The CFA Operations Guidelines – a “Guide to Operations and Tactics in the Field”²³⁶ provides instruction on the different tactics appropriate for use in different circumstances.

9.10.2

The attempt to extinguish the head of the fire as it approached the Pittong-Snake Valley Road was a direct attack on the head of the fire. Paragraph 16.6 of the Operations Guidelines²³⁷ deals with wildfire strategy and tactics in respect of forest fires. It states:

“Suppression techniques used will be governed by fire behaviour characteristics and by other factors such as vehicular access ... Whatever techniques they use, the overall objective will be to achieve:

- *Knock-down, ie stop spread of the fire by use of water, fuel breaks or a combination of both water and fuel breaks.*
- *Containment, ie ensure fire risk contained within a defined perimeter, preferably (indistinct) control line.*
- *Mop up and patrol, ie progressively treat remaining burning fuels inside the fire perimeter with little or no chance of re-ignition outside the perimeter.*

With forest fires, the head of the fire should be attacked first if possible. This is where the fire is spreading faster and is burning most intensely.

*Often in forest fires, the head fire is too intense for direct attack, or is not accessible to vehicles such as tankers. In this case a direct attack on the flanks of the fire should be commenced if possible, working from the rear of the fire towards the head. This may require the construction of a control line by hand or by mechanical equipment. The head fire may also be controlled by an indirect attack, probably using a back burn, from a well established control line if conditions are suitable, preventing the back burn from escaping.”*²³⁸

9.10.3

These Guidelines set out a table (Figure 9.2), which sets out the recommended fire fighting strategy applicable to flame height, intensity and fire behaviour. It is noted that direct attack is only recommended where the fire intensity is between 50 and 500 kw/m. Where the fire intensity is between 500–2000 kw/m the chart indicates that the fire is too intense for direct attack and that a parallel attack is recommended.

Figure 9.2

WILDFIRE STRATEGY AND TACTICS			
FIRE DANGER	FLAME HEIGHT (m)	INTENSITY (kW/m)	SIGNIFICANCE
Low	0 - 0.5	0 - 50	Fires generally self-extinguish
Moderate	0.5 - 1.5	50 - 500	Hand tool line should hold the fire. Direct attack recommended
High	1.5 - 3.0	500 - 2000	Fire too intense for direct attack. Parallel attack recommended.
Very High	3.0 - 10.0	2000 - 4000	Crown fire at upper intensities. Indirect attack recommended.
Extreme	> 10	> 4000	Crowning, spotting and major runs likely. Control efforts probably ineffective. Defensive strategy recommended

9.10.4

Where the intensity of the fire is between 2000–4000 kw/m the chart states that “crown fire at upper intensity. Indirect attack recommended.” And in respect of fire intensity of greater than 4000 kw/m the chart states: “Crowning, spotting and major runs likely. Control efforts probably ineffective. Defensive strategy”²³⁹

- 9.10.5** It should also be noted at this point that a tanker without the aid of water could only be expected to withstand forest fire line intensities of up to 3000 kw/m.²⁴⁰
- 9.10.6** As the fire moved upslope from the gully, 70 metres north of the Pittong-Snake Valley Road, the head fire intensity has been calculated at between 4892 and 8110 kw/m. The intensity of 4892–8110 kw/m is well beyond conventional suppression capacity.²⁴¹ There was no prospect of the tankers being able to extinguish a fire of that intensity.
- 9.10.7** Paragraph 16.6.1 of the CFA Guidelines under the heading ‘Forest Fire Strategy’ states:
- “The method of attack on fires depends on the rate of spread, fire intensity, spotting potential, size of the attack force and other factors such as the nature of the fuel lying in the path of a fire.*
- Provided the safety of fire fighters can be assured, either the direct or parallel method should be used at the head of a fire to arrest its development in the zone of greater spread. If the head fire is too hot or too fast to handle, the attack may be made from the flanks, working from the rear to the head in a process called ‘pinching out’. On days of high to extreme fire danger, it may not be possible to stop the forward spread of a fire burning continuous fuel.”*²⁴²
- 9.10.8** Paragraph 16.6.2 of the Guidelines under the heading of ‘Direct Attack’ states:
- “On small fires or larger relatively slow moving ones:*
- *Attack at right angles to the fire edge.”*²⁴³
- 9.10.9** The Panel of Experts examined the Pittong Road line-up at paragraph 1.2 of their joint report.²⁴⁴ The panel examined the fuel and topography adjacent to the Pittong-Snake Valley Road. The report states:
- “The forest fuels adjacent to the Pittong-Snake Valley Road most probably have similar characteristics to fuels measured elsewhere in the forest. However there was a small grassy clearing along the creek to the north and an open paddock south of the road. At the time of the fire, grass in the clearing and the paddock was green and did not burn.*
- Before the fire crossed the Pittong-Snake Valley Road it was burning on the lee slope of the ridge to the North. Although the surface fire on the lee slope involved the coalescence of spot fires (possibly upslope under the influence of an eddy wind - Packham does not agree if the eddy wind implies a flow counter to the prevailing wind) the speed of the fire and the flame height was very much reduced. The relatively mild behaviour of the surface fire as it approached the bottom of the slope may have influenced fire fighters to consider it was possible to hold the fire on the Pittong-Snake Valley Road.”*²⁴⁵
- 9.10.10** In relation to the movement of the fire the Experts’ Report states²⁴⁶:
- “...By 1409 hours the fire had spotted onto the lee slopes (south aspect) of this ridge and was threatening to cross the Pittong-Snake Valley Road. The fire spread slowed on the lee slope as spot fires coalesced and the surface fire burnt downslope (probably against an eddy wind behind the ridge) towards a green paddock adjacent to the creek line north of the Pittong-Snake Valley Road. The reduced behaviour as the fire burnt downslope may have given fire fighters the appearance that it could be stopped along the Pittong-Snake Valley Road. However, spot fires were continuing to occur and at around 1442 hours the fire crossed the road and developed a head fire on a moderate slope in the vicinity of the bend in Pittong-Snake Valley Road.”*
- 9.10.11** The Report continues:
- “The head fire travelled rapidly up the northerly aspects between the Pittong-Snake Valley Road and the Possum Gully Road and probably crossed the Possum Gully Road some time between 1515 and 1520 (radio report at 1526). The head fire crossed the Possum Gully Road some 200–300 m west of Madden Flat Road intersection.”*²⁴⁷
- 9.10.12** In relation to the tactic employed on the Pittong-Snake Valley Road, the Expert Report states:
- “Early in the history of the fire, after the initial attack had failed, tactics employed were quite inappropriate. Fire fighters showed little understanding of forest fire*

behaviour and forest fire suppression and appeared to be largely using tactics more appropriate for suppressing grass fires. It should have been immediately obvious from the behaviour of the fire, and particularly the spotting characteristics of the stringybark forest, that any direct attack on the head fire would fail.

There appeared to be no assessment of the values at risk and no early planning of a systematic strategy to contain the fire once initial direct suppression had failed. It was assumed that the township of Linton was threatened. However, it should have been immediately obvious that the green condition of the grasslands would contain the fire to the forest fuels and that the only threat to Linton would be the remote possibility of a house or garden being ignited by a firebrand from the forest.

The rapid escalation of units responding to the call-out is a well practiced response that is appropriate for grass fire suppression, where arriving units can be deployed effectively on direct attack of the flank fires. However, many tanker units are not equipped to fight forest fires and once initial attacks fail, there is little effective and safe suppression that can be done until the weather moderates and systematic fire line construction with bull dozers or hand tools is organised. Soon after the start, there were too many resources at this fire. The number of units rapidly exceeded the span of control (5–7) of the officers in charge of the fire and in any case there was little that the tankers could do to attack the fire and would have been better deployed in immediate asset protection on the fringes of the forest. As a result, the attack was unco-ordinated with units acting individually and putting themselves, and others around the fire in danger.”

5.1 Attack on the head of the fire at Pittong-Snake Valley Road

Under the prevailing conditions this tactic was never going to succeed. Suppression in a stringybark forest fails where the fire intensity exceeds 2000–2500 kw/m due mainly to the intensity of spotting. The head fire was burning at an intensity of between 4000 and 8000 kw/m. The spotting behaviour of the fire was obvious and fire fighters with any experience in forest fire suppression would have known that the fire could not be stopped on a narrow road regardless of the fire tanker resources available.

The reduction of the spread on the lee slopes of the ridge to the north of the Pittong-Snake Valley Road may have provided fire fighters with a false sense of security. This may have increased by the narrow paddock of green grass along the creek line north of the Road. An experienced forest fire fighter would have appreciated that, even if they could contain the spot fires while the main fire was backing down the slope, the fire would burn around this paddock onto a positive windward slope below the road and make a strong run upslope. Although this slope up to the road was only about 50 metres long, it was long enough for the fire to rapidly develop again before reaching the road. And inexperienced forest fire fighter may not have appreciated the importance of this short upward run to the road in the context of the long downhill run (about 500 m) of the fire from the ridge.”²⁴⁸

9.10.13 The Agencies’ Joint “Operations Review of the Linton Fire/Midlands Fire” states that:

“A CFA officer had control of about 27 CFA tankers and attempted to stop the fire crossing to the south of the Pittong-Snake Valley Road.”²⁴⁹

9.10.14 Although the number of the tankers lined up at the western end of Pittong-Snake Valley Road was probably more like 10–12, with perhaps another 3 or 4 tankers at the eastern end, the comments in the Joint Operations Review, that:

“Whilst it is acknowledged that the tankers had considered escape routes, such a tactic is fraught with danger, particularly in forested areas. One CFA officer directly controlled these 27 tankers, giving a very large span of control.”²⁵⁰

9.10.15 The comments regarding the exceeding of the span of control and the dangerous nature of the tactic remain apposite.

9.10.16 In relation to the reporting of this incident, the Volunteer Associations correctly submitted²⁵¹ that:

"The full circumstances of the incident were not reported at any time. The fact of the matter is that at the time of Linton, there was no established system and no established training pattern which required reportage to occur for AIIMS purposes, despite what is spelt in Exhibit 21U, 3.3, p.27 and 3.3(1), paragraph 9 on p.30 of that document."

9.10.17 Dr Tolhurst gave evidence that:

*"I think the tactics should match the strategy adopted. The problem we have here is while the fire is small you can see what is going on, you have a clear picture of it, the tactics and strategy match pretty well. What wasn't appreciated quickly enough was "what strategy is going to be used to suppress the fire now that we can no longer see it all in one spot?". I don't think that decision was made early enough. The tactics were to do the best we can where we can rather than having an overall strategy. I think that strategy wasn't clear to the fire fighters on the ground early in the piece. I make a plea for seeing the broader picture of what the fire is doing, it is a major downfall in adopting the wrong tactics or tactics in the wrong places if you don't have a clear picture of what you are trying to achieve."*²⁵²

9.10.18 In relation to the behaviour of fire as it approached the Pittong Road, Mr Cheney said:

*"This is the most difficult thing that I have found in my experience with presenting fire behaviour to people, to students and to fire fighters and to general fire controllers is to have them appreciate when a fire is backing down a hill, potential change that can happen when the fire moves from the downslope to the upslope with the wind behind it. It seems to be, again in my research into fire incidents in difference places, one of the things which people under-estimate is the potential change in fire behaviour when it crosses and moves onto the upslope and the relative change in fire behaviour can be perhaps 30–50 times and it is very difficult to get that concept across to people that haven't seen it."*²⁵³

9.10.19 Dr Burrows continued:

"I think the only thing I would add there was the perhaps inadequate priority that was placed on fire fighter safety in taking this action. I guess that's linked with perhaps a misinterpretation of the sorts of things Phil just talked about, the rapid transition in fire behaviour when the fire crossed the gully and ran upslope in line with the wind. Perhaps an under-estimation of the speed of the, firstly, the amount of spotting on that slope where the Snake Valley 'A' tanker was and, secondly, the speed with which the main head fire went up that slope. I am sure, had there been a fuller appreciation of those hazards, fire fighter safety might have come first and it might have been wiser not to go in there."

9.10.20 Dr Tolhurst added:

*"I will come back to the point I made earlier about strategic decisions, and I think the problem with these burning out operations is that they didn't really fit into any strategic plan. Like the comment I made in relation to the weather before, the fire fighters on the field were using what they could see as their source of intelligence, and really in a case like this, they should have been seeking some outside assistance, either from the air or well, the areas going to be the best place for a view of what the fire is really doing, before they launched into this tactic."*²⁵⁴

9.10.21 The Volunteer Associations submitted²⁵⁵ that:

"The strategy adopted was thought to be safe and appropriate. It seems that decisions were made in circumstances where the training and experience of the volunteers did not match the requisites of the conditions on the day.

*The appreciation of safety was dependent on having the benefit of specific experience and training before the risks can be best assessed. It is clear that the CFA system for providing experience and promoting training in forest fire fighting needs review and improvement."*²⁵⁶

9.10.22 The Volunteer Associations also submitted that:

"The evidence and expert report highlights the extremes in terms of difficulties which fire fighters experience in getting an understanding and appreciation of the potential of forest fires to change behaviours. This is the real lesson to be taken from the experience at Pittong-Snake Valley Road." ²⁵⁷

9.10.23 In its submissions, the CFA stated that it:

"Adheres to the view expressed in the Operations Review that the strategy to endeavour to stop the fire at Pittong-Snake Valley Road by an attack on the head of the fire was, in all the circumstances, not appropriate. However, in considering the strategy, a number of circumstances need to be borne in mind. In particular, the strategy was determined by experienced and responsible officers. Secondly, the decision making processes were correctly conducted within the existing command structure. While the decision was significantly based on the assessment made by DGO Welsh, it was made with the knowledge and approval of those in command at the fire, namely Messrs Millar, Smithers and Wyllie. Thirdly, as identified by the panel of experts, there were a number of factors which combined to create the impression that the strategy appeared to be much more feasible and safe than, in hindsight, it in fact was." ²⁵⁸

9.10.24 The CFA goes on to submit that:

"A fair analysis of what occurred at Pittong-Snake Valley Road does reveal that the strategy was devised with care, that it was determined by reference to the appropriate command structure, and that subjectively a number of factors combined to beguile those determining the strategy to incorrectly consider that circumstances were suitable for implementing such a strategy." ²⁵⁹

9.10.25 There is no doubt that Messrs Wyllie and Welsh (and all the fire fighters caught up in the strategy) were both endeavouring to do their best to stop the fire. It is without question that they acted in good faith.

9.10.26 However, it is most concerning that fire fighters that the CFA regard as senior and experienced, could misjudge the situation and fail to properly evaluate the clear indicators that were present on the day. This issue must be acknowledged by the CFA and addressed. In both the short and long term the safety of firefighters is not helped by any failure to recognise fundamental errors of judgement (even if made in good faith). Where errors in judgement are made the decision-maker should feel able to immediately report the error to higher command (necessary for effective incident reporting and, as a consequence – safety).

9.10.27 The CFA must recognise, as the Volunteer Associations by their submissions do, that those making such decisions in a forest fire must have the necessary training and experience to make the correct decision. This is particularly the case in circumstances such as Linton, where the fire behaviour was entirely predictable, if a proper assessment of the situation had been made by a competent firefighter. There was never any prospect of halting the head of the fire in the prevailing conditions. In those circumstances it became more a question of good luck rather than good management as to whether one or all of the crews on the tanker would:

- have sufficient water to self protect and survive;
- react appropriately to use that water for self protection and survival; and
- that the fire behaviour would be such as to permit survival in the circumstances.

9.10.28 The CFA submitted that:

"While ultimately the organisation of the fire suppression north of Pittong-Snake Valley Road had a number of features of a group system, the initial devolution of command and control as the incident escalated, and as more resources arrived, was orderly and consistent with AIIMS-ICS. From that time Mr Millar and Mr Smithers were in command of CFA resources north of Pittong-Snake Valley Road." ²⁶⁰

9.10.29 In a similar vein, the Volunteer Associations submitted that:

"Whilst the command structure was not formalised, the structure was consistent with the AIIMS-ICS system." ²⁶¹

- 9.10.30** As the evidence analysed in this chapter reflects and as Mr Welsh properly acknowledged, the deployment of resources could not, in any fashion, be described as “*orderly and consistent with AIIMS-ICS.*”
- 9.10.31** The components of AIIMS-ICS are dealt with in detail in Chapter 6.3 and 6.4. In summary, AIIMS-ICS requires only those resources requested by the Incident Controller to attend at the scene. Those resources are then to report to the assembly or staging area where they are to be appropriately tasked. The evidence demonstrates random self-deployment of many tankers in an effort to protect homes north of the Pittong-Snake Valley Road before an unidentified group of tankers were assembled on the road. The “*span of control*” is fundamental to AIIMS-ICS. If Mr Welsh could be regarded as having “*control*” over the tankers he instructed to line up on the road, the span of control applicable to AIIMS-ICS was at the least exceeded by two times.
- 9.10.32** Mr Roche stated:
- “The Group system, on the surface, looks quite similar (to AIIMS). When a Brigade responded to an incident, that incident would be under the control of the Brigade Captain or the most senior officer from the Brigade present. If the fire grew, the Group Officer would take over control and establish a forward group headquarters somewhere in the field.*
- However there was no limit to the span of control and no direct recognition that each of the lower levels of the organisation had some degree of independent line management responsibility for those working under them. The group would try to do everything themselves and responsibility for this would largely fall onto the Group Officer.... There was also no clear recognition of the roles or responsibilities of individuals assisting the Group Officer and these would be assigned by the Group Officer as the need arose. Among other things, this meant that, in practice, very little time (if any) was spent on developing strategies and forward planning.”²⁶²*

9.11 Conclusions

- 9.11.1** The analysis of this incident by the joint Panel of Experts set out above is correct.
- 9.11.2** A properly trained and experienced fire fighter would have appreciated that there was no prospect of stopping the fire by attacking its head on the Pittong-Snake Valley Road and that such a strategy involved grave risk to the fire fighters involved.
- 9.11.3** Around 10–12 tankers at least were involved in the tactic, with a number of them forced to go into survival mode and/or take evasive action for self-preservation. It was fortunate that no firefighter was killed or injured in this incident.
- 9.11.4** The joint “*Operations Review of the Linton Fire/Midlands Fire*” considered that about 27 tankers lined up on the road to stop the fire.²⁶³ In fact it was between 10 to 12. This investigation determined this fact, not by records kept by those tasking the tankers to the work, but by questioning witnesses. This is indicative of a lack of proper control at the initial stages of management.
- 9.11.5** The circumstances of this incident were not relayed on the day to the Incident Management Team so that the fire behaviour could be analysed and taken into account in future strategies, tactics and tasking of crews. No assessment could be or was made of the impact of the incident upon the crews involved.
- 9.11.6** Contrary to the submissions of the CFA and the Volunteer Associations, there was considerable confusion and some self-deployment at this stage of the fire. The span of control, fundamental to the operation of the AIIMS-ICS system, was exceeded in the case of Deputy Group Officer Welsh by at least two times.
- 9.11.7** If the operation of any “*system*” was evident at this point of the fire, it was the Group system, not AIIMS-ICS, with all the attendant problems identified in the statement of Mr Roche.

Snake Valley 'A' Entrapment

10.1 Introduction

- 10.1.1** Mr Percy Nunn was a volunteer fire fighter with the Snake Valley Fire Brigade and had been for in excess of 45 years. At the time of the Linton fire he had been retired for about 10 years. Prior to his retirement he was a truck driver.
- 10.1.2** On 2 December 1998 Mr Nunn received a phone call from Snake Valley Sub-Base, Radio Operator Diane Foy. He immediately went to the Snake Valley Fire Brigade Shed, which was only about 50 metres from his home. The Snake Valley tanker had already left the Shed and Nunn drove out Snake Valley Tanker 'A'.
- 10.1.3** In the main street of Snake Valley Mr Nunn picked up Eric Hollingworth, Peter Layton, Greg "Harry" Harrison and Denis Boyd. Nunn was the driver and Denis Boyd was the Crew Leader on the back (although he did not realise this until after the entrapment). Nunn also picked up Carol Walker. They proceeded to Rowlers Road looking for smoke. Near Lot 36 Rowlers Road, they came across the Snake Valley tanker driven by Lieutenant Craig McInnes.
- 10.1.4** On Mr McInnes' instructions, the Snake Valley A tanker proceeded down Rowlers Road to Pittong-Snake Valley Road, with the Snake Valley tanker following behind.¹
- 10.1.5** When they arrived at the Pittong Road intersection, smoke could be seen. Mr Nunn walked up over the hill on the north side of Pittong Road. He could see from the top of the hill that the fire was half to three-quarters of a mile away, but he found it hard to tell from that distance.²
- 10.1.6** When Mr Nunn returned to the tanker A, at the intersection of Rowlers Road and Pittong-Snake Valley Road, the Linton, Smythesdale and Skipton tankers had arrived. Mr Nunn said that there may have been others but *"I just can't remember."*³
- 10.1.7** Mr Nunn recalled:
- " some discussion about whether it was a woolshed fire. I told them it was not."*⁴
- 10.1.8** Mr Nunn stated that:
- "There were no District Group Officers there at that time, I would say McInnes, the Lieutenant of the Snake Valley Brigade would have been in charge at that time."*⁵
- 10.1.9** Mr Nunn said that it would have been at about 1.30pm at that time. However, the Snake Valley Sub-Base log⁶ indicates that at "13.49" the Snake Valley tanker was pulling out of Lot 36 to head to Pittong-Snake Valley Road. This suggests that it may have been closer to 2pm than 1.30pm.

10.2 Deployment of Resources

- 10.2.1** The evidence regarding the tasking of the Snake Valley 'A' tanker is unclear.
- 10.2.2** In the previous Chapter, reference is made to the evidence of Messrs Aaron Foy and Craig McInnes.

10.2.3 Mr Aaron Foy said that, as the Snake Valley tanker left Lot 36 going back out to Rowlers Road:

"We were discussing with Snake Valley tanker 'A' over the air how best to tackle the fire. We decided that we would try to head the fire off. Tanker 'A' went into a track, we were heading towards them when one of the Beaufort Group, Deputy Group Officers, came up on air, so we handed control of the fire over to him. Decisions made prior to this were made by Craig and myself, jointly, after discussion.

*The DGO was not that far away and once he arrived he went to a hill so he could view the area. I think we then went to the Pittong Snake Valley Road where we were told to wait for the fire."*⁷

10.2.4 As indicated in the previous Chapter, there is a message logged at "13.38" in relation to the Snake Valley tanker that:

*"Wyllie to take over control."*⁸

10.2.5 Mr McInnes was asked when he took the Snake Valley tanker to the corner of Rowlers and Pittong Roads:

*"What other tankers were there?—That I do not know. Tanker 'A' was there. I can't really remember times and stuff but I do remember seeing Skipton."*⁹

10.2.6 Mr McInnes also had a recollection that there were other tankers there. McInnes' evidence was that Aaron Foy spoke to a DGO and was instructed to go to a paddock on the southern side of the Pittong Snake Valley Road. That instruction was relayed to McInnes by Aaron Foy.¹⁰

10.2.7 In relation to the message relayed by Mr. Foy, McInnes was asked:

"Did he tell you that the idea was that you were to put out spot fires?—I believe so.

*How did you know what paddock it was that you were to go to?—There is only one paddock."*¹¹

Figure 10.1 Nunn's Paddock looking south from Pittong-Snake Valley Road



Figure 10.2 Bush on hill south of Pittong-Snake Valley Road where the entrapment occurred



10.2.8 Mr McInnes was asked:

"Can you recall whether the Snake Valley 'A' tanker headed down towards there?—Snake Valley tanker 'A', yes.

Just the two of you as far as you can recollect?—Yes.

Did you know at that point when you headed down towards that paddock your job was to put out spot fires?—Yes.

What else did you understand in terms of what strategy was being employed to fight the fire?—The only one at that time, it was a head attack and – a head attack, we were to stop it at Pittong-Snake Valley Road, whether that's a head attack or parallel attack, that's not my decision. We were to stop any spot fires going over.

*How did you know that the strategy was to stop it at Pittong-Snake Valley Road?—I have to have heard it from somebody, who that somebody is, over the radio, a general enquiry, I don't know."*¹²

10.2.9 Mr Nunn gave evidence that he spoke to the Linton Policeman Stefan Carli and:

*"I don't remember anybody instructing me or receiving any advice but we opened the gate into the paddock opposite to where we were, the gate is down the bottom of the hill in Pittong Road. My cousin, Barry Nunn, owns the property. We went into the property so as we could be in a position to see the fire come over the hill and not trapped beside the road. The other tankers were lined up along Pittong Road. I did not think it was safe to be there. The paddock was cleared grassed area which was green, about 15 acres surrounded by bush. I thought this was safer than where the other tankers were."*¹³

10.2.10 Mr Nunn continued:

"The paddock, I believe was the safest and best place to be in because when the fire came over the hill, that was where it was going to spot if anywhere, in the bush areas. Whilst we were in the paddock there was a couple of little spot fires start up and we put them out. I'm not sure who went into the paddock first but there was the Snake Valley

tanker and ourselves and we were the only ones in the paddock at that time. We stayed in the paddock and the Snake Valley tanker went back out onto the road and joined up with the other units out there. I think there were about 8 tankers lined up there.”¹⁴

- 10.2.11** Mr Eric Hollingworth was the radio operator of the Snake Valley ‘A’ tanker. He described being on Pittong Road and radioing the Snake Valley Sub-Base. He said:

“They told me that they thought the fires we could see were spot fires so we waited at the location for further instructions. ... A short time after this, Carol (Walker) saw a small spot fire on the southern side of Pittong Road in a paddock belonging to Gordon Nunn. This was about 1 kilometre west of Rowlers Road. Access into this paddock was through a gate off Pittong Road. Once in through the gate there was a clearing straight in front and to the right the paddock was mainly cleared with just a few trees. However on the left it was uphill and treed quite heavily. When she saw this fire we made our way towards it. When we got to the gate it was already open and the Snake Valley tanker was slowly entering the paddock. We then went in behind them and just beyond the gate we went past them. This was because their tanker was bigger and harder to manoeuvre and also because the driver was not as experienced as Perc. The fire we went to was about 300 metres south of Pittong Road through the gate. We entered the treed area from the clearing and headed east for a short distance before turning around and facing west towards the clearing. The Snake Valley tanker did not actually leave the clearing. We spent about 10 minutes extinguishing the fire on the tree and then moved into the clear paddock area near Pittong Road and parked up the top facing north.”¹⁵

- 10.2.12** Mr Hollingworth described that it was at that time that Carol Walker moved from tanker “A” to the Snake Valley tanker. Mr Hollingworth stated:

“At this time we could see the fire which was burning fairly fiercely to the north of Pittong Road. The Snake Valley tanker had left the paddock and was back out on Pittong Road. They radioed for us to come out of the paddock and join them on Pittong Road. As we got to the gate, Craig McInnes, the 4th Lieutenant on the Snake Valley

Figure 10.3 The area of the hill where the Snake Valley ‘A’ Tanker first became engulfed by fire



tanker, radioed us to say that there was a spot fire on our right, in the heavily treed area. I saw this fire and it was about 100 metres in from Pittong Road and about 100 metres in from the clearing. We drove into this area in an easterly direction and uphill. When we got to the spot visibility was quite clear, we could actually see Pittong Road. We were at this location for about 10 minutes when we realised that we were starting to get into trouble. Fire activity increased dramatically and visibility was worsening. I had concerns about a tree which was in front of the tanker and blocking our forward path. ... I radioed through that there were more spot fires south of Pittong Road and that we needed more trucks. I then radioed through to say that there were spot fires all around us and that we were in trouble.”¹⁶

10.2.13 Mr Hollingworth was asked:

“I now want to take you directly to going up the hill to put out the spot fire. Did you get some message to do that or was that a decision made on the truck, to go up the hill?—Whether we were actually told to go up the hill and put it out I couldn’t really say. What happened was, as I say, we were looking at the fire across the road from the clearing in the paddock, whoever it was in the Snake Valley tanker called us to come out onto the road. We reversed a bit and turned and drove through the clearing again and to the gate. We were actually inside the paddock almost at the gate. The Snake Valley tanker again called and said: ‘There is a spot fire up the fence line’, I think was the words he used ‘to your right’. So I looked to the right of the fence line. I said: ‘It’s up there Perc.’ Perc put the truck in reverse a bit, he reversed a few metres, turned right and drove through the trees, so nobody actually did say: ‘Go and put the spot fire out.’ The spot fire was pointed out to us and I guess we made the decision to go and put it out. Nobody instructed us to go there.”¹⁷

10.2.14 To this point in the fire it can be seen that the deployment of tankers was on an ad hoc basis. In particular the two Snake Valley Tankers were deploying themselves to various positions on the fire-ground. The set of circumstances that resulted in the Snake Valley ‘A’ tanker being engulfed by fire shows no analysis by its crew of the danger involved in attempting to put out spot fires on the hill.

10.2.15 By attempting to put out the spot fire on the hill the Snake Valley ‘A’ tanker was directly in the path of the head of the fire. The fuel loads were heavy, it was a forest with many Stringy Bark trees, there were strong northerly winds blowing and the fire was spotting well in front of the head. The signs were that this fire could not be stopped at the Pittong-Snake Valley Road because it was too intense to be stopped by a direct attack on the head.¹⁸ At the time, this was not recognised by anyone in the area.

10.2.16 As a result, the Snake Valley ‘A’ tanker placed itself into a highly dangerous position by going up the hill to put out spot fires. Subsequent events confirm this fact.

10.3 Events

10.3.1 At 2.53pm the Snake Valley Sub-Base log¹⁹ recorded a message from the Snake Valley tanker that: “Urgent” – that it was surrounded by fires opposite the bend.

10.3.2 Mr Nunn described proceeding up the hill to put out the spot fires following the radio message:

“We were putting out these two little spot fires, we had run out two 50 foot canvas hoses and we could reach them very easily. I had turned the truck around about a half moon so we would be able to get out the way we came in. I was sitting in the cabin of the truck with the door open and I could see this fire ball hit behind our truck. By fire ball I mean I saw just a ball of fire like someone had set fire to a semitrailer full of petrol and it would have only been about 20 or so metres behind us and it was only a matter of seconds before we were surrounded by fire. I believe the fire spotted over the road from the ridge on the other side. I believe that multiple spot fires landed around us and joined up. I jumped out of the cabin and ran around the back and said

to the boys: 'Turn your water off and throw your hoses on'. Peter Layton and Harry Harrison were on one hose and I gave Denis Boyd a hand to get his hose on. I told them to get on the truck and stay on it, save what water you've got, which was between about a quarter to a third of a tank. I knew this because I could guess how much water we had used to put out the spot fires in the time we had been up the hill. We were surrounded by fire, vicious fire, fire balls. I got back into the drivers seat of the truck; Eric Hollingworth was on the radio and I didn't think he was putting enough pressure on the radio operator at that time to be heard. I grabbed the radio off Eric Hollingworth and said over the radio: 'Snake Valley 'A' tanker urgent'. I received a response immediately from Diane Foy at the Snake Valley Sub-Base. I said something like: 'We're surrounded by fire, we've still got water, we're going to have a go of getting out of here. I don't know how we are going to go.' We didn't receive any response back. ..." ²⁰

10.3.3 Mr Denis Boyd was on the back of the Snake Valley 'A' tanker. He did not realise until after the fire that he had been designated Crew Leader of the crew on the back of the tanker.²¹

10.3.4 Mr Boyd said that after the Snake Valley tanker left the paddock, onto the Pittong Road:

"I heard a DGO. I believe Ernie Welsh who is from the Beaufort Group say over the radio that he wanted all tankers in the area lined up along Pittong Road to attack the fire from there. ... We moved further south along the paddock into green grass where the paddock was quite boggy. I could see the fire burning on the hill down through the trees south towards Pittong Road. The fire was moving south slowly and consistently, like a good back-burn." ²²

10.3.5 Mr Boyd stated that:

"The fire at that stage I noticed to be only steadily coming down the hill. I estimate that around 14 or 15 tankers (but no more than 15) by this time lined up on Pittong Road." ²³

10.3.6 Mr Boyd then described sighting:

"Another spot fire in the trees up on a hill from where I had noticed the original spot fire. The spot fire was to the east from where we were. It was on the ground and was about the size of a table. We all yelled out about the spot fire at the same time. Nunn then drove towards it. We then attended to the spot fire from the tanker using short hoses and put it out.

We had no sooner put it out when I noticed that two more spot fires had started within 50 metres of our tanker. I ran out the hose to the second spot fire. I think Layton, helped by Harrison, squirted water on that fire. The third spot fire was further down the hill. I squirted water on that fire using the 100 foot hose. ... We had no sooner begun to extinguish these fires when I noticed another spot fire start further up the hill. I saw Layton trying to drag the 50 foot hose towards that spot fire. ... At that stage I assumed that we would have been running low on water and wouldn't be able to attend to that spot fire. I was aware how much water we had used and that we were approaching the level of a quarter of a tank (500 litres).

Things became a bit hectic then. I heard Nunn shout out that the fire had crossed Pittong Road. He yelled out: 'Save ourselves, save your water, let's get of here.'" I looked up and saw that the fire was coming up both sides of the ridge we were on. I hosed the ground and the trees to the rear of the truck just to give us a little time while we packed up our hoses. Layton and Harrison just managed to get the 50 foot hose onto the tanker. ... We had to drop the 100 foot hose because we were in trouble. ... The fire seemed to come up both sides of us from the east and west. It then began to pass us on both sides.

All of us then jumped into the truck and we started to get out. Layton, Harrison and I were on the back of the truck. I had the fog nozzle going spraying water over the truck to keep us cool. There was thick blue smoke everywhere and visibility was down to about 6 feet. ... The heat was incredible. The stringybark trees were blazing around us

and the way we were travelling we were brushing up against them. There was nothing but flames, smoke and heat.

*After a while I had used all the water through the fog nozzle trying to protect ourselves and the truck. I was on the driver's side. Layton and Harrison as I recall, were on the left side and in front of the tank. ...It was really rough and hot and we had no water left and we weren't out of the fire. I realised that we were in trouble. Shortly after this we stopped."*²⁴

10.3.7 Whilst the men on the back engaged in survival mode to save themselves and the truck, Mr Nunn described that:

*"We then proceeded to make our way out through the smoke and flames and swirling. It was a bloody mess. The visibility was very low, about 5–10 metres, and I was concentrating on avoiding the numerous trees in the area. It was very difficult driving conditions. It was very hot and I was aware that the fire was right around us. We were surrounded by fire all the way until we eventually came to a fence."*²⁵

10.3.8 At that stage Mr Nunn stopped the truck.

Figure 10.4 The fence where the Snake Valley 'A' Tanker stopped



10.3.9 Mr Hollingworth's account of the entrapment began:

"Perc grabbed the radio and said: 'Snake Valley tanker to Fire Control. Urgent, we are surrounded by fire, we are going to try and get out of here. We have saved what water we have left to try and save ourselves.'" ²⁶

10.3.10 Mr Hollingworth went on to say:

"The visibility was so bad that we could no longer see the clearing to our right. In fact we could not even see the trees. It was as if someone had spray painted the windscreen. The only way we knew where the trees were was when we actually hit them. We knew that we had to go downhill and although we could not see, we knew we were downhill

by the angle of the truck. Because of the trees I mentioned in front of us, we had to reverse until we hit a tree and then we drove forward always trying to negotiate a right turn to get us around and downhill back towards the clearing.

It was extremely hot in the cabin, so much so that the registration label was shrinking like a bag of chips does when you throw it into a fire. ...The longer we were in the fire the more concerned I was getting, especially for the crew in the back of the truck. I knew how hot it was in the cabin so it must have been unbearable in the back of the truck. When we tried to get out, I knew that we had water left but the longer we were in there the more concern I had because I knew that the water would run out eventually. I honestly thought that the blokes in the back of the truck would be dead.

After about 20 minutes we got to a fence which blocked our path. There were old collapsed mine shafts and digging heaps all around the place and the terrain was extremely rough. When we got to the fence the front left wheel had dropped into an old mine shaft.”²⁷

10.3.11 After the truck stopped, as described by Mr Hollingworth:

“Perc told me to get the bolt cutters and cut the fence. The fence was a barbed wire fence. It was tight and in good condition and looked fairly new. I got out of the cabin with the bolt cutters and tried to get to the fence. When I got out I fell into the shaft that the truck was stuck in ... and I burnt my left hand on the radiant heat from the hot burning embers burning in the hole left by the shaft. Because of the uneven terrain and just the sheer heat, this task was virtually impossible. I had trouble keeping my footing and I was stumbling and falling as I tried to get to it. Eventually I realised that I wouldn’t be able to get to the fence so I decided to go back to the truck. As I approached the truck I stumbled and fell against it. The side of the truck was so hot that I burnt the fingertips on my right hand on the windscreen. I then opened the door with my right hand and burnt it badly on the door handle. It was so hot outside the truck I felt like I was melting. The frames from my glasses turned blue and the flat plastic lens in them had actually melted.

I was pretty exhausted trying to get back to the truck and the fact that it was in the shaft and so low to the ground assisted me getting into the cabin. I couldn’t use my hands to get in as the skin was hanging off due to the burns. ...When I got back into the cabin Perc asked me for the cutters as he was going to try and get to the fence. I told him that it was too hot and that he wouldn’t make it and that he would have to drive through the fence. I said if the blokes in the back aren’t already dead, they soon would be if we don’t hurry up and get out.

The truck was already in four wheel drive and in a low gear and it was about 20 metres to the fence. He just accelerated out of the mine shaft and at a fast pace hit the fence and just went straight through it. It would be hard to get a truck like that airborne, but it felt like we were airborne when we hit the fence and broke through it. When we broke through the fence we made it to a clearing a short distance away. The clearing was like an oasis. There was no smoke and was completely unburnt. I was convinced the blokes in the back would be dead.”²⁸

10.3.12 At the time Mr Hollingworth got back into the truck after the unsuccessful attempt to cut the wire fence, Perc Nunn described the situation in the following terms:

“The vehicle was bloody near melting point. The plastic was melting, I knew we had no communications as Hollingworth had been trying to radio whilst I had been concentrating on driving and getting out. I just drove straight ahead though the fence, it was rough country, there were mine shafts, diggings as big as tables which I was driving straight through. I continued to drive and it wasn’t long after I had driven through the fence that I could see daylight again and could see a nice green patch of grass where I stopped the truck. I think it took about 20–30 minutes to get out but it is very hard to estimate the time. It seemed like an eternity.”²⁹

10.3.13 Whilst they were stopped in the clearing, Mr Boyd described Layton and Harrison attending to Hollingworth’s burns by putting saline solution onto his hands. Boyd continued:

*"I jumped into the cabin of the tanker and attempted to repair the radio, which was not working. We could not transmit and we could also not hear any other radio messages. The panel of the radio had come loose. I think because of the uneven terrain we had driven through. Layton then joined me. He hit the front panel and the radio began to work again. I attempted to call the Snake Valley Sub-Base but got no response. I then tried some other Region 16 channels and received a response from the Linton tanker. ...I got a message through to the Linton tanker that we were okay, but that we had an injured man who required hospital attention."*³⁰

10.3.14 The Snake Valley Sub-Base radio log records at "15.21."³¹

"Snake Valley 'A' communication regarding their position in the fire and that a person was injured."

Further, the log records at "15.24" another message relating to Snake Valley 'A' – that an ambulance was needed.

10.3.15 The entries in the log suggest that it was around 27 minutes from the time the Snake Valley 'A' tanker was initially surrounded by fire to the time it made it to the clearing and stopped. This is consistent with Mr Nunn's estimate. It is noted that Ray Hadler lit his burn from the corner of Pittong and Madden Flat Road at about this time.

10.3.16 Before the radio commenced working, Mr Nunn described:

*"I walked up over the hill to where I thought Pittong Road would be and as I am walking through the bush I was thinking these other blokes weren't much help to me because they were very traumatised at that time. This is why I left them at the truck. As I was walking through the unburnt bush I was pulling bark off the trees so I could find my way out if I didn't find anybody on Pittong Road. When I got to the top of the hill looking down at Pittong Road, I could see the blokes on the other trucks and there was an ambulance there as well. They enquired if I was alright and where were the rest of the crew. Aaron Foy who had first aid experience, walked back to the truck and assisted with attending to Hollingworth's hand."*³²

10.3.17 Mr Nunn then described what occurred:

*"We then got back into the truck, Snake Valley tanker 'A' and started to drive towards Pittong Road to get out. I understand that someone had started to back burn the bush, as we're in the State forest between Pittong Road and Madden Flat Road and we nearly got caught again. We detoured to avoid the flames turning left, it wasn't very savage and we would only have been about 100 metres away from the road, if that. When we got to the top of the hill, about 50 metres away from the road, Eric Hollingworth and a couple of others got off the truck and went to the ambulance. I couldn't drive direct to the road because there was a large embankment down 15–20 feet down. I made my way along so that I could get back out onto the road. ...I then took the truck back to Snake Valley."*³³

10.3.18 Mr Foy was working on the side of Pittong Road when he heard Perc Nunn calling. He stated:

*"We walked out a track back to the truck. Perc had told me they got caught in the fire and where they were. We got to tanker 'A' and got the people back onto the truck, Eric Hollingworth had burnt his hands so we organised for an ambulance to meet us when we got out. When we started to move off we ran into a back burn so I ran in front of the truck through the bush. One of the others got off the truck and helped me to move debris out of the way. We finally reached the road and got Eric into the ambulance. Our Brigade Captain Peter Smithers turned up, along with my father."*³⁴

10.3.19 Mr Foy then described taking the Snake Valley 'A' tanker back to Snake Valley Fire Station.

10.3.20 Mr Boyd described the events after Nunn and Aaron Foy returned to the tanker in the following terms:

"We must have looked like chimney sweeps. Foy saw what condition we were in. He told us to get on the truck and said that he would lead us out on foot. As he was

leading us out the track he was leading us to became engulfed in flame, which came from a north-west direction. He turned south and headed up the hill and came out on the same track but further up. I could then see Pittong Road down to our left. I noticed that an ambulance was present so Foy, Layton and Harrison took Hollingworth down through the trees on foot to the ambulance. Nunn and I then decided to drive up the track heading east parallel to the Pittong Road. We were intending to drive out onto Madden Flat Road.

All of a sudden there was a wall of flames facing us from the east. I commented to Nunn that this couldn't be the fire we had been in because that fire was behind us and because we had driven across unburnt ground between where the fire was and that point. I do not think the fire we encountered was a spot fire because the wind direction meant that spots from the fire we had been in would not have been landing in that area. Foy, on seeing our predicament, came over and helped us pick away to drive through the trees to get onto Pittong Road.”³⁵

10.3.21 Mr Boyd then said:

“We were then directed by the Snake Valley Brigade Captain Peter Smithers, who was on the Pittong Road, to return to the Fire Station at Snake Valley. ... At the Fire Station we were stood down for the duration of the fire.

*I had many bruises and a cut to my head as a result of being thrown around the truck.”*³⁶

10.3.22 Mr Hollingworth stated that after the truck stopped in the clearing he checked to see if everyone was alright and:

*“My hands were badly burnt and the left one was probably worse. I felt like I was still burning all over and I thought that I was worse than what we could actually see.”*³⁷

10.3.23 He said it was around 3.33pm when the saline solution was being applied to his hands,³⁸ prior to walking out to Pittong Road.

10.3.24 Mr Hollingworth then described being conveyed to the Ballarat Base Hospital in the ambulance.

10.3.25 In his evidence, Mr Nunn said:

“...One minute we were there putting out a couple of little spot fires, the next minute it was just a series of spot fires and it was like an explosion, it was, well, it wasn't a real good situation.

*Are you saying you were lucky to survive?—Very lucky. Very, very lucky. You wouldn't want to attempt it again and think you would get out – I wouldn't anyway.”*³⁹

10.3.26 Beaufort Group Officer Millar and Snake Valley Captain Smithers were at a point north-west of the fire when, according to Smithers:⁴⁰

“At 14.50 hours Snake Valley 'A' radioed to say that they were surrounded by fire and I asked them via Millar, who was operating the radio, if they could drive through the flames onto burnt ground. They answered negative and informed me they had one-third of a tank of water. ... I immediately made my way with Group GO Millar to try and locate the tanker. I was in my private four wheel drive vehicle and went to Pittong Road. We had trouble locating them as they had told us they were at the back of the fire when in fact they were on the western flank and ahead of the fire. At about 15.20 hours I was informed by radio that the tanker was out of the fire with an injured man. I called Snake Valley communications to see if an ambulance had been organised and my thoughts at the time were that we could get the ambulance and tanker to rendezvous at the Snake Valley Hall. I was aware when I was at Pittong Road that the injured person was Eric Hollingworth and that he had burnt hands. The tanker was no longer communicating via radio, however at this time I could actually see it travelling in an easterly direction on a track I knew to be on a ridge south of Pittong Road and was in unburnt ground. At this time the ambulance actually came into the area on Pittong Road. ...I turned the ambulance back and told them to wait at the intersection of

*Pittong and Rowlers Roads. I did this because I thought that was where the tanker would come out. After I did this I saw a fire burning in front of the tanker's path so the crew decided that rather than put the tanker through further flames, to stop and walk the injured man out. The tanker followed him down through bush and came out on to Pittong Road a short time later. I then went and got the ambulance and asked him to come back, which he did, and Hollingworth was taken away for medical attention. ... After this incident the crew were stood down and taken back to Snake Valley ..."*⁴¹

10.3.27 Mr Smithers further stated:

*'This fire which I saw from Pittong Road, was a result of a back burn lit along Madden Flat Road with a view to securing the eastern flank of the fire. In fact it enlarged the fire and was out of control and had crossed Madden Flat Road in a matter of minutes. I am not aware of any communication indicating the lighting of the back burn and I am not sure who lit it or who authorised it other than it was no-one from Beaufort Group.'*⁴²

10.3.28 As can be seen from the four diagrams in Appendix A2.4 to this Report (showing the course taken by the tanker) Snake Valley 'A' driven by Mr Nunn was endeavouring to drive back to the clearing and the gate to Pittong Road. Nunn ended up driving in a completely different direction. The clearing that the tanker eventually stopped in after travelling through the wire fence was some distance east of the clearing leading to the gate to Pittong Road.

10.3.29 The "second fire" that threatened the crew and tanker after Mr Nunn had walked to the Pittong-Snake Valley Road and returned with Aaron Foy, was the fire lit under the direction of Ray Hadler. It is dealt with in Chapter 11 of this Report.

10.3.30 It should be noted that in relation to the two spot fires which are illustrated on the diagram in Appendix A2.4 and are between the main fire and Madden Flat Road, there is some disagreement between the experts. This is dealt with later in this Report, regarding the existence and spread of those spot fires.

10.3.31 Mr Hollingworth gave evidence that he was treated at the Hospital but was not actually admitted.⁴³

10.4 Analysis of Strategy

10.4.1 In the "Operations Review of the Linton Fire/Midlands Fire"⁴⁴ there was an analysis conducted of the "Standard Fire Orders" and the "Watch-Out Situations" as they appear in the CFA Operations Guidelines, in relation to the circumstances surrounding the Snake Valley 'A' Entrapment.⁴⁵

10.4.2 In relation to the Ten Standard Fire Orders, the joint "Operations Review of the Linton Fire/Midlands Fire" commented in respect of:

"Standard Fire Order 1: Always stay in contact or tell someone where you are going

The Snake Valley crew did not advise anyone that they were going in to fight the spot fire.

Standard Fire Order 2: Know where the fire is and its direction

The Snake Valley crew did not realise that the main fire would cross, or had crossed the Pittong Snake Valley Road.

Standard Fire Order 4: Plan an escape route

The Snake Valley crew became disoriented, had no escape route and were unable to find their way back to Pittong Snake Valley Road.

Standard Fire Order 5: Park your vehicle in a safe spot

The Snake Valley ... Entrapment were parked over forest fuels with unburnt fuels on both sides ... they failed to realise the perilous situation they had placed themselves in and had insufficient time to extract themselves.

Standard Fire Order 6: Ensure your instructions are clear

The Snake Valley crew were attempting to stop the fire south of Pittong Snake Valley Road when this tactic had already failed.

Standard Fire Order 7: Build a fire line from a safe anchor point

The Snake Valley tanker was well away from any anchor point.

Standard Fire Order 9: Don't panic – keep calm and make logical decisions

In the case of the ... Snake Valley entrapment, it was decisions leading up to the entrapment which were critical to the entrapment and the outcome that followed.

THE 18 “WATCH-OUT SITUATIONS”

Watch-Out 1: Building a control line downhill towards a fire

In the Snake Valley ... entrapment, crews were working with the fire downslope of them.

In the attempt to stop the fire on Pittong Snake Valley Road, all tankers would have been upslope of the fire.

Watch-Out 4: The weather gets hotter or drier

The Snake Valley entrapment occurred close to the hottest and driest time of the day.

Watch-Out 5: In heavy cover, with unburnt fuel between you and the fire

In ... the Snake Valley ... case, crews were working with unburnt fuels between themselves and the fire.

Watch-Out 6: Terrain or vegetation impedes travel or visibility

The Snake Valley crews were working in forest and had their visibility restricted to about 100 metres.

In the Snake Valley case the tanker was driven through the forest. After their initial entrapment the driver was not able to find a route back to Pittong-Snake Valley Road.

Watch-Out 9: Frequent spot fires occur over your control line

The spot fire that the Snake Valley crew were attempting to extinguish was one of a number of spot fires which occurred at that time.

Watch-Out 10: You cannot see the main fire or communicate with anyone who can

The Snake Valley crew did not have communication with their Sector Commander or other crews. Consequently, no-one knew what they were doing. They were not aware of the location of the main fire front.

Watch-Out 11: Unclear instruction or tasks given

The Snake Valley ‘A’ entrapment occurred early in the fire. It would appear that because of this their instructions were not very detailed.

Watch-Out 13: Frontal attack on a fire or constructing a fire control line without a safe anchor point

The Snake Valley tanker was undertaking a frontal attack and did not have a safe anchor point.

Watch-Out 14: No communications linked crew members or supervisor and working alone

The Snake Valley crew did not communicate their intentions to anybody.

Watch-Out 15: Uninformed on strategy, tactics and hazards

It would appear that the Snake Valley crew failed to recognise the limitations associated with the tactic to stop the fire crossing the Pittong-Snake Valley Road.”

Watch-Out 16: Safety zones and escape routes not identified

The Snake Valley tanker entered an area which did not provide an adequate escape route or safety zone.

Watch-Out 17: Fire not scouted or potential assessed

The Snake Valley crew did not recognise the potential of the main fire when they approached the spot fire."

- 10.4.3** In relation to the Hadler burn, the joint "Operations Review of the Linton Fire/Midlands Fire" stated:

*"It would appear that the back burns were conducted without reference to the overall control strategy being implemented and without communicating what was happening to others on the fire line."*⁴⁶

- 10.4.4** The panel of experts in their report commented upon the fuel and topography in the area of the Snake Valley 'A' entrapment.⁴⁷

- 10.4.5** The panel stated that the fuel and topography was adequately described in the report of the "Operations Review of the Linton Fire/Midlands Fire", pp. 139 and 142. At those pages the following was said:

"Site Description

This section describes the two sites of interest in this incident, being the entrapment and fence breach location. Each site will be described in terms of topographic elements and vegetation and fuel assessment.

Entrapment Site

The initial entrapment site is located approximately two-thirds of the way up a prominent hill just south of Pittong Road, see Map 1 (Fig. 10.5). The slope to Pittong Road in a north, north-west direction is 10 degrees and in a north, north-easterly direction 8 degrees. The slope where the incident occurred is predominantly northerly.

*There is a section of unburnt fuels where the tanker crew deployed a water fog as a shelter from the radiant heat (see Photo 1) (Fig. 10.6). This unburnt site gives a good indication of the vegetation and fuel complex prior to the fire. The predominant tree species is Brown Stringybark (*Eucalyptus Baxteri*) growing to a height of 19 metres with little in the way of a shrub layer. There is tussock grass (*Poa sp*) at ground level, although the tussocks are fairly discontinuous.*

The fire history of this site is unknown, however the authors believe it has been unburnt for about 40 years owing to the lack of charring on the stringybark trees.

Fence Breach Site

This site is on the south side of the hill described above. The fire would therefore have been travelling down a hill of 8 degrees slope. The slope between the location that the tanker became immobilised and the fence is 5 degrees. The area near the fence has been worked by gold prospectors and there are numerous remnant mine shafts (see Photo 2) (Fig. 10.7).

*Fuel complex is very similar to that described for the entrapment site. In addition bracken fern (*Pteridium Esculentum*) is also present."*⁴⁸

- 10.4.6** At page 142 of the "Operations Review" the authors commented in respect of the north face of the hill, south of Pittong Road:

"In this vicinity the surface fine fuel loads were assessed as moderate, the elevated fuels as moderate and the bark fuels as very high. This results in an overall fuel hazard of very high, with the overall total fine fuel load being 10 t/ha.

Sampling of residual fuel loads conducted by the authors at another site in the same fire indicated that about 90 per cent of the fuel had been consumed, suggesting a drought factor of nine. It was determined by visual assessment that the residual fuel at this entrapment site did not differ substantially from the sampled site. Using a

drought factor of nine indicates a forest fire danger index of 38 at the time of the entrapment, almost double that indicated by the AWS data.

The tree height in this area was measured at approximately 19 metres, with full crown scorch indicating that scorch height exceeded tree height. Average flame height was measured at about 2 metres. There was no strong leaf freeze indicating variable direction of fire spread. Based on a rate of spread of 1.1 kilometre/hour and a 10 t/ha fuel load, the calculated intensity at this site is 5700 kw/m. This value probably represents the higher end of the intensity range as the rate of spread used in the calculation is probably not representative of the coalescing spot fire.”⁴⁹

10.4.7 In relation to the tactics employed by the Snake Valley ‘A’ tanker crew, the expert panel stated:

“The action of the Snake Valley ‘A’ tanker in attempting to suppress spot fires on a windward slope downwind of a head fire under the prevailing conditions was unwise. The panel finds it difficult to understand how local fire fighters did not appreciate the potential fire behaviour in a stringybark forest. However the incident does highlight the difficulties that fire fighters can have in understanding and appreciating the potential of forest fires to change behaviour.

When spot fires ignite immediately downwind of the head fire they may develop slowly in the lighter and variable winds caused because the prevailing wind is “blocked” by the convection of the main fire. In this zone spot fires can develop in a circular pattern and this can give the fire fighter an impression that the prevailing wind speed has dropped. If fire fighters become engrossed with suppressing the spot fires and neglect to monitor the position and behaviour of the head fire, they can easily be overrun with little warning as occurred in this instance.

Suppression of spot fires ahead of the main fire must be recognised as the most hazardous task in forest fire fighting and should not be undertaken by inexperienced people or without good intelligence (usually from the air observation) about the position of the head fire and other spot fires. In this situation (Snake Valley ‘A’) this operation was made even more hazardous by the difficult access and by old mine shafts scattered throughout the forest.”⁵⁰

10.5 Incident Reporting

10.5.1 As with other near-miss incidents on the day, only scant details of the Snake Valley ‘A’ entrapment found its way to the IMT. The Incident Controller, Mr Leach, gave the following evidence about the near-misses on the Pittong-Snake Valley Road and the Snake Valley tanker ‘A’ entrapment:

“... you didn’t find out about that on the day, those tankers that were lined up and the fire burnt over and they went into survival mode?—I didn’t, as I said, other than looking at a map and recognised firefighters may look at Pittong Road as a potential control line.

Would you now regard what you know about the Pittong Road as a near-miss incident?—Yes.

And ought that incident have been reported up to the IMT?—Yes.

As soon as possible?—Yes.

Why?—Well, I think information about near-miss events need to be communicated because obviously it is an indicator that something has gone wrong, and it may be an indicator, for example, that fire intensity is more severe, which is an indicator the fuels are drier, or the fuel loads are higher, or the weather conditions are affecting the fire worse than what we would have anticipated. It is an indicator that can be used to look at whether control strategies and tactics are appropriate.

...I suggest to you it is relevant because it is indicative of fire behaviour, that’s effectively what you have said?—That’s right.

And the more information the IMT has got about fire behaviour the better?—Exactly.

In terms of strategies and tactics?—Yes.

What about possible impact on the tasking of particular crews, is it important from that perspective as well?—It is, because the tasking of crews will be based around your tactics, you may have to modify the tactics because the conditions are different to what you might have known them to be.

Can I suggest to you, if you don't know crews have been subject to a burn-over, you necessarily don't know what sort of impact it has had upon them either, do you?—That's right.

Might it also cause the enforcement or reinforcement of safety issues?—Yes.

Down through the chain of command onto the fire ground?—Yes.

And again I think you have covered this, in a more general sense, it is indicative that something has gone wrong?—It is.

It might be a communication problem?—Yes.

Or it might be a tasking problem?—Could be a whole range of reasons, that's why it is important to get some feedback, so you can analyse what the actual issue is.

But you didn't find out about that particular incident on 2 December?—Not the burn-over on Pittong Road. The Snake Valley 'A' tanker entrapment I got some knowledge of later on, but not the Pittong Road.

That was quite late in the day when you got the knowledge of the Snake Valley 'A'?—Well, I was aware of the ambulance being despatched out there and then I arranged through Region 15 for a Critical Incident Stress peer to go to the Ballarat Base Hospital to meet Mr Hollingworth, as it turned out.

I was about to go onto that. That was really the extent of your knowledge of that incident on the day, the fact that a firefighter had been injured and it was necessary for an ambulance to take him to hospital?—That's right.

You weren't aware that the tanker was engaged in putting out spot fires at the front of the head of the fire, those sort of issues?—No.

That it got stuck in a mine shaft and managed to be extricated, the whole story?—I wasn't aware of that, no, I wasn't.

Would you classify that as a near miss-incident?—Yes.

For the reasons we have discussed it is important that the IMT know about it as soon as possible?—That's right.”⁵¹ (Emphasis added.)

10.5.2 Mr Mahoney was asked about the functions of the Operations Section in relation to the reporting and recording of special incidents and accidents. He was asked:

“Mr Mahoney, it is one of the functions of the Operations Section, is it not, to report special incidents and accidents?—Yes it is.

We have heard some evidence in relation to the Linton fire about a group of trucks being burnt over by the fire on the Pittong-Snake Valley Road and going into survival mode when that happened, have you since the fire become aware of that incident?—I have become aware since the fire.

You weren't aware of it on the day?—Not on the day, no.

What systems were in place to enable you to be made aware of such an incident?—Just direct reporting back through the chain of command, through the operations structure.

Is that type of incident, when a truck has to go into survival mode, is that the type of incident that you would regard as an incident that you should report up the line?—Yes, I think it is. I am not fully aware of the circumstances but, yes, if there is a burn-over or if the fire has jumped over some crew, yes, that should be reported.

Why is that?—A number of reasons, it obviously tells the Operations Section that the fire has crossed the road and if that was part of the strategy at that point, then it hasn't been held, which is, it means the strategy at that time has not worked.

Did you know that such a strategy –?—I didn't, no.

— was in place to line up on the road in front of the approaching head of the fire?— I was not aware of that at that time.

Is it relevant for other reasons as well?—Yes it is. Firefighter safety and yes, just to review it so people can be aware of the performance.

Like having a chat to the person responsible as to whether it was an appropriate strategy or not, is that the sort of thing you are talking about?—Yes, that's right.

We have also heard evidence about the Snake Valley 'A' tanker that was endeavouring to put out some spot fires in the forest in front of the approaching head and it becoming entrapped, again, have you read about that since?—Yes, I haven't spoken to the people involved but I have heard that they had to retreat from a paddock or something in that general area.

You weren't aware of the tanker becoming entrapped on the day, were you?—Not until later in the day when we heard – I think that is where someone had their hand burnt.

I was going to ask you about that?—Yes.

Whether you did get a message through that someone had burnt their hand?—We did get the message through that someone had burnt their hand.

Was that in the context of the overall incident being described to you, or simply the reporting of an injury?—Just the reporting of an injury.

Did you make a note of that or did you ask for a note of that to be made in your log?— I don't think I did.”⁵²

10.5.3 The Planning Officer, Mr Boadle, was asked:

“Have you also since the fire become aware of the entrapment of the Snake Valley 'A' tanker?—Since the fire, yes.

Going back to the day of the fire, were you aware of that incident on the day?—No.

In fact when you made your note, your first note about 'one fireman, burnt hands', if you go to page four of your log?—(Witness complies).

I think at the top of that page there is a time, is it 4.32?—Yes.

And five lines down, 'one fireman, burnt hands'; is that the first time you became aware of a fireman having burnt his hands at the time you made that note?—Yes I believe so.

Was that as a result of being told about that at a meeting at the IMT?—That's right, yes.

Was that the extent of the information that was provided, simply a fireman had burnt his hands, or did you get details of the Snake Valley 'A' entrapment?—Not the incident, other than he had been taken off to hospital. The details of the incident, no.

The Inquest has heard evidence of some other incidents on that day, in particular, a back-burn or burn-out having been lit from around the corner of Madden Flat Road and Pittong-Snake Valley Road travelling south down that road?—Yes.

Do you know about that now?—Yes.

Did you know about it at the time, that that activity was taking place?—Only after it actually occurred and we were, again I think it was an Incident Control meeting, and we advised that a back-burn had been lit and that it had virtually, the main fire had virtually caught up with it again by that stage.

...Were you aware on the day of the fire of a group of CFA tankers being burnt-over and going into survival mode near the corner of Possum Gully and Madden Flat Road?—No.

Have you since become aware of that?—Yes.

Those incidents that you are now aware of, are those the sort of incidents that would have been helpful to the Planning Unit on the day in the carrying out of its function?— Yes, it would be, as is all information, yes.

They are pretty good indicators of fire behaviour, aren't they?—Yes.

Are you able to identify why it was that the Planning Unit didn't get that information in a timely fashion?—No, I don't think I can

What I am asking is a broader question, you know about them and whether you have thought about the systems and basically what went wrong in not getting that information through?—No, I don't know why we didn't get that information. I can't explain why we wouldn't have got that information earlier.”⁵³

10.5.4 According to the AIIMS-ICS Manual (“Incident Control System & The Operating System of AIIMS”) it is the role of the Operations Sections to “report special incidents/accidents”, and:

- “Obtain information from:
 - subordinates;
 - personal observations;
 - ground or air personnel;
- Information required:
 - nature of event;
 - location;
 - magnitude;
 - personnel involved (no names over radio);
 - initial action, and
 - subsequent action.
- Request assistance needed (eg helicopter, ambulance, tow truck etc).
- Submit report to Incident Controller.”⁵⁴

10.5.5 The obtaining of this type of information is critical to the IMT carrying out its functions.

10.5.6 Mr Harris was asked about this entry in the AIIMS-ICS Manual:

“The next dot point is ‘Report Special Incidents/Accidents’. Before you answer the question in relation to that incident, I want to ask you about a couple of incidents that the Inquest has heard evidence about, the first being the number of tankers lined up on the Pittong-Snake Valley Road in an attempt to put out the fire as the head of the fire approached that road, and a number of tankers went into survival mode as the fire went across the road. Were you aware that that happened on the day?—I can't recall whether it was on the day or afterwards.

There is certainly no note in your log of that incident is there?—No there is not.

Likewise you now know of the Snake Valley ‘A’ tanker entrapment?—Yes I do.

Did you become aware of that on the day?—No, that was afterwards again.

You did become aware at some time during the day, didn't you, that a firefighter had been taken to hospital with burnt hands?—Again, not a firefighter, I had a name and I thought he was a civilian.

So you didn't have any details about the Snake Valley ‘A’ entrapment?—No I didn't.”⁵⁵

10.5.7 Mr Harris was then asked some questions about the loss of Mr Lightfoot's utility. He was asked:

“Do you think that is a significant incident that ought have been reported to you?—It certainly should have been reported either to me or to the IMT along with the other incidents.”⁵⁶

10.5.8 Mr Harris was later asked:

“Are those sort of incidents the ones we have just been through, are those the sort that you understand that dot point would relate to?—Yes it is.

Were there any special incidents or accidents that were reported to you on the day of the Linton fire?—Not that I can specifically recall, no.

When it says “Report”, it presumably means you have to report them to somebody too, is that what that means?—That would be right, Your Worship, it would also be a prompt for perhaps safety warnings to personnel.”⁵⁷

10.5.9 Mr Harris was then asked about the importance of such reports:

"Are those sorts of incidents important for a number of reasons, including that they can give an indication as to fire behaviour, the way the fire has been behaving during the course of an incident?—That would be correct.

Are there any other reasons why that sort of information is important to be reported to the Incident Controller?—That type of information would also be important for other administrative reasons, making sure if repairs were required they could be done, we have already talked about the fact that if there are incidents or accidents happening then they need to be put out as warnings to make sure that certainly anything like that coming in would be, or should be, widely reported.

Aren't they also an indication for a greater level of supervision on the fire ground in relation to the safety issues?—Sorry, the need for a greater level of—

*The potential for a need for a greater level of supervision on the fire ground?—Yes, I would agree with that."*⁵⁸

10.5.10 Mr Tange, who was in charge of the Situation Section of the Planning Unit, gave evidence regarding the importance of reporting near-miss incidents. He was asked:

"Have you documented incidents? For example, did you receive information on the Snake Valley 'A' entrapment in this fire?—No I was unaware of that, Your Worship.

Did you receive any information on Mr Lightfoot's ute being burnt?—Not at the time of the fire, no, Your Worship.

*Would that be the sort of information you would put in the General Comments Section if you got it?—Yes I would."*⁵⁹

10.5.11 Mr Britton was asked some questions about information flowing back to the IMT from crews on the fire ground, in particular an entry in the FAI Report⁶⁰ recommending:

*"All fire crews must adopt the practice of recording and/or reporting the position of fire fronts and flanks of a fire at the time of arrival, the passage of the fire at key reference points and any significant event such as wind changes, erratic fire behaviour etc. Such reports should be made to the Incident Management Team Situation Officer. Reports received at Brigade and/or Group Communications Centres during the early stages of a fire should be forwarded to the Situation Officer when the IMT has been established."*⁶¹

The following questions were asked:

"Looking at Linton on that day, there are a number of things that you should have been aware of, I would suggest to you, if that was being applied?—That's correct.

Can I suggest to you that what happened on the Pittong-Snake Valley Road where the fire crossed the road would fall into that category?—Yes I would agree.

The fire behaviour, the spotting and so on which led to the entrapment of Snake Valley 'A' would fall into that category?—Yes it would.

You would have seen in the video that was shown to you during the break where there is a dramatic change in the fire behaviour on that video?—Yes.

Accepting from me that that video was at Madden Flat Road?—Yes.

That would be something that should be reported?—I would agree.

And the destruction of Mr Lightfoot's ute is a significant matter of the behaviour of fire that should be reported?—Yes I would agree.

On the day at Linton did you expect that those things would be reported to you at the Operations Point?—The way that we were operating at the Operations Point, I remained at the Operations Point and my focus was to contact and liaise with the IMT, and I was relying on Mr Phelan to be our field based person. Now whether Mr Phelan was made aware of those matters in relation to the fire behaviour, I don't know, but I expect probably from his own observations and those that he was reporting to and taking information from, that he would have been aware of that. It wasn't conveyed to me in the terms that perhaps are conveyed in the document, but certainly I was aware of the loss of Mr Lightfoot's utility.

...So far as you were aware, the fire behaviour as opposed to the injury and loss of the vehicle was not something that you were made personally aware of?—I wasn't made personally aware of it but certainly I would believe, it probably needs to be discussed with the individuals involved, that would have been part of the discussions between Des Phelan and Bob Graham.

They represent important matters, don't they, in terms of planning the fire?—Yes I would agree.

They were significant examples of change in fire behaviour suddenly?—Yes I agree.”⁶²

10.5.12 Mr Anderson was also asked about the reporting of near-miss incidents.

“What about briefings in relation to incidents that had occurred during the course of the day on the fire ground, was anything done at the Operations Point that you are aware of to ensure that Strike Teams at the Staging Area were given proper briefings?—Not that I am aware of.

Did you know of the Snake Valley 'A' entrapment, Mr Lightfoot's ute, the Madden Flat incident, did you know of any of these incidents?—Your Worship, I knew about the Snake Valley 'A' entrapment, I didn't realise at the time the consequences thereof, I knew Mr Hollingworth had been taken to hospital and I actually reported that to the Region Headquarters. In terms of Mr Lightfoot's ute, I did not find out about that until very late in the night, Mr Lightfoot saying: “I'll have to get a new ute”, and the third incident, I don't know what you are referring to.

You don't know anything about Madden Flat?—No, Your Worship.”⁶³

10.5.13 Mr Welsh was also asked:

“There was also a matter I think that you made reference to on page four of your statement concerning Mr Millar, that he was concerned about tankers being in unburnt ground and off-made roads, do you recall saying in your statement he was concerned about tankers being in unburnt ground, is that what can also happen?—Yes, people can get entranced while putting a fire out and find themselves in difficult situations on unburnt ground, you know, and it is our group, the Beaufort Group's practice that we enforce that, Strike Team Leaders, you must enforce the statement all the time. It doesn't hurt.

On that particular day the suggestion is he was concerned about them being in unburnt ground, was that the case, were tankers away from the burnt ground or was it simply a matter of reinforcing again?—I think it was just to reinforce it, I don't think at that particular time the other part of the question would apply, you were just enforcing the safety angle.

Snake Valley 'A' was in unburnt ground, wasn't it?—Yes, but, Your Worship, I was unaware, I don't know if Group Officer Millar knew that or not at that stage.

Effectively I am giving an example of one tanker that was in unburnt ground?—Yes, and after the may day it made us all very cautious to see what had happened.

Did it in fact then transpose to the rest of those fighting the fire in the southern sector to make them more cautious?—I believe it did.

How?—I believe where I was involved in operations after the Snake Valley 'A' entrapment that they were more receptive and more careful.

How many of them actually knew of the Snake Valley entrapment?—The word gets around fairly quickly and we had a tanker that was damaged and which ...

Geelong West, for example, did they know of it?—No.”⁶⁴

10.5.14 It must be noted that Mr Welsh was engaged in the fire fight with the Region 16 resources north of the Pittong-Snake Valley Road and had little or no contact after the initial response with Region 15 resources. Likewise, Millar ran the fire-fight north of Pittong Road as a Group fire and had no knowledge of or contact with the IMT or chain of command. Apart from the brief contact with Anderson at about 4pm nobody attempted to include Millar and the Region 16 resources in the incident structure.

- 10.5.15** The Expert Panel was asked about the Snake Valley tanker 'A' entrapment, in respect of what it should mean to the IMT:

"...Is there something that needed to be done as a result of that incident?

Dr Tollhurst: I think the main – to agree with Dr Burrows, the main thing that it all starts to show is it is becoming a complex fire even though it is relatively small, and because of the complexity, you make sure that you set up a structure that can deal with that, and in NRE terms you would be setting up probably a Level 3 fire operation instead of perhaps a Level 2, for example, because of the complexity as a result of that, but the strategy would remain the same.

*Dr Burrows: Just to comment, I guess the series of incidents you have outlined would indicate to me if I was on the Incident Management Team, that we do have an issue with respect to experience and training, if you like, in that the competency or capacity of people to fight forest fires."*⁶⁵

- 10.5.16** Mr Sanders, along with the rest of the IMT was not aware of the near-miss incidents. He gave evidence that it was important for the IMT to have that sort of information, and further:

"It may cause the enforcement or reinforcement of safety issues, mightn't it?—Yes.

And it could alert the IMT, apart from anything specific, if there is a number of these near-misses in a short space of time, you would be likely to think at the IMT, wouldn't you, "What is going on here? We better have an in-depth look at communication lines, lines of command", those sort of things?—It would stimulate some discussion with the Operations about aspects.

Because the IMT is just not reactive, it is proactive as well, isn't it?—I should hope so, yes.

If you found out about a number of near-misses with tankers going into survival mode, would you want to find out what is going on, to check if anything was going on wrong?—Through the chain of command, yes.

*Ultimately it is the IMT's responsibility, and ultimately it is the Incident Controller's responsibility for the safety of all personnel on the fire ground, isn't it?—Well, the Incident Controller has a responsibility for those they supervise and that sort of cascades down through the chain of command."*⁶⁶

- 10.5.17** Mr Phelan was asked about his knowledge of the Snake Valley tanker 'A' entrapment:

"Tell me, when you observed the Snake Valley 'A' tanker, did you ask any questions or seek any information about what happened?—About that time, Your Worship, I spoke with Mr Millar and he indicated to me that there – someone had been burnt or had their hands burnt on that tanker.

Did you enquire at any stage as to what happened to them and how they came to get into that situation?—I was told that they went out to round up a spot fire, and that's all I was told.

They didn't tell you where they went or —?—No.

*Do you think you should have enquired?—Well from my point of view, Billy Millar was looking after that tanker and, I suppose in hindsight I should have enquired but I didn't."*⁶⁷

- 10.5.18** Mr Graham was also asked about the near-miss incidents:

"Did you know about the Pittong-Snake Valley Road attempt to stop the fire?—No, Your Worship.

You weren't aware of that?—Not in its entirety.

Were you aware of some of it?—Yes, John Sanders asked me did I know about a firefighter who suffered a burn injury in that area. I didn't. I went through my Deputy, Mr Britton, to get some information on that, we got some sketchy details back, but most of the information of that came in a de-brief later.

After the event?—After the event.

There are two separate incidents, there's the Snake Valley 'A'?—Yes.

There's the Snake Valley 'A' and there's the Pittong-Snake Valley Road incident, two separate incidents there?—Yes.

You weren't aware of the fact there were two separate incidents?—Not until after the event,....”⁶⁸

10.6 Submissions

10.6.1 The Volunteer Associations submitted:

“The above assessments reflect the net result of the crew of Snake Valley 'A' tanker having received no briefing concerning the larger scale picture of the fire as it approached Pittong-Snake Valley Road generally, and no instruction or other adequate basis for being able to accurately assess what the width of the main fire front was, what the fire was doing and the potential for danger. The state of mind of the Snake Valley 'A' crew also reflects a lack of any briefing at all on deployment in circumstances where the crew of Snake Valley 'A' were, for all practical purposes, left to self deploy and to rely on their own experience and personal resources.”⁶⁹

10.6.2 The Volunteer Associations correctly submitted:

“...The circumstances in which the Snake Valley 'A' tanker found itself alone in this paddock are a clear reflection on the need to ensure, so far as is possible, that resources are not deployed at all until the best fire intelligence is available and until a properly thought through and planned strategy for fire control is decided upon. This failure in turn points to the very positive need for serious instruction in, and reinforcement of, the AIIMS-ICS system of fire management to be in operation from the outset of the fire. There needed here to be initial assembly, resourcing and a true planning of the operation to be well in place before deployment occurred. If the culture of AIIMS-ICS is to become ingrained, the instruction and training and its implementation from likely command personnel down through to the ranks to firefighters needs to be seriously ingrained into firefighting personnel and, in particular, ingrained into persons who are likely to be in command positions on the fire ground in the early stages of the fire.”⁷⁰

10.6.3 The Volunteer Associations further submitted:

“There was no structured system existing for resources to be organised and deployed according to clear instructions and there was no developed plan or strategy for the control of the fire which was based on reliable or appropriate information.”⁷¹ (Emphasis added)

And continued:

“...It is known from other evidence given by other witnesses that for quite some distance to the east of Nunn's paddock and in effect, around the corner and out of view of the Snake Valley 'A' crew, the common thread of the evidence was of the main fire spotting over Pittong-Snake Valley Road over a wide distance and for quite some time before the main fire managed to develop itself to the south of Pittong-Snake Valley Road.”⁷²

10.6.4 The Volunteer Associations correctly emphasised:

“What is highlighted is the importance of crucial decision making concerning tactics and that such decision should be made after a full analysis of conditions and in reliance upon the best objective information available.”⁷³ (Emphasis added)

10.6.5 The Volunteer Associations observed:

“The most fortunate outcome of this event is that the crew, who all acted bravely in pursuit of the interest of the community and its welfare, have come through this experience without loss of life. ... Members of the Snake Valley 'A' crew were at all times acting in a community spirited manner, and for this, they are to be congratulated.”⁷⁴

10.6.6 The CFA submitted in respect of the Snake Valley 'A' entrapment:

*"From the CFA's perspective the lessons of this incident are clear. The watch-outs must be adhered to. It is not expected that firefighters should place themselves in a position of risk to ensure that a strategy succeeds. **The AIIMS command structure must begin at the commencement of an incident, and be adhered to. In this way self deployment can be minimised. Each of these issues were part of CFA training and learning before Linton.** They have been given greater emphasis since Linton."*⁷⁵ (Emphasis added)

10.6.7 In relation to the reporting of near-miss incidents, the CFA submitted:

"CFA recognises that it is important that information concerning that type of incident be conveyed to those responsible for managing the fire, including the IMT. Since Linton, the CFA has taken steps to have those incidents reported. See Roche statement, attachment 5. Chief Officer's Standard Operating Procedure, 3.07, clause 1, requires: 'All accidents/incidents should be reported immediately where practical to the relevant OIC/Supervisor/Manager/OHS representative This includes accidents that result in:

- An incident that has the potential to cause serious injury or damage (near-miss)."*⁷⁶

10.6.8 The following submission of the CFA is of significant concern:

*"Although it is important that incidents such as those detailed above are reported expeditiously, nevertheless, on the evidence, the fact that they were not reported in respect of the Linton fire did not materially affect management of the fire or the strategy implemented. ...Further, even if a stringent system of reporting were introduced, the question arises as to just how much information would be received by those managing the fire. ...Given the dynamic nature of a wildfire, and given the exigencies of the situation, information obtained by those managing the fire may be far more limited than the detailed information which later becomes available during processes such as an Inquest. While it is important that fire ground incidents be properly reported, it is a matter of conjecture as to just how much information would have been conveyed to the IMT, even if a more stringent process of reporting had been implemented."*⁷⁷

10.6.9 It is purely speculative to suggest (as the CFA has) that the fact that this incident and the Pittong-Snake Valley Road burn over were not reported *"did not materially alter the management of the fire or the strategy implemented."* If the evidence given by witnesses, as set out in Chapter 10.5 is true and common sense indicates that it is, then those in the IMT would have realised the fire was more dangerous than thought and, crews were not coping adequately. This would have required a re-consideration of the use of CFA crews in the forest and, at the very least, have required strict attention to the competency and supervision of such crews in the event of their continued deployment in the forest.

10.6.10 Further, CFA crews should immediately have been prohibited from lighting up extensive areas of forest as was done by the Hadler and Lightfoot Strike Teams. Finally, it might be thought that involvement of a gold mine in the Snake Valley 'A' entrapment would have led to:

- A warning to all crews to beware of the presence of gold mines; and
- A careful consideration of where control lines should be placed to avoid areas of heavy mining,

10.6.11 In so far as the information made available is concerned it need not be of great detail to be adequate. The crucial information from a tactical point of view in the Snake Valley 'A' incident is:

- The tanker was operating in Stringy Bark forest in front of the advancing head of the fire;
- There was spotting some distance in front of the head;
- The tanker was attempting to put out those spot fires;
- The head of the fire crowned over the Pittong-Snake Valley Road;

- The tanker was engulfed by spot fires and the head of the fire; and
- The tanker was bogged in a gold mine while escaping the fire.

10.6.12 A competent officer at the IMT (with knowledge of the principles taught as set out in Chapter 6.6) would have made the following deductions from these facts:

- The fire was of too great an intensity to attack the head;
- That it is dangerous to burn extensive areas of forest because of the risk of spotting and increasing the intensity and size of the fire;
- There was inadequate supervision of the Snake Valley A tanker; and
- Gold mines would be a danger to people on the fire-ground.

The IMT would then, of necessity, have had to factor these matters into the Incident Action Plan to ensure the safety of other firefighters at the incident.

10.7 Conclusions

10.7.1 The five volunteer crewmembers of the Snake Valley 'A' tanker were very lucky to escape with their lives. The incident provides a graphic example of the danger of *uncoordinated and uninformed* activities being undertaken on the fire-ground. It is noted that, after the incident, the tanker crew proceeded in the opposite to the way they were actually intending to exit from the area where they were almost trapped. Also on leaving the site they were faced with a fire travelling south, which had been lit by Mr. Hadler near the corner of Pittong Road and Madden Flat Road.

10.7.2 Had the Snake Valley 'A' incident and the Pittong-Snake Valley Road burn over been reported through the chain of command to a competent officer in the IMT (which had been established by the time these two incidents occurred), there was real potential to improve the management on the fire-ground and alter the eventual outcome.

Had AIIMS been in operation and there was proper reporting of the two earlier incidents (also the later Madden Flat burn over and Lightfoot utility incineration) this would have significantly improved the chances of a different outcome. With competent officers in command at the IMT some safety and operational management would have been put into the fire at the fire-ground. Had this occurred, and AIIMS was effectively operating, it is likely that the Geelong West entrapment would have been avoided.

10.7.3 The doubt expressed in the CFA's submission as to *"just how much information would be received by those managing the fire"* if *"a stringent system of reporting were introduced"* is troubling. If information as important as the *"near miss"* incidents that occurred in the Linton fire before the deaths of the Geelong West crew cannot be relayed by the system of work to the IMT, then there are serious problems for continued safe and efficient wildfire suppression. In part, the IMT relies on information and intelligence from the fire-ground to analyse fire behaviour, prepare incident action plans, situation reports and develop strategies to tackle the fire. Information as to the performance of the fire and how the fire crews are coping is vital for a safe and efficient operation. Near miss incidents on the fire-ground are an important part of the vital intelligence picture for continued safe management of a fire. The IMT *must* have this information in a timely way in order to do its job of managing the fire and looking after the safety and welfare of those working on the fire-ground.

10.7.4 The Snake Valley 'A' incident should be sufficient to ensure that the CFA enforce a system of orderly requests for resources, assembly of resources, assessment and analysis of all available information on the fire. It should be sufficient to demonstrate to all firefighters the benefits (for safety and operational efficiency) of orderly management of resources and the timely provision of incident information to the IMT. What is also required is an IMT that is operating efficiently and effectively, under AIIMS-ICS principles with a constant eye to the safety and welfare of all those working on the fire-ground. This is not what happened at Linton.

Pittong/Madden Flat Road Back-burn

11.1 Command Structure

- 11.1.1 As was observed in the joint *“Operations Review of the Linton Fire/Midlands Fire”*,¹ the potential for a significant fire at Linton on 2 December 1998 was recognised early and a multi agency management team had assembled at the Level 3 Incident Control Centre at Ballarat.
- 11.1.2 Mr Greg Leach arrived at the Incident Control Centre at about 2.00pm and met John Sanders, a DNRE officer. At this time, Leach, Sanders and Brad Mahoney, another DNRE officer, commenced setting up the Joint Agency Incident Management Team (“IMT”).
- 11.1.3 The three of them decided, in accordance with the terms of the Multi Agency Incident Management Agreement², that Mr Leach would be the Incident Controller.³
- 11.1.4 Management personnel, being Senior DNRE Officer Bob Graham and Senior CFA Officers Anderson and Britton, were sent to Linton to establish a Forward Operations Point. Graham was to carry out the role of Operations Officer at the Forward Operations Point.⁴
- 11.1.5 By the time the Forward Operations Point was set up, many DNRE crews and CFA tankers had arrived at the fire and were deployed in the way described in Chapters 8 and 9 of this Report.
- 11.1.6 As indicated in Chapter 8, Mr. Des Phelan, the Grenville Group Officer, was one of the first Region 15 CFA volunteers to arrive at the fire scene. He arrived at about 2.00pm.
- 11.1.7 Mr Phelan asked Ms Knight, the Grenville Group Communications Officer, to arrange for tankers from his Group to attend the fire. He also spoke with DNRE officer Murray Fullerton on his arrival. When he attended at the fire, Phelan observed that the fire was approaching the Pittong-Snake Valley Road from the north. As the Grenville Group Officer, crews arriving at the fire from Region 15 looked to him for direction.
- 11.1.8 At about 2.20pm Mr Phelan directed the Grenville Group tankers, east of the fire flank, to go along the Pittong-Snake Valley Road to see if they could stop the fire crossing the road.⁵ One of those tankers was the Rokewood Junction tanker with Ray Hadler, the Brigade Captain in command.
- 11.1.9 On the western part of the Pittong-Snake Valley Road, the fire burnt over a number of tankers whose crews went into survival mode. This was fully considered in Chapter 9 of this Report. The fire behaviour as it crossed the Pittong-Snake Valley Road on the eastern flank appears to have been less extreme. In any event, the tankers in that area including the Rokewood Junction tanker realised that they were unable to stop the fire front, largely because of the spotting activity of the fire, and withdrew beyond the eastern flank of the fire as it crossed the road. A number of witnesses describe the uncontrollable spotting of the fire near the eastern flank and that is set out in Chapter 9 of this Report.
- 11.1.10 One such witness was Mr Ray Hadler who gave evidence that as the fire approached the Pittong-Snake Valley Road, the spotting increased and it became apparent that the fire could

not be stopped from crossing the road. He said that he and the other trucks withdrew further east along the Pittong-Snake Valley Road towards Rowlers Road, out of the line of the fire front.⁶

- 11.1.11** By around 2.30pm Messrs Graham and Britton had arrived at Linton. At about 2.36pm a radio message was sent to Phelan, who was still on the fire ground, by Ms Knight. The message was for Phelan to return to Linton and meet with Graham. Phelan's response to the message was: *"I might go to Linton after I get this a bit organised here Alice."*⁷
- 11.1.12** It is clear that the eastern flank of the fire was identified at an early stage as the likely problem area of the fire.⁸
- 11.1.13** At around 2.50pm there was a meeting in Linton between Messrs Graham, Britton, Phelan and Lightfoot.
- 11.1.14** It was also around this time that Mr John Kavanagh reported to Phelan that the fire had crossed Pittong Road. Alice Knight broadcast that information on Channel 15A at 2.46pm.⁹
- 11.1.15** At 3.05pm Mr Phelan advised Kavanagh, who was on the eastern flank of Pittong-Snake Valley Road, that he was working on getting a dozer to go in and had about *"15 trucks on their way in."*¹⁰ This included the Lightfoot and Taylor Strike Teams. At the meeting in Linton, a communications plan was decided upon. It was the Region 15 Default Plan. As far as Region 15 was concerned, Channel 15A was to be the command channel and 15B the fire ground channel. Separate arrangements were made for DNRE communications. General messages were put out by Ms Knight at 3.07pm on Channel 15A. These messages do not make it clear what channel Strike Team Leaders should be on.
- 11.1.16** The message by Ms Knight was:
*"A general message for all Grenville Group trucks would you please turn to channel 15B repeat would the Grenville Group trucks please turn to channel 15B. Group Officer Phelan will stay on 15A as well as aircraft."*¹¹
- 11.1.17** Mr. John Anderson gave evidence that he telephoned the communications plan that had been agreed upon through to Region 15 Headquarters in Ballarat, with a request to pass it on to the IMT.
- 11.1.18** It is apparent that the meeting involving Messrs Graham, Phelan, Britton and Anderson was still going on at 3.13pm. It was at that time that Lightfoot told the pilot O'Rorke that:
*"Aircraft this is Buninyong Group Officer...I'm at Linton...we're having a meeting at the moment...can you just give us an update on the fire...."*¹²
O'Rorke reported that:
*" the fire has crossed the Pittong Road and is about 1 kilometre south of that and there are several spot fires about half a kilometre in front of that in a direct line with the north west corner of Linton probably about 3 or 4 K from Linton at this stage..."*¹³
- 11.1.19** Mr Leach gave evidence that by 3.00pm he was receiving Situation Reports from the Forward Operations Point. The evidence regarding Leach's understanding of the strategy of trying to halt the fire spread at Pittong Road and the understanding and involvement of Phelan and Graham in that strategy was examined in detail in Chapter 9.
- 11.1.20** Here, it is sufficient to reiterate that, after Mr Leach received the information that the fire had crossed the Pittong Road, it was decided to expand the number of people in the IMT. Mahoney, who had been the Deputy Incident Controller, became Operations Officer and DNRE Officer, John Sanders became Deputy Incident Controller.¹⁴
- 11.1.21** At 3.17pm Mr Phelan told Kavanagh that a bulldozer was coming and that he (Phelan) was about to go and meet it.¹⁵
- 11.1.22** At the same time, Mr Phelan also advised Lightfoot that he would *"be there shortly,"* that is, at the corner of Possum Gully and the Linton-Snake Valley Road.

- 11.1.23** Also at about the same time, Mr Phelan asked O’Rourke for a report on where the fire was, and in particular how far from a fuel reduction burn the fire was so that:
- “... we believe if in fact it’s near the burn we’d probably be able to put a burn in from there and cut the front of it off.”¹⁶*
- 11.1.24** At 3.21pm Mr Lightfoot told O’Rourke that he and Phelan were going down to the Linton-Snake Valley Road.¹⁷
- 11.1.25** At 3.26pm Mr Lightfoot called Phelan on Channel 15A to advise him that he was at Possum Gully Road. Phelan said: *“We might go down there”*. Lightfoot said: *“Just looks as if it is way past us, that’s all”*.¹⁸
- 11.1.26** At 3.30pm Mr Phelan told Alice Knight that the fire: *“is well over Possum Gully Road”*.¹⁹
- 11.1.27** At 3.31pm Mr. Kavanagh made a *“mayday”* call to Phelan for an ambulance²⁰ as a result of Snake Valley ‘A’ crew member, Eric Hollingworth burning his hands when the tanker became entrapped, as described in Chapter 10.
- 11.1.28** Following the meeting at the Linton Fire Station, Messrs Phelan and Lightfoot, along with Lightfoot’s Buninyong Strike Team headed down the Linton-Snake Valley Road. They met Buninyong Group, Deputy Group Officer John Taylor at the corner of Possum Gully Road and the Linton-Snake Valley Road. There were a total of 9 tankers. Taylor and a four tankers went back to Linton and then towards the western part of the fire to look out for and attend to any spot fires.²¹
- 11.1.29** At this time, on the northern side of the Pittong Road in Region 16, Beaufort Group personnel Messrs Millar, Wyllie, Welsh and Smithers were endeavouring to manage Region 16 resources.
- 11.1.30** DNRE Officer Murray Fullerton had assumed control of DNRE resources that were operating north of the Pittong Road. Not including the tankers that were self-deploying, beyond any management structure (as set out in Chapters 8 and 9), there were three separate management units in place, CFA Region 16, CFA Region 15 and the DNRE. Both CFA Groups knew that the DNRE resources were endeavouring to track the fire from as close to the point of origin as possible, with a first attack bulldozer. The two CFA Groups however did not seek to coordinate their activities and operated independently. They had no idea of the strategies being developed and tactics being employed by the other.
- 11.1.31** Although the IMT had been established in Ballarat, the Forward Operations Point established and the meeting conducted at the Linton Fire Station as described above, no control had been exerted by the IMT over resources at the scene. In particular no attempt had been made to this point to bring the resources operating north of the Pittong-Snake Valley Road into an AIIMS-ICS structure under the control of the IMT at Ballarat. The command structure was fragmental and was not a single structure covering the whole fireground.

11.2 Initial Assessment of Fire

- 11.2.1** Mr Ray Hadler, having observed the behaviour of the fire and in particular the spotting realised that it could not be stopped at the Pittong Road by an attack on the head. He stated:
- “By this time it was starting to get quite hot there so we pulled back towards Snake Valley. I took my truck to the intersection of Snake Valley-Pittong Road and Rowlers Road out of the fire line.”²²*
- 11.2.2** It was at this point that Mr Hadler noticed a Shire grader. Hadler gave evidence that he:
- “...thought it would be a good idea to use the grader to either get to the ‘spots’ or to help form a break where we could cut the fire off.”²³*
- 11.2.3** Mr Hadler said that he took his truck down the Pittong-Snake Valley Road to where Kavanagh was, to talk to him about using the grader. Hadler says that Kavanagh was unable

to speak to him because he (Kavanagh) was occupied, endeavouring to obtain an ambulance for an injured firefighter. Hadler's evidence is that he then returned to the grader and contacted Phelan by radio.²⁴

- 11.2.4** At 3.24pm Mr Hadler spoke to Phelan by radio.²⁵ Hadler gave evidence that he regarded this radio transmission as his approval for the course of conduct he then engaged in. The transcript of the transmission is as follows:

"Group officer Phelan, Rokewood Junction Captain...

Go ahead...

*Yeah Des, we're up near Rowlers Road and there's a grader here can we put it to use or not ... just wondering if we can put it in round the edge back towards Linton..."*²⁶

- 11.2.5** Mr Hadler's evidence was that this communication was his authorisation and that Phelan left it up to him to decide if he should light a "back-burn".²⁷

- 11.2.6** Mr Hadler stated that:

*"A back-burn is where you burn from a safe line back towards the fire, burning out the country that the fire is headed to. This is a benefit because all of the fuel ahead of the fire is burnt out and the fire can burn itself out."*²⁸

- 11.2.7** Mr Hadler said that his aim was to burn-out the forest, west of Madden Flat Road and north of Possum Gully Road, to stop the fire north of Possum Gully Road.²⁹

- 11.2.8** It must be noted that the radio communication in respect of which Mr Hadler states was his approval to carry out the back-burn, does not refer to a back-burn or burning out or anything of the kind. Hadler's evidence was that he believed approval to "track the edge of the fire" included approval to carry out back-burning activity. Phelan agreed with this evidence, saying that even though it was not mentioned, he knew in his "subconscious" that Hadler was going to light a burn.³⁰

- 11.2.9** Mr Phelan gave evidence at these Inquests that he spoke to Hadler in person after the burn was lit, at the corner of Madden Flat Road and Pittong Road and told him that the burn was a "good strategy".³¹ Phelan had earlier given a similar version of events in a tape-recorded interview with police that occurred on 24 August 1999.³² In earlier statements made by Phelan there was no mention of him giving any personal approval to Hadler to conduct the burn.

- 11.2.10** In his interview with police, Mr Phelan referred to the in-person conversation with Hadler as the approval for Hadler's activities. No mention was made of the radio communication. Hadler's evidence was that he did not speak to Phelan in person about the burn until later, on the night of the fire. Hadler insisted that he regarded the radio communication referred to above as the only contact with Phelan relevant to approval for the burn.³³

- 11.2.11** Mr Phelan's interview with police occurred some months after the Joint "Operations Review" was published by the Agencies. The Report was critical of the Hadler back-burn. It said in part:

*"Both back-burns failed. The chance of a successful back-burn in long, unburnt stringybark forest in conditions of high temperature and low humidity with strong northerly winds was very low. Both back-burns were attempted with minimum planning, few additional resources and no approval from the Incident Controller or Operations Officer."*³⁴

- 11.2.12** Also relevant to the consideration of what Mr Phelan knew of Hadler's proposed conduct is Phelan's deployment of Lightfoot's Buninyong Strike Team.

- 11.2.13** At about 3.30pm Mr Phelan sent Lightfoot and his team down Possum Gully Road towards the intersection of Madden Flat Road. This was effectively directly into the path of the burn that Hadler had already commenced lighting. Phelan did not know at that time what Hadler was doing. The position is made clear by the following evidence of Phelan:

"Did you know at the time that you deployed Mr Lightfoot that Mr Hadler had commenced his operation just south of Pittong Road?—No, I didn't know that until I went around on the other road and saw what was going on."

Just in terms of the timing, were you aware of Mr Lightfoot's commencement of his burn before the Hadler burn commenced?—No, I wasn't.

So which came first, which did you ascertain first?—I think that I sent Mr Lightfoot in, or he went in there, and when I went around I was aware that there was a back-burn, they were starting a back-burn on Madden Flat Road, and I believe that it was after that that Group Officer Lightfoot radioed me to say that he was burning at the other end of the road.

Did you know where Mr Lightfoot's crew was when the Hadler burn was commenced or you became aware of the Hadler burn?—I knew they were down on Possum Gully Road, but I didn't actually know where they were.

Did you notify him of Hadler's burn, that it had commenced and that he was in its path?—No I didn't know.

You didn't know that's where he was or you didn't notify him?—I didn't know exactly where he was, no, I didn't.

Did you contact Lightfoot or did you wait for him to contact you for him to tell you where he was and what he was doing?—It was only a short time after that he radioed me to say he was doing a burn.

He radioed you?—(Witness nods)." ³⁵

11.2.14 The questioning of Mr Phelan continued:

"So the answer to that is at the time Mr Lightfoot went into Possum Gully Road you didn't actually know that Mr Hadler had commenced or was about to commence that burn?—No.

And therefore you didn't tell Mr Lightfoot?—That's right.

Did you think it was something important for Mr Lightfoot to know, that he was moving into an area where there was a burn going on and that the prevailing wind was going to bring it towards him?—Yes, I think that's probably, yes that would be correct. (Emphasis added)

Again, in relation to the burn that Mr Lightfoot started, I suggest to you that you weren't aware of that until 15.45, when Mr Lightfoot contacted you on the radio, and in fact Ms Fox referred Mr Lightfoot to that communication this morning, do you remember hearing?—No I wasn't here, sorry.

Alright, I will hand it to you, it's on p.172 of the log transcripts ... do you recall receiving the radio communication from Mr Lightfoot?—Yes.

Is that in fact the first time you became aware that he had lit up the area that he had lit up?—That's correct.

You say in your statement that you have known Mr Lightfoot for 40 years, you had confidence in his ability and as far as you were concerned when you sent him in there, it was up to him to take whatever action he thought appropriate?—That's right.

In hindsight, Mr Phelan, would it have been useful if a bit more thought, perhaps, had gone into both the burns that were lit, Mr Hadler's burn and Mr Lightfoot's burn, before they actually occurred?—In hindsight, very much so, yes. (Emphasis added)

Why is that, why would it have been a good idea?—Well, I think, we weren't aware of the spotting activity that was going on and the fact that the fire was spotting over fairly rapidly, so probably if we had of stood back and had a good look for five minutes, we would have realised that, but at the time it wasn't evident.

Was some fire behaviour not evident to you already by that time, namely the spotting that occurred to cause the stand on Pittong-Snake Valley Road to fail. You were aware of that at the time when you sent Mr Lightfoot in, weren't you?—I was aware that the stand on Pittong Road was called off because of the spotting activity, yes.

Yes?—Yes, that's correct.

The fact is you didn't know Mr Lightfoot was going to light up the area that he did?—No.

If he had have told he was considering it you might have had something to say about it?—I think I would have said to him: "Have a look at this because I think it could be a problem".

*Does the same apply to Mr Hadler?—To a point. I think some of the work he did was helpful in the end because it did stop the fire spreading further east."*³⁶

11.2.15 Mr Lightfoot's evidence confirms that at that time, when Lightfoot took his crew down Possum Gully Road, Phelan did not know that Hadler was lighting the burn. Lightfoot was not aware of Hadler's burn directly to the north until he saw Hadler at the corner of Madden Flat Road and Possum Gully Road.

11.2.16 Mr Lightfoot was asked, regarding his discussion with Phelan prior to going down Possum Gully Road.:

"Just in terms of Mr Phelan's briefing, were you aware that Mr Hadler was burning down Madden Flat Road?—No.

*When did you become aware of that?—When I met Ray Hadler, he was on the radio just as I was driving in, I believe he did mention he was doing it, but I didn't know, Mr Phelan didn't tell me and I wasn't aware of it when I was with Mr Phelan...."*³⁷

11.2.17 It is hard to understand how a senior and experienced forest firefighter such as Mr Phelan would approve what he believed to be a back-burn, and then allow another Strike Team to position themselves at a place where there was a substantial risk that they would be burnt over if the fire were not controlled. This is especially so when he was already aware that the fire was spotting over and had burnt over tankers on the Pittong-Snake Valley Road.

11.2.18 Mr Phelan's evidence that he authorised Mr Hadler to carry out a back-burn is rejected.

11.2.19 Mr Graham says in his statement³⁸ that Phelan returned from the fire line at 3.15pm and told him that they were:

*"attempting a back-burn along Madden Flat Road and asked me if I had a problem and I said: "No". The back burn was from Pittong-Snake Valley Road south for about a kilometre along Madden Flat Road."*³⁹

11.2.20 There is no evidence to support the proposition that by 3.15pm:

- Mr Phelan knew that Mr Ray Hadler was or was intending to conduct a back-burn along the Madden Flat Road; or
- That the extent of that back-burn was *"about a kilometre along Madden Flat Road."*

11.2.21 At best Mr Phelan might have assumed that that was going to happen after his conversation with Ray Hadler at 3.24pm. At that time, however, he could not know how long a length of control line would be involved.

11.2.22 If the conversation with Mr Phelan referred to by Graham occurred at all it would have to have been well after 3.15pm. Either Mr Graham made a mistake with the time and it should have been much later, or the conversation did not occur. In either case Mr Graham could not have authorised the Hadler burn.

11.2.23 Furthermore other evidence referred to below including the radio communications transcripts shows that Mr Phelan did not return to the Forward Operations Point at or around 3.15pm. In fact, it was about that time that he left the Operations Point to go to the intersection of Possum Gully and the Linton-Snake Valley Road to meet Lightfoot's team.

11.2.24 Mr Phelan, in his statement, says that after sending Lightfoot and his crew down Possum Gully Road, he went to Pittong Road and saw the burn taking place down Madden Flat Road. He states that he:

*"went down to have a look and everything appeared to be okay."*⁴⁰

11.2.25 Mr Phelan says that he was then told by Lightfoot that he (Lightfoot) was burning a break heading south from Possum Gully Road.⁴¹ Lightfoot radioed Phelan at 3.45pm:

"Des were are doing a backburn on the edge of the fire on the eastern flank. We are following a track down through the bush and we are trying to hold it."

Phelan: "Roger that's off Possum Gully Road is it?"

Lightfoot: "From Possum Gully Road heading towards Linton... but we gotta spot over...I can see.."

*Phelan: "Roger, well just be careful..."*⁴²

11.2.26 Mr Hadler gave evidence that he took account of wind direction, fuel load, topography, the run of the main fire and other factors in deciding to commence the burn.⁴³ It must be remembered that at the time Hadler made his assessment there were a number of factors, which could have lulled him into a false sense of security about using the back-burn. These include:

- There was a favourable NNE wind prevailing along the Madden Flat Road (see paragraph 11.2.29); and
- The forest west of Madden Flat Road had been thinned about 3 years earlier in a firewood harvesting operation. This meant that the amount of bark fuels and elevated fuels had been reduced.⁴⁴

Nonetheless, these factors were of limited value and there were other counterveiling factors that should have led to a conclusion that back-burning (or burning out operations of the scale involved, as ultimately proved to be the case) were inappropriate on safety grounds.

11.2.27 Mr Hadler was not in a position, of course, to be aware of relevant factors such as the location of other crews including the Snake Valley 'A' tanker and Lightfoot's Strike Team. He did not know the location of the head of the fire (which of course had already crossed Possum Gully Road rendering Hadler's stated aim unachievable), detailed weather information and the overall strategy of the firefight. In addition, he was not adequately resourced to carry out the exercise having only a grader that had limited capacity to create a break and but a handful of trucks to attempt to control a fire on a length of front in excess of 1 kilometre.

11.2.28 Further, he was aware of one very important factor in relation to the behaviour of the fire. He observed the spotting of the fire and, that it was unable to be controlled, at the Pittong-Snake Valley Road. This would have alerted a competent forest firefighter to the danger of his proposed activity, but that did not seem to be factored into Mr Hadler's strategy.

11.2.29 The Panel of Experts to these Inquests, in their written report, indicated that at about 3.15pm there was a major wind shift from NNW to NNE which lasted about 30 minutes, until about 3.45pm. The experts said:

"For a period of around 30 minutes between 15.15 and 15.45 the wind direction had veered to the NNE. This switch of wind direction caused a backing fire to form along most of the eastern flank and the reduced fire intensity is manifested by the significant band of moderate crown scorch, 40 to 50 m wide and around 1500 m in length. This band delineates the shape of the eastern flank fire over this period. The head fire was now checked on the southerly and south-westerly slopes into Nuggetty Gully although spot fires had probably started at least 500 m further to the south."

*This shift in wind direction was significant because it enabled firefighters to light up bum-out fires along Madden Flat Road for distance of around 1 km south of the Pittong-Snake Valley Road and along the extension of Madden Flat Road south of Possum Gully Road. Observations of burnt bark on roadside trees indicated that the local wind direction along the northern section of Madden Flat Road was north-east. At this location, the main fire probably induced the extra easterly influence of the local wind direction."*⁴⁵

11.2.30 Thus at the time Mr Hadler made the decision to burn out the west side of Madden Flat Road, south of Pittong-Snake Valley Road, the wind conditions would have appeared favourable to him. The difficulty, which of course Mr Hadler could not know in his position in a tanker on Madden Flat Road was that this was a localised wind shift that could reverse

at any time. The wind did in fact revert to a NNW direction at about 3.45pm about 20 minutes or so after the strategy had been embarked on.

11.2.31 The experts summed up the wisdom of Mr Hadler's operation:

"This was also a highly dangerous operation that was poorly planned and had no chance of success. The burning operation was not initially linked into the main fire and was not part of the overall suppression strategy. It did, however, in conjunction with some burning-out conducted later along the Pittong-Snake Valley Road, prevent any post wind-change spread east of Madden Flat Road. The shift of wind towards the NNE between 15.15 and 15.45 hours allowed the firefighters to commence this operation and hold it for some 10–15 minutes. However, they were always going to lose control of the operation and increase the potential of the main fire as soon as the wind switched back towards the NNW. If the prevailing wind at the time had been NNW the firefighters would have lost control of the burning-out operation as soon as they reached the section of Madden Flat Road where the road deviated towards the south-west.

The operation was dangerous because there were firefighters downwind. Any escape from burning-out had the potential to trap these firefighters between the escaped fire and the main fire.

In undulating topography the local wind direction around forest fires can be very different to the prevailing wind direction. Fire suppression operations need to be planned, systematic, and supervised by firefighters with a good understanding of forest fire behaviour. Firefighters need information about activities on other parts of the fire line and about weather conditions outside the fire area.

As a general rule back-burning, ie setting fire immediately down-wind of a running head fire, will not succeed if the head fire is too intense to attack directly. Quite simply if the firefighters cannot control the spotting from the head fire they are not going to be able to control the spotting from their backfire. The commonly held belief that the backfire will be drawn towards the head fire is a myth. If there is any interaction, it is to draw the main fire towards the backfire and increase the intensity of the head fire."

11.2.32 Mr Hadler's operation was planned on the run. A grader was found. It was thought to be a good idea that it be used to create a control line along Madden Flat Road. After the briefest of consultation with Phelan the strategy was acted on. Hadler introduced the element of a "back-burn" which in hindsight turned out to be a burn out as there was no possibility of punching out the head, which was well past the point where he began the burn. This was a strategy conceived in haste.

11.2.33 The analysis and conclusions of the Panel of Experts set out in paragraph 11.2.31 is accepted.

11.3 Operational Analysis and Development of Strategy

11.3.1 Mr Hadler's evidence is that shortly after the radio communication with Phelan at 3.24pm, his brother Ross Hadler, commenced lighting a fire, using a hand held torch along unburnt ground to the west from the corner of Pittong-Snake Valley Road south down Madden Flat Road. The resources under the control of Ray Hadler at that point were a grader, the Rokewood Junction, Wallinduc and Cape Clear tankers. After the burn had been commenced, it seems from the evidence of McInnes that having escaped the burn-over on the Pittong Road that his tanker was instructed to do some blacking out in the area of the Hadler burn near the Pittong Road.⁴⁶

11.3.2 Mr McInnes gave evidence that he did not see anyone lighting the back-burn down Madden Flat Road but knew it must have been a back-burn because of its lack of proximity to the main fire.⁴⁷

11.3.3 Mr Hadler gave evidence that he was not concerned about the fire spotting, before lighting the back-burn. He said that he thought he had sufficient resources⁴⁸ to control it. This is surprising given that his group of tankers were involved in the strategy on Pittong-Snake Valley Road, which he believed failed because of uncontrollable spotting of the main fire.

- 11.3.4** Mr Hadler stated that he was familiar with the area around Linton generally and Madden Flat Road in particular. He said he could not recall a conversation between his brother Ross and the grader driver regarding where Madden Flat Road went.⁴⁹
- 11.3.5** The evidence of Mr Ross Hadler regarding a conversation with his brother Ray and the grader driver, along with a radio communication between Ray Hadler and Deputy Group Officer Pohl, where Ray Hadler appeared confused and referred to Madden Flat Road as “Miller’s Track” cast doubt upon the degree of familiarity Ray Hadler had with Madden Flat Road before determining to light the back-burn.⁵⁰
- 11.3.6** Mr Ray Hadler’s evidence was that he thought the burn could stop the fire north of Possum Gully Road. He gave the following evidence about that:
- “Did you think when you lit the fire ... heading south down Madden Flat Road that you could stop the fire north of Possum Gully Road?—I thought it was a possibility if we could get the edge pinched in soon enough, yes. Because you say in your statement that: “I thought that if we could meet up and burn-out west of Madden Flat Road and north of Possum Gully Road we might be able to contain the fire north of Possum Gully Road”.*
- Is that true?—That’s correct, yes, I had that, I thought that was possible.”⁵¹*
- 11.3.7** Mr Hadler was then asked:
- “When you started that exercise down Madden Flat Road with the grader, where did you understand the head of the fire to be – north/south I am talking about?—South of the Pittong-Snake Valley Road.*
- How far?—I would have estimated that it wouldn’t have been very far at that stage.*
- So it was your tactic was it, your ultimate tactic, to have burnt out the area in front of the head of the fire before the fire got to Possum Gully Road, was that part of your ultimate strategy?—I thought it was possible that we may be able to do that, yes.”⁵²*
- 11.3.8** The questioning of Mr Hadler continued:
- “How far south of Pittong-Snake Valley Road did you believe the head of the fire was?—I would have perhaps guessed 500 metres or something of that order.*
- Upon what material did you base your educated guess?—Knowledge of the area and the way the fire seemed to be burning when it crossed the Pittong-Snake Valley Road and from what I had seen after it had gone south, the speed it was burning at.*
- Did you go further down Madden Flat Road because Madden Flat Road takes quite a severe bend towards west doesn’t it?—That’s correct.*
- Was that the same with the exercise to keep burning out to the west of Madden Flat Road which would necessarily involve, to your belief, burning out the fuel in front of the head of the fire?—Yes, eventually.*
- Because that is the way Madden Flat Road went, didn’t it?—That’s correct.*
- To your belief it effectively came round in front of the head of the fire?—That’s correct.”⁵³*
- 11.3.9** Mr Kavanagh thought that the object of the exercise was to originally burn parallel to the main fire and then “to pinch the fire and stop it”. Ross Hadler’s evidence was that he thought the aim of the exercise was to stop the fire crossing to the east of Madden Flat Road.
- 11.3.10** There was never any prospect of the burn stopping the fire north of Possum Gully Road. The fire front was already over Possum Gully Road by the time Mr Hadler started the burn.⁵⁴ Moreover, Phelan was aware that that was the case.⁵⁵
- 11.3.11** This emphasises the lack of information on which the decision to embark on the strategy was based. The operation was “poorly planned and had no chance of success.” Further the key players were not even of the one mind about the aim of the exercise. The operation had the seeds of disaster within it, which sprouted forth at 3.45pm.

11.4 Events

- 11.4.1** The burn was commenced at the south-west corner of the intersection of Pittong-Snake Valley Road and Madden Flat Road. Mr Ray Hadler's evidence was that he tried to talk to Kavanagh, before contacting Phelan on the radio. Hadler said that Kavanagh was busy endeavouring to get an ambulance for an injured firefighter. The radio log however discloses that the Hadler call to Phelan at 3.24pm preceded Kavanagh's attempts to call an ambulance, the first of which appears in the radio log at 3.30pm.
- 11.4.2** Accepting that the burn was lit, as Mr Hadler says, shortly after the radio communication with Phelan at 3.24pm, the fire lighter Ross Hadler progressed very rapidly down Madden Flat Road. Ray Hadler gave evidence that Ross initially lit the fire in spots,⁵⁶ which is recognised as a safer way to light a burn, and then in a continuous line, for just over a kilometre.⁵⁷
- 11.4.3** Mr Ross Hadler however, gave evidence that was different. He said he lit the burn in a constant line and that the only reason for missing any spots would have been if the fire lighter did not flow properly at first.⁵⁸ Hadler said he moved forward at a quick pace.⁵⁹
- 11.4.4** Those involved in the burn gave evidence that initially the wind was light and favourable and that the burn progressed satisfactorily, slowly moving back from Madden Flat Road to the west.⁶⁰ This was in the period referred to by the Panel of Experts where between 3.15 and 3.45pm the prevailing wind along Madden Flat Road was NNE.
- 11.4.5** Mr Ross Hadler estimates that the length of the burn was approximately 1,200 metres.⁶¹
- 11.4.6** Initially as the grader moved down Madden Flat Road it was followed by the Rokewood Junction tanker, then Wallinduc, then Cape Clear. The Snake Valley tanker when it arrived was the closest to Pittong Road.
- 11.4.7** When the grader was about half way along its total length of travel, Mr Ray Hadler called up the Wallinduc tanker to support the grader and he travelled in the Rokewood Junction tanker south-westerly down Madden Flat Road to the Possum Gully Road intersection.⁶² The radio transcript shows that at 3.45pm Mr Lightfoot radioed Phelan and explained that he was doing a "back-burn" on the edge of the fire on the eastern flank, following a track down into the bush and that "we are trying to hold it". Phelan's reply was: "Roger, that's off Possum Gully Road, is it? Over." Lightfoot: "from Possum Gully Road heading towards Linton, but we got a spot-over".⁶³ A reasonable inference to draw from this radio communication is that this is the first Phelan knew of Lightfoot lighting his burn.⁶⁴ It is also a contemporaneous record of the wind reverting to NNW.
- 11.4.8** The radio transcript recorded that at 3.46pm, Mr Ray Hadler made a call on Channel 15B advising: "Keith" (probably Keith Urch, the driver of the Wallinduc tanker) that: "Lighty's team and the others have started burning up the other end, so we'll just keep it coming." It was probably shortly prior to this that Hadler took the Rokewood Junction tanker past the grader towards the intersection of Possum Gully Road and Madden Flat Road.⁶⁵
- 11.4.9** Mr Ray Hadler communicated with the Wallinduc tanker as it moved down Madden Flat Road. The occupants of the Wallinduc tanker interpreted the communications as directing them to move from the role of mopping up behind the grader, to driving past the grader to the intersection with Possum Gully Road, so they could turn around.⁶⁶
- 11.4.10** Mr Ian Getson, in the Wallinduc tanker, was concerned about this, as he did not think it safe, because of the direction of the wind and the fire.⁶⁷ Getson recalled being asked a second time to move on after the tanker stopped the first time.⁶⁸
- 11.4.11** Both the Wallinduc and Rokewood Junction tankers therefore left the safety of the "black" and drove past the grader into an area where they had unburnt fuel on both sides of them. This put them in a position not dissimilar to that of the Geelong City and Geelong West tankers, whose exposure in similar circumstances was to prove fatal later in the day.
- 11.4.12** Mr David Munday was an employee of the DNRE based at Horsham. He was accredited as both an Air Attack Supervisor and Observer of the DNRE's Fire Training System. He had been

undertaking those activities for 7 years prior to the Linton fire. He is also an accredited Crew Leader, Sector Boss, Divisional Commander and Operations Officer Level 1, 2 and 3 and had undertaken all of those roles at incidents at various times.

11.4.13 On 2 December he was on duty and was directed to attend the fire at Linton at about 2.45pm in Firebird One, the DNRE light helicopter. His role was to be air observer and to map the fire. He contacted Brad Mahoney on trunk radio and tried to contact Bob Graham on Channel 118, without success. He noted, however, that the channel was not congested.

11.4.14 It is noted at this point that Mr Graham did not have a portable radio with him at Linton. The only radio he had available to him was in his vehicle, which was parked on the street in Linton outside the Operations Point.

11.4.15 Mr Munday said that at around 3.38pm he received a call from an unknown CFA officer about an injured person on Pittong Road.⁶⁹

11.4.16 At about 3.45pm he observed the Hadler back-burning operation on the eastern side of the fire, just south of Pittong Road. He contacted Lex Bell and Murray Fullerton of the DNRE to establish what was happening. They told him they had no knowledge of the back-burn.

11.4.17 Mr Munday had noted that the temperature was about 32° and there was about a 40 kilometre per hour northerly wind blowing. He stated that he was “*mystified*” as to why the burn had been started at the northern end of the track headed due south with the wind directly behind it.⁷⁰ It must be remembered, however, that this was the point in time when the wind had reverted to a NNW direction having blown in a NNE direction for about 30 minutes as described above in para. 11.2.29.

11.4.18 Mr Munday could see that about 200 metres from where the back-burn had been lit the track took a sharp bend to the west. He could only see one CFA tanker at the time and noted the roof number. It was 72D (the Cape Clear tanker). He could see a grader and a small white vehicle with an orange flashing light (which other evidence shows to be Kavanagh’s car) along with several people in orange overalls on the track adjacent to the back-burn.

11.4.19 Mr Munday said that by 3.53pm, there were several small spot fires on the eastern side of the track where the back burn had been lit. He said that he “*assisted in trying to contact the CFA on all three channels*” that he had been given earlier by DNRE Officer, Lex Bell. Munday continued:

“I finally contacted Deputy Group Officer Wyllie on Channel 73 and told him about the back-burn and how it was spotting. He was not aware of any back-burning and could not explain what was going on.”

11.4.20 This was not surprising as DGO Wyllie was a Region 16 officer of the CFA and was working in the sectors north of Pittong-Snake Valley Road, and the back-burn was a Region 15 operation. It highlights the lack of coordination of management of this fire and shows that at the time of the observations this was a Group and not an AIIMS fire at all the critical operational areas on the fireground.

11.4.21 Mr Munday was asked:

“You say that you observed a back-burning operation. How do you know it was a back-burning operation?—Because it was out on its own there with no other fire front within a few hundred metres, at least, and that and it was starting from an anchor point.

Mr Wyllie, when he gave evidence at p.2460, gave evidence that that particular fire, when you took him back to it, that he thought it was in the wrong place for a spot fire. Would you agree or disagree with that assessment?—Of the spot fires that I’d already observed, that appeared to be too far to the east.”⁷¹

11.4.22 Mr Munday was taken to a note he made at the time which read:

“Pittong Road south-east, CFA are lighting up 3.45pm.”

It should be noted, however, that this was 20 minutes after this operation had begun.

11.4.23 He was then asked:

"That's the back-burn?—That's the back-burn I have mentioned, yes.

When did you make that note, did you make it at 3.45pm or did you make it later?—I made it within a couple minutes of actually seeing that. The reason I made the note was because at the time when no-one could answer what was going on, I just felt it prudent at the time to write it down.

Then you have made a note there: "Lex, Wyllie, Murray, no-one had a clue"?—That's correct.

Again, when did you make that note?—I made that right then.

Under the word "CFA lighting up", you have written "1 kilometre", what does that relate to?—My distances could be out here, but up to a kilometre from the junction is where I saw the issues.

So from the road south down Madden Flat Road?—Yes.

About a kilometre?—Yes.

Then you have written the number of the truck "72D"?—Yes.

We've been told by the CFA that that's the Cape Clear tanker, then you have written "spot-over time – six", what does that indicate?—That indicates within a few minutes of them lighting up, there was at least six spot-overs on the other side of the road.

Could you tell from your observation whether those spot-overs related to the back-burn that was being lit or whether they were connected to the main fire?—They were in my opinion definitely linked to the back-burn because some were very short spots, only two, three metres....There was some only just a metre or so inside on the east of the road on the cleared ground and there were some 100 or so metres in." ⁷²

11.4.24 Mr Munday then used a map of the area to point out the "dog-leg" to the west of Madden Flat Road. He said:

"Pointing to the dog leg. What was actually happening, they were lighting in a straight line, with a north-westerly wind behind them, and the road dog legged to the west. My concern was at the time before they got to the corner, they had no way of stopping it because it already had a run-up. I was trying to contact them to stop it before it got that far. By the time I got to anybody they had already started to go down here, to light that country up, but it had already gone behind them...."

You are saying the back-burn didn't go past that westerly turn in the road, but with the prevailing wind just kept heading in a southerly direction across the road?—That's correct.

Does that explain why you made the comments that you did at the top of p.3 of your statement regarding the temperature and the wind and being mystified as to why the burn had been started where it was?—That's correct."

11.4.25 Mr Munday eventually spoke to Wyllie on Channel 73. He then picked up Wyllie in Firebird One and they flew over the area of the fire. He stated that Wyllie said words to the effect: "Fuck, I don't know what the hell is going on. Take me to Linton." Munday made a note reflecting Wyllie's comment.

11.4.26 At the commencement of these Inquests an issue that needed consideration was whether or not the burning operation conducted by Mr Hadler contributed to the deaths of the Geelong West crew by changing the behaviour of the fire or by extending the width of it. A first step in this analysis was whether it was the back-burn that spotted over the Madden Flat Road or whether it was spotting from the main fire, meaning that the main fire simply flowed over the top of the Hadler burn. The significance being that if it was Hadler's burn that spotted over then it caused the changes in the fire whereas if it was just the main fire then Hadler's conduct did not cause any change.

11.4.27 It was within this framework that the CFA submitted:

"6.19 Mr Munday, the NRE pilot, sent a message to Mr Mahoney reporting there were people in orange overalls "lighting up area going like the clappers" (Mahoney,

log Exhibit 82; Munday, T.4669). However, Mr Munday did not take issue with the evidence of the witnesses described above, who described the burn out as smouldering and under control (T.4691), line 16 to 4692, line 2).

- 6.20 More significantly, Mr Munday produced a map (Exhibit 121) later in the day. The broken line depicted the ultimate perimeter of the fire observed by Mr Munday when he left the fire. The continuous lines adjacent to Madden Flat Road depicted the burn-out in the fire which he saw at about 4.00pm (T.4686, lines 24–28). Mr Munday agreed that when he made the map, he depicted small areas of fire to the east of the Madden Flat Road adjacent to the words “Madden” and “Flat” as depicted on Exhibit 121 (T.4687, line 28 to T.4688, line 3). Otherwise, the perimeter of the fire, then observed by Mr Munday, was Madden Flat Road (T.4688, lines 4–7). When Mr Munday first observed the burn-out, none of it had crossed Madden Flat Road (T.4689, lines 18–27). Mr Munday was unable to say that the areas of fires which he observed later east of the road (opposite the words “Madden” and “Flat”) came from the back-burn or from the main fire (T.4692, lines 15–24)), T.4697, lines 23–27). Mr Munday later in his evidence produced the map which he had drawn for Mr Graham (Exhibit 122). Again, that map shows a small amount of fire to the east of the word “Flat”, then a large amount of fire adjacent to the word “Madden”. These were adjacent to Dr Tolhurst’s spot fires. Mr Munday was of the view that he was only depicting one point of departure of the back-burn to the east of Madden Flat Road (T.4724–5).
- 6.21 When Mr Munday initially observed the burn-out, it had proceeded approximately one kilometre south from Pittong-Snake Valley Road (Exhibit 121, page 3 “CFA lighting up 3.45pm, 1km”, T.4689, line 18-4690, line 5). Mr Munday’s impression was that the fire had crossed to the east of Madden Flat Road at the “sharpest” corner (or bend of the road) to the west (T.4724, lines 14–18). He agreed that the corner was the one adjacent to the word “Madden” (T.4625, lines 16–25), that is, the corner which was approximately 500 metres north-east of the intersection of Possum Gully Road and Madden Flat Road. Thus, Mr Munday’s impression was that the fire crossed Madden Flat Road at precisely the same point at which was located the spot fire, to the west of Madden Flat Road, identified by Dr Tolhurst. Again, that point is precisely the point at which both Mr Wolfe, Ray Hadler and Ross Hadler observed the “fire” (ie the Tolhurst spot fire) to cross the road.
- 6.22 Mr Wyllie, who was with Mr Munday, did confirm that he saw fire “going like the clappers” towards Linton. However, in order to see the fire beneath the smoke, it was necessary to travel quite low. By doing so, it was difficult to orientate just where the fire was. Further, there was limited opportunity to observe the fire because it was not safe to remain low for long (T.2455–9, 249506; also Munday, T.4688, lines 13–20).
- 6.23 Finally, Mr O’Rourke the air observer, observed the back-burning, and later when he returned noticed that “the fire was spotting over the back burn to the south-east” (statement page 4613, para. 23). In his evidence he stated that when he first observed the back-burn it was behaving fairly quietly. It had then travelled 200 to 500 metres south of Pittong-Snake Valley Road. It was later, when he returned, that Mr O’Rourke noticed fire spotting over the back-burn, but he could not say whether the spotting was from the main fire or the back-burn (T.5774).
- 6.24 In conclusion:
- (a) the vast preponderance of the evidence is that the Madden Flat Road burn-out was under control;
 - (b) there were spots emanating earlier from the main fire, adjacent to Madden Flat Road. They breached Madden Flat Road;
 - (c) it is problematic whether the burn-out breached Madden Flat Road at all. There were some spots sighted on the east of Madden Flat Road but is not clear whether they emanated from the burn-out or from the spot fires identified by Dr Tolhurst.”⁷³

- 11.4.28** At this stage therefore, it is necessary to carry out a careful examination of the evidence available, but always bearing in mind the matters that were referred to above in paragraph 11.2.27 which bear repeating here:
- The Hadler burn began around 3.25pm;
 - Between 3.15 and 3.45pm on the Madden Flat Road (irrespective of what the position was on other parts of the fireground) the prevailing wind was NNE, that is away from the road towards the east flank of the fire; and
 - The forest west of Madden Flat Road (ie between the road and the east flank of the fire) had been thinned about 3 years earlier in a firewood harvesting operation. This meant that the amount of bark fuels and elevated fuels had been reduced.
- 11.4.29** The presence of these factors is consistent with the burning operation being under control at least until the stage where the wind reverted to a NNW direction blowing the fires towards Madden Flat Road rather than away from it as was the case with the NNE wind. This is entirely consistent with the evidence given by Mr O'Rorke and referred to in paragraph 6.23 of the CFA's submission as set out above in paragraph 11.4.27.
- 11.4.30** When Mr Munday made the observations set out in this section it was after 3.45pm, when the evidence indicates the local wind had reverted to a NNW direction and was blowing the fire in an easterly direction. That change meant that rather than the fire being drawn away from Hadler's team it was now being blown over them onto unburnt ground. Thus the observations of O'Rorke and others made before 3.45pm are not inconsistent with Munday's evidence as was submitted by the CFA. In fire behaviour terms the period between 3.25pm and 3.45pm was different to that after 3.45pm because of the change in wind direction.
- 11.4.31** It must be acknowledged as was submitted by the CFA that these were difficult conditions in which to make aerial observations of the fire. On the other hand it must also be acknowledged that Messrs Munday and O'Rorke were very experienced at doing so, and their performance at this fire showed a very high level of skill and diligence.
- 11.4.32** Turning now to the question of whether the spotting observed by witnesses was from the main fire or Mr Hadler's burn, it can be said that neither Kavanagh who went into rescue the grader⁷⁴, or Fullerton who went to investigate the reports heard of this operation, could say which fire caused the spotting.⁷⁵ This evidence therefore is neutral on the point.
- 11.4.33** Mr Ross Hadler gave evidence of spotting to the east-side of Madden Flat Road. He could not say if the spots were from the back-burn or the main fire. He was asked:
- "You don't recall at any stage that back-burn spotting over the road?—There was only one occasion that I noticed that there were spots on one side of the road when we were pulling out and that was, if I can just check on p.5 of my statement.*
- Yes, this is the top paragraph "I don't know if the spots were from the back burn or out of main fire"—That's right, as I said, about 200–400 metres back which would put it at the 2 kilometre mark or 1 kilometre mark, as I said, there was a couple of spots there or one spot in particular from recollection, but whether they came from our burn or from another source, I wasn't there, so I couldn't say."*
- 11.4.34** Mr Ross Hadler was asked about any observation he made of the main fire. He was asked:
- "Is it fair to say this: that as you were going along your task down Madden Flat Road, you were regularly checking to your west to see any sign of the main fire?—That would be right.*
- You didn't see any?—No.*
- Did you have any idea as to where the main fire was when you were engaged in this task?—Nothing concrete, but I did believe it was to the west of us, and quartering across where we were heading in a southerly direction."*⁷⁶
- 11.4.35** Mr Ray Hadler gave evidence that at the time he took the Rokewood Junction tanker to the intersection of Possum Gully Road that the back-burn *"wasn't getting out of control."*⁷⁷ This, however, occurred before the wind change at 3.45pm.

- 11.4.36** Mr Munday's observations are also reflected in a telephone conversation between Harris at the IMT and someone called "Pete" at the Ballarat fire station at 3.50 pm. This call was prompted by Mahoney after receiving a radio message from Munday:
- "Hello it's Mick Harris here Pete how are you?"*
- Good thanks.*
- Urgent message for you.*
- Yes.*
- Can you find out from upstairs, I can't get through on the phone to them.*
- Right.*
- And I need to know from them urgently if we're aware of a CFA backburn having been lit.*
- A CFA backburn.*
- Having been lit along the Pittong Road.*
- The Pittong Road.*
- Because apparently there is a large fire there going like the clappers and we've got a report in that we've been lighting it and we need to find out if that's so, and if it is to get em stopped..."*⁷⁸
- 11.4.37** Mr Munday observed people in orange overalls lighting up a back-burn and that the back-burn was *"going like the clappers"* towards Linton.⁷⁹
- 11.4.38** Mr Munday then collected Wyllie and flew over the area with him. The fire had crossed to the east of Madden Flat Road.⁸⁰ Munday described the fire as not taking the turn to the west in Madden Flat Road but rather continuing over the road in a southerly direction towards Linton.⁸¹
- 11.4.39** The transcript of radio communications assists in placing timeframes on some of the activities concerning the Hadler burn.
- 11.4.40** At 3.46pm there was the call on Channel 15B from Mr Ray Hadler referred to above.
- 11.4.41** Also at 3.46pm there was a call from the Cape Clear tanker, which was further north up Madden Flat Road behind the grader attending to spot fires. The call is as follows:
- Ray Hadler: *"Anything behind you there Dennis?"*
- Cape Clear: *"Yeah, there's one truck behind us, Ray."*
- Hadler: *"Ooh, it's pretty safe though, isn't it."*
- Cape Clear: *"It's burning back into it, so I think it's pretty safe, yeah."*
- Hadler: *"Bewdy."*⁸²
- 11.4.42** At 3.48pm Mr O'Rorke in the Region 16 aircraft, attempted to contact Lightfoot. Phelan answered. O'Rorke identified a small spot fire and Phelan asked him if he could see any trucks off the *"... road."* O'Rorke said that he was too high to see any trucks because of the smoke. The communication concludes with Phelan saying: *"Out to you Group Officer Lightfoot. Did you copy that ..."*. There was no response from Lightfoot. At that time Lightfoot was either making haste after abandoning his vehicle which was stuck in a mine shaft, shortly to be engulfed by fire, heading towards shelter in the Hardies Hill tanker, or in fact sheltering in that tanker which was entrapped down the extension of Madden Flat Road, engulfed in flames and in survival mode.
- 11.4.43** Mr Phelan then made a number of radio calls to Lightfoot without response.
- 11.4.44** Mr Kavanagh gave evidence that he thought that the Hadler burn got over the road at close to 3.49pm. He was uncertain if it was the main fire or the back-burn.⁸³ Kavanagh gave evidence that the fire was moving fairly quickly towards Linton.⁸⁴
- 11.4.45** At 3.49pm there was a lengthy radio transmission recorded in the transcript with a number of participants. This communication supports the recollection of Mr Kavanagh as to the

timing of the Hadler back-burn getting away. During the communication the pilot, O'Rorke, identifies the "*control burn*" (the Hadler burn) wrongly as off Homestead Road rather than Madden Flat Road, but correctly observed that the fire had escaped to the "*east side*." Kavanagh is recorded as participating in the conversation and reporting to Phelan that:

Kavanagh: *"Down this graded road where the grader's gone is well across the road now and the grader could be in trouble."*

Phelan: *"Roger, we better get some tankers in behind him."*

Kavanagh: *"If you send tankers in, I'm down the lane, I can't get to them."*⁸⁵

11.4.46 At this point, Mr Wyllie in Firebird One, with Munday, comes into the call to advise Phelan that:

Wyllie: *"This is a message from Firebird One. The back-burn has spotted already and got away, over the bomber is going to attempt to quell the spot fires, but he doesn't think he will do any good."*

Phelan: *"Roger. So that's heading to the Linton-Snake Valley Road now, over."*

Wyllie: *"Correct."*⁸⁶

11.4.47 Mr Phelan concludes with the statement:

*"...Roger out to you, did you copy Lightie?"*⁸⁷

11.4.48 Mr Lightfoot does not, for the reasons set out above.

11.4.49 At 3.54pm there is a further communication between Messrs O'Rorke and Phelan, followed up with other communications concerning the burn getting away.⁸⁸

11.4.50 After surveying the burn, Messrs Munday and Wyllie returned in Firebird One to Linton and briefed Graham and Phelan.⁸⁹ In a radio communication at 3.56pm from Mr Kavanagh to Phelan, Kavanagh says to Phelan that he had: "*to stop the grader*". Phelan replied:

"I think we really have to look at the Linton Road now" (the Linton-Snake Valley Road to the east of the control line).

Kavanagh replied: *"... recall the grader out."*

11.4.51 At the same time there was a radio communication between Mr Lightfoot and Ray Hadler on Channel 15B. At that time Lightfoot was in the Hardies Hill tanker which was down the Madden Flat extension, south of Possum Gully Road. The conversation was about the wind shifting and the fire jumping over them.⁹⁰

11.4.52 At 3.57pm Mr Phelan attempted to communicate with the aircraft. He wanted to know "*... how far the fire is off the Linton-Snake Valley Road so we may have to go there to start a break ...*".⁹¹

11.4.53 At 3.58pm a message is recorded enquiring about the fate of the Dereel tanker which had been part of Lightfoot's Strike Team, until it fled the intersection of Madden Flat and Possum Gully Road as depicted on video. The message reads:

*"... Did you get through alright, Dereel?"*⁹²

11.4.54 At 3.59pm Mr Kavanagh radioed Phelan and said:

*"I think we've lost it there, we'd better make other plans, I think we got to get out now and get onto the other road. Over."*⁹³

11.4.55 Later in this communication Mr Phelan enquired as to the whereabouts of Lightfoot.

11.4.56 At 4.04pm there is a message from Mr O'Rorke to Phelan advising him that the Hadler "*... back-burn has got away and it's spotted out the front of it ...*".⁹⁴

11.4.57 In the course of the same communication Mr Lightfoot told Phelan:

"...Roger Des, we're coming out, we can't do any good here. (It's) gone over the top of us. I need to meet you on the road, if you are, back on the bitumen we're trying to get out."

Phelan: *"...Roger, I'm heading there now, I think we've got a major stand on the Linton-Snake Valley Road. Over ..."*⁹⁵

Lightfoot: *"Yeah, Roger, the wind chopped, changed right over the top of us."*⁹⁶

- 11.4.58** At 4.05pm there was a communication between Messrs Phelan and Kavanagh. The recording is patchy but includes:

"Got the grader and a few trucks with me, we can get out on the Linton Road....Gotta now, mate, 'cause it's gonna come right through. Over."

- 11.4.59** At 4.07pm Mr O'Rorke replied to Phelan:

*"Yeah, well I'm going back towards the control burn, about three quarters of a k. in from the Pittong Road. It is still on the east side of that track so its burning along there and getting a bit wider and she's coming."*⁹⁷

- 11.4.60** Mr John Wolfe was a senior firefighter in charge of the Dereel tanker. His evidence is dealt with in detail in Chapter 13 concerning the Madden Flat Road, Possum Gully Road back-burn and entrapment. He fled the intersection of Madden Flat and Possum Gully Road travelling north up Madden Flat Road, when he came across tankers attending to the spot fire on the east side of Madden Flat Road. He gave evidence that:

*"There was a fairly large fire that had started, either a spot fire or something had started – it was a fairly large fire. They were on the north side of it, the lower side of it. It was getting bigger, they had quite a lot of hose out, generally you don't run a lot of hose when you're in those situations. We just went up to them and said – 'Look we have just come out of a fairly intense situation. I believe you really shouldn't be here, you have too much hose out. We will give you a hand to put the hose on and get out of here.'"*⁹⁸

- 11.4.61** The CFA relied heavily on the cross-examination of Mr Munday and Mr O'Rorke to support the submission that the spotting came from the main fire and not the Hadler burn. The relevant passages of that cross-examination (as identified by the CFA) will now be considered.

- 11.4.62** Mr Munday when cross-examined said:

"As I understand the expert evidence, I probably misunderstand it, but evidence will be given by Dr Tolhurst that ahead of the main fire there were two spots, one which accounted for the fire which crossed over the intersection of Madden Flat Road and Possum Gully Road and also embraced the cross over that I have been describing to you over the word "Madden"?—Yes.

You didn't observe that so you aren't in a position to help us with that?—No.

He also describes a second spot to the east of that which on his charts crossed over Madden Flat Road at about the point described by the word "Flat"?—Yes.

Are you able to say whether the spotting over you saw to the east was a result of that spot fire or the back-burning that you observed?—I can only make a comment that when I flew over the back-burn on Madden Flat Road at about, you know, ten to four, there was already several small spots on the other side of the road ranging from a metre or so to, you know, several metres, maybe up to 40, 50, who knows, maybe 100 metres maximum. That's all I can say.

*So you really can't assist us beyond what you saw physically on the ground?—No."*⁹⁹

- 11.4.63** These answers do not support the contention a spot fire crossed the road from the main fire. In fact the observations are of "several small spots" ranging in distance from 1 to 100 metres from the road.

- 11.4.64** When questioned Mr O'Rorke said:

"You later say, you say this could be 10 minutes or indeed later than that, that you went back, and in your second statement, p.8, paragraph 23, you say, "At a later time I noticed that the fire was spotting over the back-burn to the south-east"?—Yes.

Does that mean that it was the main fire at that stage that was spotting over?—That I couldn't say, whether that spotting came from the main fire or the back-burn.

Whereabouts was it that you saw this spotting?—It would have been maybe about another half a k. further down from where the back-burn commenced.

Where are you? Are you up at this stage at 3,500 feet above sea level?—Yes.

How clear was your view as to what was happening at that point?—Prior to the back-burn commencing I was clearly able to see the vehicles that were going down that road, there was only two or three of them from memory, and then I had been - bear in mind that I don't stay in the one place, I was over other sections of the fire before I noticed what was going on back there again.

When you went back there, was it easy to make observations or a bit difficult at that stage?—The spotting was quite clear.

Yes?—Yes.

Where was the main fire at that time, was it still burning in tongues as you have described?—Fairly well. It was further south than what the back-burn, the start of the back-burn was.”¹⁰⁰

11.4.65 Nothing in these answers supports the contention that the main fire was spotting over the Madden Flat Road. To the contrary at the time of the observations the head of the fire was “further south than ... what the start of the back-burn was.”

11.4.66 The Panel of Experts was asked to consider this issue. By way of background to their report the experts considered many aspects of fire behaviour in a general way. One of those aspects was “*The Effect of Short-Distance Spotting on Fire Behaviour and Control.*”

11.4.67 On this topic the Panel of Experts said:

“The Expert Panel considers that short-distance spotting is the main mechanism that enables a forest fire to overcome discontinuities in the fuel bed (such as a road or firebreak) and negative slopes in the topography in relation to the direction of the prevailing wind. Firebrands, which are mainly pieces of burning bark, are carried up in the convection column and carried forward by the prevailing wind. If the firebrand is large enough to remain burning for some time, and is still alight when it falls to ground, it may start a spot fire. When a fire is burning upslope and has a strongly developed convection column most of the firebrands are burnt-out high above the ground and only the largest of the firebrands are capable of remaining alight for long enough to start a spot fire when they eventually fall to ground downwind. Firebrands created by intense burning may cause isolated spot fires several kilometres downwind of the main fire.

As the fire burns onto a firebreak the surface fire runs out of fuel. The reduced fire intensity causes the convection column to collapse the prevailing wind blows directly through the trees on the edge of the break. A mass of small firebrands is blown from the stems and upper branches of fibrous bark trees across the break starting a number of spot fires, generally in a triangular pattern with the apex of the triangle directly downwind of the centre of the head fire. These spot fires can rapidly burn together or coalesce and quickly reform the head fire in much the same shape and size that it had before it reached the break. This process can occur very quickly, especially under warm, dry and windy conditions, and the head fire can reform in a matter of minutes after the fire reaches the break.”¹⁰¹

11.4.68 It must be remembered that at the time the key witnesses made their observations of spotting over Madden Flat Road the wind had just changed direction to blow over that road. Prior to that the prevailing wind in the area was blowing NNE that is away from the road and towards the east flank of the fire.

11.4.69 In their joint report the Panel of Experts concluded:

“At around 15.45 hours the wind switched back to the NNW causing firefighters to evacuate from the Possum Gully-Madden Flat Road intersection. The change of wind direction also caused spot fires from the northern burning out operation on Madden Flat Road to carry the fire south of the road.”¹⁰²

11.4.70 This topic was then explored by Senior Counsel for the CFA when the Panel gave oral evidence:

"There is also evidence from other observers, including aerial observers and a Mr Kavanagh, who observed along that road what they thought was the main fire, of course it doesn't bear a label from their vantage point, 200 to 300 metres, when they saw it, west of Madden Flat Road. Now, we know that can't have been actually the main fire where they were alongside the back-burn, but that would support the proposition that there were spots in that area parallel to the road.

Dr Burrows: *That's correct.*

Mr Cheney: *I have no doubt at all there were spots in the area. There were hundreds of spots in the area. What I am contesting is that the large spot fire could not have burnt, with all due respect as Dr Tolhurst has drawn it because it started at 15.30, or thereabouts, and at that time we know that there was a north-east wind which was pushing the back-burn across away from Madden Flat Road. It would also have pushed that spot fire into the main fire very quickly because it is not only under the influence of the north-easterly, but some convective influence from the main fire which at that time is substantial, and this happens to spot fires.*

Mr Kaye: *If those spot fires are in the area that Dr Tolhurst has identified, under the impetus of a north-easterly that would support the impression at that time that there was a fire which was wrongly labelled by the eye witnesses as the main fire, about 200 to 300 metres west of Madden Flat Road running parallel with it.*

Dr Tolhurst: *It is important to appreciate that these fires would have, as I said, have started about 14.30, an hour before that suggested north-easterly shift. So they would have been travelling north?—They would have had an hour to burn before that.*

They would have been burning south-east and what I was going to put was on the wind shift they would have then been running parallel and when the wind changed back to north-westerly they would have then come across as you have depicted?—Yes.

Mr Cheney: *I just disagree with that interpretation.*

Dr Burrows: *Likewise, in addition to that, I just find it unusual that that spot has peeled off and gone to the east of the main fire run."*¹⁰³

11.4.71 The evidence of the majority of the Panel of Experts is accepted. The spotting occurring over Madden Flat Road between Pittong-Snake Valley Road and Possum Gully Road was caused by the fire lit by Mr Hadler's Strike Team. That having been said, it should be reiterated that for the reasons set out in Chapter 7 of this Report, the change caused to the fire by Hadler's operation did not contribute to the deaths of the Geelong West crew.

11.5 Submissions by the Parties

11.5.1 A number of the parties focussed upon a detailed analysis of three issues:

- (a) Whether what Hadler did was a back-burn or a burn-out;
- (b) What approval (if any) did he have; and
- (c) What were the consequences of the burn that he lit.

Back-burn or Burn-out?

11.5.2 "Back-burning" is defined as "a fire started intentionally along the inner edge of a fire line to consume the fuel in the path of a wildfire."¹⁰⁴

11.5.3 "Burning-out" is defined as "intentionally lit fires to consume islands of unburnt fuel inside the fire perimeter."¹⁰⁵

- 11.5.4** In the CFA Operations Guidelines “burning-out” is described as of “much smaller scale” than a back-burn and a “routine part of control line construction.” “Back-burning” it is said, should not be attempted without thorough planning and extra resources.¹⁰⁶
- 11.5.5** Likewise the text “Tactics and Administration in the Field (Volume 1)” devotes a separate chapter¹⁰⁷ to “back-burning.” It notes that “the purpose of back-burning is to reduce fuels in the path of the fire and contain its forward spread.”¹⁰⁸
- 11.5.6** The text continues:
- “Back-burning requires a high degree of skill, timing and co-ordination. The trained judgment of good personnel is an essential that cannot be imparted in any textbook or manual.”¹⁰⁹*
- 11.5.7** The text refers to back-burning in respect of forest fires.¹¹⁰ It states:
- “Back-burning should never be carried out in forest country in an attempt to stop a fire moving under very high or extreme fire danger conditions. The aim of the back-burn is to produce a dead fire edge at some accessible trail, either permanently established or constructed for the back-burn, in order to completely surround the fire and shorten the fire perimeter.*
- Back-burning will inevitably fail if carried out under very high or extreme fire danger conditions, or at any time when spotting is occurring.** To attempt to back-burn under these conditions is not only futile, but also can place the firefighters in grave danger of being trapped by spot fires. (Emphasis added)*
- While a forest fire is running under extreme conditions very little can be done to stop it or even confine the flanks.”¹¹¹*
- 11.5.8** The text continues:
- “A back-burn must be carried out by a competent fire officer. He must know exactly where the main fire is before he starts his back-burn. If at all possible the main fire should be inspected at close hand when it is safe to do so ...”*
- “Conclusions*
- In general, if the main fire cannot be controlled by direct attack, neither can the back-burn be controlled. Back-burning only makes the job easier and safer by bringing the fire edge out to where it can be most suitably handled. Back-burning should only be carried out at night or in mild conditions.*
- Always consider the area which will be enclosed by a back-burn, and be prepared to establish a bulldozer trail if it places the back-burn line closer the main fire. ...in all cases back-burning a large area must be a last resort technique. Direct firefighting with hand tools even in a very rugged terrain is often a far surer way of suppressing the fire.”¹¹²*
- 11.5.9** Despite the technical meanings attaching to the terms, a difficulty encountered in the evidence in this case is that the term “back-burn” is often used by firefighters to describe not only a fire lit in the path of the head of an approaching fire, but also to describe the lighting of fuel on the flank of a fire where that fuel is other than “an island” of unburnt fuel.¹¹³ In other words, firefighters do not consistently use the term “back-burn” in its technical sense.
- 11.5.10** This proposition is also supported by the virtually universal use of the term “back-burn” to describe the Hadler burn in the radio communications at the time, witness statements taken, including Mr Hadler’s statement, where he described what he did as a backburn and then defined the meaning and purpose of it, the joint “Operations Review” and evidence given at these Inquests, prior to the technical distinction between the terms being raised.
- 11.5.11** What is clear from the evidence referred to above, is that Mr Hadler believed that what he was doing was lighting a back-burn in the technical and not colloquial sense. His intention was to burn out ahead of the fire to stop it crossing Possum Gully Road.

- 11.5.12** With hindsight, knowing that by the time Mr Hadler started the burn, the fire had already crossed Possum Gully Road, strictly speaking the activity was a large scale, burning-out operation. This is because it was adjacent to the flank of the fire rather than a “back-burn” to attack the head of the fire.
- 11.5.13** The use of the term “back-burning” as described at paragraph 16.1.3 of the Operations Guidelines encompasses the activities of Mr Hadler which are the subject of this Chapter.
- 11.5.14** “Back-burning” is recognised as important and dangerous in the Operations Guidelines,¹¹⁴ as it was in its predecessor “*Tactics and Administration in the Field.*”
- 11.5.15** A section of the Operations Guidelines deals specifically with back-burning forest fires. It emphasises that:
- “(a) *If the head of the main fire cannot be controlled by direct attack, a back-burn cannot be controlled;*
 - “(b) *A back-burn is one of the most dangerous techniques of fire suppression and must be carried out by experienced personnel with adequate resources;*
 - “(c) *Before back-burning a thorough examination of fuels, weather and the position of the main fire must be undertaken;*
 - “(d) *Back-burning should only be carried out at night or in mild conditions;*
 - “(e) *In all cases, back-burning a large area must be a last resort.*”¹¹⁵
- 11.5.16** “Back-burning” is regarded as such a significant undertaking that the approval of the Incident Controller or Operations Officer is required before it is undertaken¹¹⁶ in an AIIMS fire.
- 11.5.17** Whether or not the activities of Mr Hadler are to be regarded as a “back-burn” for the purposes of the Operations Guidelines, the events at Linton suggests that activity on such a scale should not be undertaken without the approval of the Incident Controller or the Operations Officer.
- 11.5.18** The Hadler burn was vastly different from the usual burn-out done by firefighters in a direct attack on a flank, with different and more severe risks, both to the firefighters engaged in the activity and others on the fire ground.
- 11.5.19** In short, all the risks present when lighting a back-burn were also present in the case of the burn lit under the direction of Mr Hadler. They were:
- the possibility of spotting;
 - the risk of entrapping other firefighters; and
 - the risk of increasing the intensity of the fire.
- 11.5.20** The authors of the joint “*Operations Review of the Linton Fire/Midlands Fire*” were correctly of the view that in the circumstances prevailing at Linton on 2 December approval from the Incident Controller or Operations Officer should have been obtained before he embarked upon the exercise.¹¹⁷
- 11.5.21** What the fire at Linton has shown is that the currently accepted definitions of “back-burn” and “burn-out” and the system of supervision attached to them is not sufficiently discerning, to distinguish between those situations where the risk is so high to the safety of other firefighters, or to materially damaging the tactics being employed to combat the fire, that the Incident Controller’s permission should be obtained before carrying it out.
- 11.5.22** Any fire lit by firefighters which:
- involves burning large areas between the flank of the fire and the control line;
 - has the capacity to seriously increase the intensity of the main fire;
 - can cause spotting over the control line which cannot be contained by the crew lighting the fire;
 - could significantly increase the area of the fire; or
 - could place other firefighters on the fire ground in danger of being burnt over.

- 11.5.23** It should be observed, however, that the problems that occurred at Linton probably arose because the Hadler burn was a hasty strategy put together by firefighters on the fire ground rather than being a tactic developed in the IMT for controlling that part of the fire. By the time this incident occurred the IMT should have had an Incident Action Plan setting out tactics in the hands of key personnel on the fireground. No doubt such a plan would have been based on a bulldozer arriving in the area and being supported by appropriate DNRE or CFA crews. In that case these events would not have occurred and the risk to the lives of Mr Hadler's Strike Team and that of Lightfoot would not have occurred.
- 11.5.24** These events emphasise the importance of producing an Incident Action Plan in a timely way in a significant fire. They also highlight the need for agencies to reconsider the existing protocols for firefighters lighting fires in implementing firefighting strategies.

General approvals

- 11.5.25** A number of parties submitted that Mr Hadler had approval from Phelan to carry out the burn. It was submitted on behalf of Phelan at paragraph 11.10 that:
- "Effectively Mr Hadler had authority from Mr Phelan to do what he did."*
- 11.5.26** In a similar vein, the Volunteer Associations submitted that:
- "From the general thrust of the evidence, it seems that Mr Phelan had an understanding of what Mr Hadler was intending to do with the grader, and that Mr Hadler had the authority of Mr Phelan to so act if he thought fit."*¹¹⁸
- 11.5.27** The CFA submitted that:
- "The burn-out was conducted by Mr Hadler with appropriate approval and authority."*¹¹⁹
- 11.5.28** This submission was put on the basis that Mr Phelan as the Eastern Division Commander approved Hadler's activities:
- "... although Mr Hadler did not expressly say that he was going to light a burn-out, nevertheless Mr Phelan understood that was what he would use the grader for."*¹²⁰
- 11.5.29** The CFA further submitted that Mr Hadler was *"acting on Mr Phelan's authority."*¹²¹
- 11.5.30** Mr Graham gave evidence that it was part of Phelan's delegated role to approve burning-out and that he did not need to obtain approval from him (Graham) before that activity was carried out.¹²²
- 11.5.31** Mr Hadler gave evidence that Phelan left it up to him to decide if he should light a *"back-burn"*.¹²³ Hadler's evidence was:
- "A back-burn is where you burn from a safe line back towards the fire, burning out the country that the fire is headed to. This is of benefit because all the fuel ahead of the fire is burnt out and the fire can burn itself out."*¹²⁴
- 11.5.32** Mr Hadler said that his aim was to burn out west of Madden Flat Road and north of Possum Gully Road, to stop the fire north of Possum Gully Road.¹²⁵
- 11.5.33** The evidence referred to above demonstrated that Mr Phelan did not approve the activity described by Hadler or anything like it. It is clear that Phelan had no idea that that was what Hadler proposed to do and had no detail at all of Hadler's proposed activities prior to it being undertaken, other than the radio communication indicating an intention on behalf of Hadler to use the grader to *"track the edge"* of the fire. Hadler did not attempt to track the edge of the fire, he simply ran the grader down Madden Flat Road and lit up the western edge of that road.
- 11.5.34** The submissions that Mr Hadler's activities were *"appropriately authorised"* are untenable on the evidence. The CFA accurately submits that the point of analysing the Hadler burn and other incidents on the day is not to *"exploit or unfairly criticise or discredit any volunteers"*¹²⁶ but rather to give these matters *"careful consideration, with a view to identifying issues which can be used to prevent a repetition of any burn-over incident in the future."* The submissions of the

CFA seek a “fair and reasonable approach”¹²⁷ and that the tactical decisions “be analysed in a fair, balanced and dispassionate manner.”¹²⁸ These submissions have been considered.

- 11.5.35** Arguments about whether, in hindsight, Mr Hadler’s activity ought be properly categorised as “burning-out” rather than “back-burning” do not detract from the necessity that such significant actions on the fire ground from both an operational and safety perspective, be properly considered and approved as part of an overall strategy by those with all the information relevant to making such a decision.
- 11.5.36** It is of concern that the CFA is apparently content with the notion that “general authorisations” can be regarded as sufficient approval and authorisation for the engaging in conduct with such serious operational and safety consequences as the Hadler burn.
- 11.5.37** Any reasonable analysis dictates that approval and authorisation involves the person giving approval making an assessment of all available and necessary information, and the making of a specific strategic decision in light of the overall plan to suppress the fire.
- 11.5.38** Common sense indicates that it would be impossible for those responsible for managing, controlling and directing a firefight to carry out their functions, if firefighters down the chain of command were at liberty to engage in activities such as those of Mr Hadler, without getting express approval, not just in general terms, but in specific terms as to what they should do.
- 11.5.39** In the instant case, the Hadler burn placed at grave risk the firefighters under the command of Lightfoot, who were sent directly in to the downwind path of the Hadler burn without knowledge of it, and the Snake Valley ‘A’ tanker which was almost engulfed by it, having escaped the initial entrapment.
- 11.5.40** The events at Linton make it clear that general authorisations to do what the delegate considers appropriate in the circumstances are totally inappropriate. Such authorisation is an anathema to the AIIMS-ICS system. The CFA must ensure in future that the type of management as occurred with the Hadler burn is not repeated. Decisions must be made after appropriate consideration and by those in command actively supervising those working in a subordinate role. That means knowing exactly what the firefighters working in a subordinate role intend to do as a strategy of fire suppression.

Spot Fires

- 11.5.41** The issue of whether or not the spot fires observed on the east side of Madden Flat Road were caused by the Hadler burn or the main fire was fully considered in Section 11.4. The relevant conclusions are set out there.

Impact of Hadler Burn on the Fire

- 11.5.42** Issues relating to the impact of the Hadler burn on the fire were fully considered in Chapter 7 of this Report. It is sufficient here to reiterate the conclusion of the Panel of Experts which is accepted:

“This burning-out operation increased the width of the fire by around 300–400 m between the Pittong-Snake Valley Road and Sludge Gully. The fire resulting from the breakaway of this operation was drawn into the eastern flank of the main fire and did not have any significant influence on extending the fire to the south.”¹²⁹

11.6 Conclusions

- 11.6.1** The Hadler burn was not approved or authorised by Messrs Phelan or Graham.
- 11.6.2** A proper assessment of the factors operating on Madden Flat Road at 3.24pm would have resulted in a decision not to light the burn.
- 11.6.3** Whether Mr Hadler’s activity is described as a “back-burn” or a “burn-out” it should not have occurred and similar operations should not occur in the future unless approved by the Incident Controller, before any burning is done.

- 11.6.4** The Hadler burn spotted over to the east of Madden Flat Road.
- 11.6.5** It was fortunate that the Hadler burn did not cause death or serious injury to:
- The Snake Valley tanker 'A' crew as they attempted to reach Pittong-Snake Valley Road, and
 - Mr Lightfoot and his crew working directly downwind from the burn on or about Possum Gully Road, and
 - Those involved in it, and
 - Other firefighters on the fireground whose whereabouts Mr Hadler was not aware of.
- 11.6.6** The Hadler burn widened the fire by between 200 and 400 metres on the eastern flank between the Pittong-Snake Valley Road and Sludge Gully.
- 11.6.7** The Geelong Strike Team would not have been at the location it was at the time of the wind change if the Hadler burn had not been lit.
- 11.6.8** The impact of the Hadler burn did not contribute to the cause of death of the five firefighters but was rather a relevant background circumstance in relation to those deaths.

Lightfoot Vehicle Incineration

12.1 Introduction

- 12.1.1** The events described in this Chapter overlap to some extent with those described in Chapters 11 and 13. At around 3.30pm Mr. Lightfoot was the leader of the Buninyong Strike Team. At about that time he led that Strike Team into the intersection of Possum Gully Road and the Madden Flat Road extension, the intention being to burn out the south west corner of the intersection and pinch out the head of the fire.
- 12.1.2** This operation was going on at the same time as Mr. Hadler's Strike Team, assisted by a grader, was burning out the west side of Madden Flat Road in a southerly direction from Pittong-Snake Valley Road. These events have been described and analysed in the previous chapter.
- 12.1.3** Section 1 of Chapter 11, which deals with the command structure at the Hadler back-burn is applicable to, and forms the background to this incident in which Mr. Lightfoot lost his utility.

12.2 Initial Assessment

- 12.2.1** By around 2.30pm Messrs Graham and Britton had arrived at Linton.
- 12.2.2** At about 2.37pm a radio message was sent to Mr Phelan by Alice Knight to return to Linton and meet with Graham. Phelan's response was:
- "I might go to Linton after I get this a bit organised here, Alice."*¹
- 12.2.3** Mr Phelan returned to Linton a short time later. The eastern flank of the fire was identified at an early stage as the likely problem area of the fire.²
- 12.2.4** At around 2.50pm there was a meeting in Linton between Graham, Britton, Anderson and Phelan. Lightfoot was present for at least part of the time. It was around this time that Kavanagh reported to Phelan that the fire had crossed Pittong Road and Alice Knight broadcast that information on Channel 15A at 2.46pm.³
- 12.2.5** At 3.05pm Mr Phelan advised Kavanagh, who was on the eastern flank on Pittong-Snake Valley Road, that he was working on getting a dozer to go in and had about *"15 trucks on their way in"*.⁴ This included Lightfoot in his private utility with his Strike Team and Taylor with additional tankers from the Buninyong Group.
- 12.2.6** The meeting referred to above was still going at 3.13pm, as Mr Lightfoot told the pilot O'Rourke that the meeting was occurring, on Channel 15A, at that time.⁵
- 12.2.7** Mr Leach at the IMT was contacted during the course of this meeting. He gave evidence that by 3.00pm he was receiving Situation Reports from the Operations Point.⁶
- 12.2.8** At 3.17pm Mr Phelan told Kavanagh that a dozer was coming and that he (Phelan) was about to go and meet it.⁷ Phelan also advised Lightfoot that he would *"be there shortly"*.

At the same time, Phelan asked O'Rorke for a report on where the fire was, and in particular how far from a fuel reduction burn the fire was so that:

*"... we believe if in fact if it's near the burn we'd probably be able to put a burn in from there and cut the front of it off."*⁸

- 12.2.9** At 3.21pm Mr Lightfoot told O'Rorke that he and Phelan were going down to the Linton-Snake Valley Road at that time.⁹
- 12.2.10** Mr Lightfoot gave evidence that the plan settled upon, following the meeting, was to control the fire within the boundary of Linton-Snake Valley Road and the Glenelg Highway, to stop the fire spreading into pine plantations. He said that protecting the township of Linton was also a concern. He said that this was to be achieved by putting a control line around the perimeter of the fire using bulldozers and natural barriers. Lightfoot stated that he went to the Linton-Snake Valley and Possum Gully Road intersection where he met Taylor. He also said that Phelan arrived shortly thereafter and they discussed tactics. It was decided that Taylor would take four tankers and return towards Linton to put out any spot fires and that he (Lightfoot) would take the remaining trucks down Possum Gully Road *"to meet the Grenville Group"*.¹⁰
- 12.2.11** Mr Lightfoot stated that most of the tankers were four-wheel drive and he decided to take the CFA tankers *"into the bush"* and not the Brigade owned tankers.¹¹
- 12.2.12** Mr Phelan stated that when he got to the intersection of Possum Gully Road he understood the fire to have gone past Possum Gully Road. He said that he sent Lightfoot in with four tankers to *"see where the fire was and what he could do to fight the fire"*.¹² Once again, the radio logs assist in placing accurate timeframes on the chronology of events leading up to the destruction of Lightfoot's utility.
- 12.2.13** At 3.26pm Mr Lightfoot called Phelan on radio channel 15A to tell him that he was at Possum Gully Road. Phelan said: *"you might go down there"*. Lightfoot said: *"just looks as if it is way past us, that's all."*¹³
- 12.2.14** At 3.30pm Mr Phelan told Alice Knight that the fire *"... is well over Possum Gully Road."*¹⁴
- 12.2.15** At 3.31pm Mr Kavanagh made a *"mayday"* call to Phelan for an ambulance for the injured Eric Hollingworth.¹⁵
- 12.2.16** As stated in the previous Chapter, Mr. Hadler's evidence is that he started his burn from the corner of Pittong Road south down Madden Flat Road shortly after his radio communication with Phelan at 3.24pm.
- 12.2.17** At 3.36pm there is a radio communication, previously referred to, on Channel 15B, indicating that the Hadler burn was underway.¹⁶
- 12.2.18** At the intersection of Possum Gully Road Messrs Lightfoot, Phelan and Taylor conferred. The tankers were split into two groups as described by Lightfoot.
- 12.2.19** It was decided that Mr Lightfoot would travel down Possum Gully Road in his utility with five tankers and a water tanker. They were also accompanied by a television crew. The tankers were Hardies Hill, Napoleons, Enfield, Mt Buninyong, Elaine and Dereel.
- 12.2.20** The convoy travelled down Possum Gully Road towards the intersection of Madden Flat Road, effectively directly into the path of the burn that Hadler's crew was in the process of lighting.
- 12.2.21** Despite suggestions that Mr Phelan had *"authorised"* the Hadler burn, it is clear that Phelan did not know that Hadler was lighting up the western side of Madden Flat Road south from the corner of Pittong-Snake Valley Road. The evidence in relation to this matter is referred to in detail in the previous Chapter.
- 12.2.22** Mr Lightfoot's evidence also confirms that at the time he and his team travelled down Possum Gully Road, he and Phelan did not know that Hadler was lighting his burn. Mr Lightfoot was asked:

“Just in terms of Mr Phelan’s briefing, were you aware that Mr Hadler was burning down Madden Flat Road?—No.

When did you become aware of that?—When I met Ray Hadler, he was on the radio just as I was driving in, I believe he did mention he was then doing it, but I didn’t know Mr Phelan didn’t tell me and I wasn’t aware of it when I was with Mr Phelan at the ...

In a matter of minutes of leaving Mr Phelan you spoke on the radio to Mr Hadler and ascertained?—No I didn’t say that.

Alright, you heard on the radio something by Mr Hadler did you?—Yes he was speaking to someone.

You came to learn that in fact he was burning down Madden Flat Road?—Yes that was confirmed when I met him at the crossroads.”¹⁷

- 12.2.23** Mr Lightfoot was not aware of Hadler’s burn directly to the north until he saw Hadler at the corner of Madden Flat Road and Possum Gully Road.¹⁸
- 12.2.24** In his statement Mr Lightfoot said that when Phelan sent him down Possum Gully Road it was to “assist the Grenville Group” and that this included authority to light “back-burning activity as required”. For this reason he said that he did not seek the approval of Phelan to light the burn or notify anyone that he had lit the burn.¹⁹
- 12.2.25** It was in these circumstances that Mr. Lightfoot found himself in charge of the Buninyong Strike Team at the intersection of Possum Gully Road and Madden Flat Road extension.

12.3 Deployment of Resources

- 12.3.1** Mr. John Wolfe, the crew leader of the Dereel tanker, said that he was allocated to the task force lead by Lightfoot, by Phelan, upon arriving at Linton. He believed that John Taylor told him that they were going to back-burn and believed the decision to back-burn was made before they got to the intersection of Linton-Snake Valley and Possum Gully Road.²⁰
- 12.3.2** Mr Stephen Hodgetts was acting as an assistant for Lightfoot. He says that the team went down Possum Gully Road to investigate what the fire was doing.²¹ He said that it was not until they stopped at the Possum Gully Road-Madden Flat Road intersection that there was any talk of back-burning.²²
- 12.3.3** Mr Hodgetts gave evidence that it was the four-wheel drive tankers that went with Lightfoot and the others with Taylor.²³ He said there was also a water tanker that followed them in because of lack of water resources in the area.²⁴
- 12.3.4** As mentioned above, a news crew accompanied Mr Lightfoot’s team down Possum Gully Road to the Madden Flat Road intersection. A number of aspects of the incident that followed are captured on film, including Hodgetts walking along the line of tankers telling them that they are going to do a burn. It was this video, along with an analysis of the radio communications, that drew to attention the Possum Gully Road/Madden Flat Road burn-over dealt with in Chapter 13 of this Report.
- 12.3.5** Although the Hadler and Lightfoot burns were referred to in critical terms in the Joint “Operations Review of the Linton Fire/Midlands Fire”, no mention was made in the Review of the burn-over that required five tankers, trapped at the intersection, to go into survival mode when overrun by the fire. It would appear that at the time of the preparation of that report the Buninyong Strike Team members had not been interviewed about these events, as the investigating team was not aware the events had occurred. This raises questions about the adequacy of reporting systems for “near miss” incidents and is considered later in this Chapter.
- 12.3.6** As referred to in Chapter 11, Mr. Hadler had come down to the Madden Flat Road intersection with Possum Gully Road in the Rokewood Junction tanker. He and Lightfoot spoke at the intersection. Lightfoot then returned and told Hodgetts to let the trucks know they were going to back-burn. Hodgetts went along and did this.²⁵

12.3.7 The position where Mr Lightfoot instructed the firelighters, Bedgood and Herrington to commence the burn was the south-west corner of the intersection. They moved south, down the Madden Flat Road extension, which was a dead end. Hadler's understanding of what he and Lightfoot had agreed upon was that Lightfoot was going to burn from the intersection, north up Madden Flat Road to join his burn, to stop the fire north of Possum Gully Road.²⁶ Hadler gave evidence that he saw Lightfoot commence to light the burn but did not say anything to him about it.²⁷

12.3.8 In his evidence Mr Lightfoot was questioned about why he lit the burn on the south-west corner of the intersection rather than the north-west corner, if the aim of the exercise was to attempt to link up with Hadler's burn.

"You are no doubt aware Mr Lightfoot that the tactic you employed of lighting up from Possum Gully Road down the Madden Flat

Road ...?—Yes.

Extension has been criticised?—Yes.

As an inappropriate tactic. What was the purpose, why did you do that on the day, what were you seeking to achieve?—First of all, it was a mistake to do what we did in hindsight. Well, we underestimated the fire, for a start, or I underestimated the fire, I underestimated the fire. It was a mistake. We should have just waited until Mr Hadler had come forward instead of trying to help him in what he was doing. We should have just waited. It would have been a better method in hindsight, Your Worship. Why I did it, was the question.

Yes?—The question why I did it was, first of all, I made the decision so I had to – the reason I made the decision to do it was to create an anchor point at that corner because, as you are aware, from that corner there is a ridge going up, it's got a northern slope. At the time it seemed reasonable because the fire was stable, there wasn't a great intensity in it. The idea was to burn the corner out and then, if we got the opportunity, to run the fire back towards Mr Hadler from the corner but we had to get an anchor point to do what we were doing to do that. In the end I was glad I did light it because it gave us protection.

When the wind shifted?—Yes.

And brought the fire?—Yes.

Why didn't you light your fire from the other corner heading back towards where Mr Hadler was coming from, why did you light it on the southern side of the intersection?—Because if we had done that we wouldn't have had any protection if things went wrong, which I didn't know was going to go wrong but I am glad I did it." ²⁸

12.3.9 There appears to be no reason why the south-west corner was a better place to make an *anchor point* than the north-west corner. Although lighting any fire under the prevailing conditions was foolhardy, taking into account Mr Lightfoot's explanation of what he was seeking to achieve, burning back up Madden Flat Road from the north-west corner would seem to have been a better option than burning from the south-west corner as he did. Starting from the north-west corner would at least provide the protection of the Madden Flat/Possum Gully Road cleared intersection in terms of potential spotting. Starting on the south-west corner meant the fire would travel down a dead-end track with no barrier to stop the fire running away with the prevailing wind.

12.3.10 Mr. Terry Bedgood was a member of the Napoleons Brigade. Napoleons was one of six tankers to attend the fire under the control of John Taylor.²⁹ At the time he arrived at the fire Bedgood thought the wind was blowing "*a bit north-westerly.*" ³⁰

12.3.11 Mr Bedgood said that on the instructions of Lightfoot, followed by Herrington they used firelighters to light up in a southerly direction down the Madden Flat Road extension track from Possum Gully Road. Bedgood stated that Lightfoot was in his ute following Bedgood.³¹

12.3.12 Mr Bedgood stated that after they had lit up a short distance, he noticed that the main fire had gone across the track a short distance in front of them.³²

- 12.3.13** The video footage of the Lightfoot burn commencing at the corner of Possum Gully Road shows the fire running up trees and an appreciable wind at a time shortly after it was lit. Only the Hardies Hill and Napoleon Enfield tankers turned the corner left down Madden Flat Road extension. The others remained on Possum Gully Road, along with the water tanker.

12.4 Events

- 12.4.1** Mr Lightfoot gave evidence that shortly after the burn commenced he saw a spot fire further down the track. He said that he drove down the track, leaving the black thus exposing himself to unburnt fuel on both sides of his vehicle. Lightfoot stated that as he tried to turn his ute around it became trapped in a mine shaft and he then abandoned it for the Hardies Hill tanker in the face of the approaching fire.

- 12.4.2** Mr Lightfoot stated that he alone made the decision to drive his ute away from the black down the Madden Flat Road extension.

- 12.4.3** Mr Bedgood stated that after travelling about 100–150 metres down the track from Possum Gully Road, the wind began to pick up. Bedgood said that Lightfoot tried to turn his ute around and it got caught in an old mine shaft: *“The fire was right ... on the ute.”*³³ Bedgood said that he and Lightfoot took refuge in the ute, which was about 250 metres down the track south of Possum Gully Road. He said they abandoned the ute as the fire approached and moved north up the track, about 100 metres, to the Hardies Hill tanker. Bedgood said the fire was running up the trees and it crossed the track by the time they got back to the Hardies Hill tanker. He said the smoke was thick and visibility was poor. Bedgood said Lightfoot got into the cabin of the Hardies Hill tanker and Bedgood got onto the back.³⁴ The fire then burnt over the top of the tanker with the crews on the back activating fog sprays to protect themselves and the tanker. Further details of this entrapment are provided in the following chapter, Chapter 13.

- 12.4.4** In his signed statement Mr Lightfoot said:

*“I noticed a spot fire down in a gully south of the intersection. I decided to go down in my ute to check on this spot fire to see what it was doing. Just as I got there I received a message from Ray Hadler and overheard aircraft to say that the fire was spotting and I said that we were wasting our time so I said pull back to the intersection of Possum Gully Road and Madden Flat Road and let it go. As I went to drive out my vehicle became stuck in a disused mine shaft ... I endeavoured to get it out but couldn’t so the decision was made to leave it. I then walked back to a truck that was coming down to my location. I told them that it was too dangerous to go down there and we have to get back to the intersection. I then got into the Hardies Hill tanker and went back with them to the intersection. We waited at this location for the smoke to clear and we gathered all the vehicles and went to the Linton-Snake Valley Road.”*³⁵

- 12.4.5** More detailed accounts were given in evidence before the Inquests.

- 12.4.6** Mr Hodgetts gave the following account:

“Did Mr Lightfoot discuss with you why you stopped at Possum Gully Road as opposed to any other road along that section of the road?—There was discussion at that time when we were going up the Snake Valley-Linton Road, Ian was on the radio with somebody, I can’t recall who, and we were looking at the smoke from the head of the fire and trying to determine exactly how far the fire had come through from Snake Valley towards Linton and looking at the map at the same time, and at that stage we thought we could go in at Possum Gully Road and that’s why we took the decision to go down there as far as I am aware.

Were you present at that meeting?—Bits of it, yes.

Was any strategy set out in the sense of what was to be done when you went up Possum Gully Road, what was the purpose of going up Possum Gully Road?—My understanding was we were going to go down Possum Gully Road to actually assess exactly what we could do, I don’t know what information that Ian and the others had,

*my understanding was that we were going down there to investigate and do what was required...*³⁶

12.4.7 Later Mr. Hodgetts said:

"I was standing in front of the trucks keeping an eye on what was going on. I spotted a small spot fire that had popped over the Hardies Hill tanker and landed on the eastern side, I think. I went back to the truck to extinguish, to make sure that the spot fire was extinguished. I came back to the front of the truck and I looked down towards where Ian had gone and at that stage there was a wind change, and looking down the road from the west I could see the flank of the fire coming across and I don't know how long it took me to sort of realise things were going astray, and at that point in time I looked down to see where Ian was, and himself and the two firefighters were coming back up the track, actually they were in the bush they weren't on the track. We had a brief discussion at that point.

The Coroner: Himself and two firefighters, what does that mean?—Sorry there was myself there, Mr Bedgood, Mr Herrington and Group Officer Lightfoot.

What were they doing, were they walking or ...?—No, actually I think Ian might have been running actually.

They were coming towards you were they?—That's correct.

There were definitely three of them?—Yes.

*Yes?—At that point when I was talking to them they indicated that they had tried to do a three point turn in the bush and Mr Lightfoot's vehicle had caught its wheels in a mine shaft in some way, shape or form. I didn't believe that they would have time to extract the vehicle from that position so they came back to the safety of the tankers."*³⁷

12.4.8 Mr Lightfoot radioed for help as he had his "ute" stuck.³⁸

12.4.9 Mr Lightfoot's utility was engulfed in flames and completely destroyed shortly after he and Bedgood abandoned it.

12.4.10 Mr Lightfoot was questioned about driving his "ute" away from the safety of the black. He was asked:

"I want to ask you about this rule that Ms Fox asked you about, the basic fundamental rule of always sticking to the black?—Yes.

And never going past a dozer when you are working behind a dozer down a control line?—Yes.

I think you have indicated or acknowledged that you breached that fundamental rule when you drove further down the track?—That's true.

*Did you regard that action as a breach of the rule, or something that was an exception to the rule, do you understand the distinction?—I was aware it was something I shouldn't do, but I was also aware that I was very watchful and I knew exactly what I was doing, and I considered because of my experience I had the experience to be able to do that but it was a stupid thing to do."*³⁹

12.4.11 Mr Lightfoot was then asked about Hadler's conduct in driving past the dozer, leaving the black, to drive to the Madden Flat Road-Possum Gully Road intersection. Mr Lightfoot's evidence was:

*"... it's not what I would call textbook stuff, but it's not too bad, as long as you are aware of what you are doing."*⁴⁰

12.4.12 Mr Lightfoot was asked:

"The point that I am getting to, and I will come straight to it ... is that you weren't far off being in a reasonable amount of difficulty in relation to that, were you, with your ute, being unable to drive your ute and the fire approaching?—I stupidly drove into a mine shaft, Your Worship. That was completely because I wasn't watching

what I was doing, I was watching the fire, the fire behaviour and I was very aware of what it was doing. I was watching the fire. I had another person come down to me, which was Mr Hodgett. Another person stayed halfway between Hardies Hill tanker and me and watched out for us, so we were very watchful. I will admit I stayed there too long trying to get the vehicle out, I should have, when it went in, just left. And when we got back to the Hardies Hill tanker it was – there was not a wall of flame go over the top of Hardies Hill tanker because we had black against us for about 20–30 metres. While it was uncomfortable and smokey no-one was ever going to get hurt, which they didn't.”⁴¹

12.5 Near-miss Incidents

12.5.1 This topic is dealt with in detail in other Chapters of the Report where the various near-miss incidents that occurred prior to the fatal entrapment, were considered. General knowledge of Lightfoot's utility being incinerated spread around the fire ground. But, as with the other incidents on the day little or no detail was provided and no analysis of the implications of the incident was carried out.

12.5.2 The following submissions were made on behalf of Mr Lightfoot regarding this topic:

“The Inquest heard evidence about near-miss reporting during the run of an incident. Evidence was given by Mr Leach that he would have expected incidents such as the Possum Gully Road/Madden Flat Road burn-over to be reported. However the evidence establishes that at the time of the Linton Fire, the CFA had no regular near-miss incident based reporting system in operation. Mr Leach agreed it has not been part of the CFA culture to report near-miss incidents, and further that people need to be taught to report such incidents.

It is submitted that in the absence of any formal reporting procedure that is both established and taught to personnel, no criticism can be made of any individual who did not report what is now termed a 'near-miss incident'.”⁴²

12.5.3 On behalf of Mr Lightfoot it was further submitted that:

“It was common knowledge on the fireground on the day that Mr Lightfoot had lost his utility. It was known by those at the Forward Operations Point and the IMT. It did not cause anyone in the chain of command to query what had happened in any detail.”⁴³

12.5.4 Whilst it is true that word of Mr Lightfoot's loss of utility spread to the Operations Point and the IMT during the course of the day no consideration was given to the full details of that incident and the other near-miss incidents and any impact that they may have had upon the capacity of Mr Lightfoot to properly carry out his supervisory function in relation to Strike Teams under his command, either from a physical or competence point of view.

12.5.5 Regarding incident reporting, The Volunteer Associations submitted that:

“... had Mr Lightfoot been appropriately appraised of the need to report near-miss incidents, he would have reported this incident to Mr Phelan, his Divisional Commander, for purposes of notifying those in the Forward Operations Point, and this in turn would be reported up the chain of command to the Operations Officer in the IMT. This information could then be disseminated to those on the fireground through the appropriate channels of communication on the fireground. It is acknowledged that this type of information is useful to alert firefighters to the way the fire has been behaving during the course of the day, of the presence of mine shafts on the fireground and act as a prompt for firefighters to be mindful of safety issues on the fireground generally. It is also appropriate for those in the Planning Unit of IMT as this type of information has the potential to enhance their understanding of the implication of changes in the fire that may have an impact on safety (T.7163 lines 25–32, T.6861 lines 2–17, T.7315 lines 2–4, T.7316 lines 1–21, T.7421–2 lines 18–30 and lines 1 and 2). The CFA needs to establish and to reinforce a system so as to ensure that incidents/accidents like this event are reported during the course of the fire control activities.”⁴⁴

12.5.6 It is somewhat surprising that the important (essential) information that can be gleaned from near-miss incidents had not previously been recognised, by the CFA because the AFAC “Incident Control System” manual, Learning Manual 4.04, published in 1996, provides that:

“Report Special Incidents and Accidents

- *Indicate the information required:*
 - *nature of event*
 - *location*
 - *magnitude*
 - *personnel involved (no names to be broadcast over radio)*
 - *initial action*
 - *subsequent action*
- *obtain information from*
 - *subordinates*
 - *personal observation*
 - *ground or air observers*
- *request assistance needed, such as helicopter, ambulance or tow truck*
- *submit report to Incident Controller.”*⁴⁵

12.5.7 Clearly such a system was contemplated under AIIMS principles and would have had to have been consulted about and agreed on by participating agencies in the AFAC process prior to the publication of this manual. The AFAC members at the time of publication of the manual included the “Department of Natural Resources and Environment, Victoria” and the “Country Fire Authority, Victoria”.⁴⁶

12.5.8 The joint “Operations Review of the Linton Fire/Midlands Fire” recognised the need to report and analyse near-miss incidents in its Recommendations 37, 38 and 39.

“Near-Miss Incidents

37. *A joint procedure should be adopted for recording, analysing and reviewing wildfire incidents where safety is compromised.*
38. *The standard fire orders and watch out situation should be jointly reviewed by CFA and NRE on a regular basis to ensure consistency with current experience.*
39. *Incidents that have compromised crew safety should be documented and used as scenarios for safety and survival training.”*⁴⁷

12.5.9 The CFA acknowledges that the IMT “had limited knowledge of a number of incidents which occurred in the early stages of the fire.”⁴⁸

12.5.10 The CFA further submitted that it:

*“recognises that is important that information concerning that type of incident be conveyed to those responsible for managing the fire, including the IMT. Since Linton, the CFA has taken steps to have those incidents reported.”*⁴⁹

12.5.11 Reference is then made to the Chief Officer’s Standard Operating Procedure, 3.07 Clause 1.⁵⁰

12.5.12 If proper supervision and management in accordance with AIIMS-ICS principles is in place, there would be little need for a specific direction regarding the reporting of near-miss incidents. Put simply, any supervisor should be aware of what those under his supervision are doing, including any “near-miss” incidents or any other relevant information or observations about fire behaviour or for that matter anything else of significance that is occurring on the fire ground. Such information should rapidly make its way up the chain of command to the IMT so that, along with all the other information that the IMT is in possession of it can be factored in to the important task of directing and managing the incident. If the AIIMS-ICS system had been properly functioning at Linton this and other “near-miss” incidents would have been promptly reported up the chain of command. Lightfoot to Phelan to Graham to IMT. It is not that difficult or complicated. The fact that it was not done is yet another indication of the failure of the IMT to take control of command at the Linton fire.

- 12.5.13** In light of the above it is therefore disappointing to see submissions to the effect that people are reluctant to report near-misses and given the *“dynamic nature of wildfire”* it is a matter *“of conjecture as to just how much information would have been conveyed to the IMT even if a more stringent process of reporting had been implemented.”*⁵¹ Such submissions create a perception of a lack of desire in the agency to address this important problem, which can have an integral impact on safety on the fire ground.
- 12.5.14** If the communication of such important matters as *“near-miss”* incidents cannot be successfully channelled through the communication systems from the fire-ground through the chain of command for the incident to the IMT, what hope is there of the IMT getting anything like the detailed reporting that it needs to carry out its functions?
- 12.5.15** The CFA also submitted that:
- “On the evidence the fact that they were not reported in respect of the Linton Fire did not materially affect management of the fire or the strategy implemented.”*⁵²
- 12.5.16** Presumably what is meant by this submission is that the direct attack on the eastern flank of the fire would have been maintained using the Geelong Strike Team.
- 12.5.17** If that had occurred after the appropriate reporting of the *“near miss”* incidents occurring during the afternoon at Linton then it would lead to questions as to whether one or both of the agencies were competent to administer a fire in accordance with AIIMS-ICS principles. The evidence at these Inquests establishes there were many witnesses from both agencies who demonstrated that they were capable of administering a fire under AIIMS-ICS principles. If that is the case, then at least some of the personnel making up the IMT should have come to the realisation, long before the Geelong Strike Team were entrapped, that the fire was burning in dangerous conditions and terrain and was capable of becoming life threatening very quickly. That realisation should have sparked the IMT to give greater supervision to issues of safety, particularly on the eastern flank of the fire, including:
- Careful re-appraisal of the tactics incorporated into the Incident Action Plan;
 - Checking of the command structure to satisfy the IMT that it contained an appropriate mix of qualified and experienced firefighters at key points on the fire ground; and
 - Actually checking the competence of Strike Teams allowed on to the fire ground.
- All this would have amounted to was pro-active supervision after warnings contained in these incidents, rather than continuing with a plan that the evidence showed existed at this fire, of assuming everything is alright.
- 12.5.18** If such pro-active supervision had occurred at Linton, and there is evidence on which it would have been expected to happen,⁵³ then there is a high probability that the Geelong Strike Team would not have been entrapped and an experienced alternative forest firefighting team would not have placed itself in the situation to be trapped. It is imperative therefore that the agencies implement a going fire *“near miss”* reporting system that:
- Passes relevant information of *“near miss”* incidents to the IMT immediately;
 - That appropriate definitions of *“near miss”* incidents are developed which ensures that all information relevant to serious safety issues on the fire ground are transmitted to the IMT; and
 - Guidance be given as to the type and amount of information required for the IMT to positively deal with the interpretation of such incidents.

12.6 Submissions

- 12.6.1** It was submitted on behalf of Mr Lightfoot that driving ahead of the burning out operation through unburnt fuel involved taking a risk. It is submitted that similarities exist between Lightfoot’s conduct and the behaviour of Scherger later in the day when he conducted his reconnaissance walk through unburnt bush. It was submitted on behalf of Lightfoot that:

“Events such as these occur suddenly and unexpectedly and those involved have to make decisions at the time.”

- 12.6.2** Mr Lightfoot conceded frankly that with hindsight it was unwise. It is not submitted that Mr Lightfoot should have taken such a risk. It is submitted that the fact that Lightfoot, Bedgood and Herrington were unharmed is not the result of “good luck”. It is said that Lightfoot and others were carefully watching the fire and continually assessing the situation and made a conscious decision to leave the utility based on the changing fire behaviour.⁵⁴
- 12.6.3** Messrs Lightfoot and Bedgood were in a very dangerous predicament. The evidence discloses that they were literally seconds away from perishing and were lucky to make it back to the sanctuary of the Hardies Hill tanker.
- 12.6.4** It must be emphasised that it is very difficult for firefighters to estimate with precision the speed at which a fire can travel towards them and the distance between themselves and the fire. Miscalculations have caused fatalities and will continue to cause fatalities if firefighters place themselves into positions similar to that of Mr Lightfoot.⁵⁵
- 12.6.5** The Paper “*The Dead Man’s Zone – A hitherto ignored area of firefighter safety*”⁵⁶ examines the issue in detail. This issue requires *increased emphasis, not just in book training but in having firefighters experience and observe how dramatically the behaviour of fire can change in a short time with a change in wind direction and how the speed of movement of a fire can change given favourable fuel loads and topography*. (Emphasis added)
- 12.6.6** Mr Lightfoot’s perilous circumstances are highlighted by him radioing for help and the fact that the fire intensity was too great for the Hardies Hill tanker, the one closest to him, to go to his assistance.⁵⁷ In the end, Lightfoot and Bedgood arrived in the Hardies Hill tanker only moments before the fire engulfed the tanker which went into survival mode. Anyone caught in that fire without the protection of the at least partially burnt-out ground to the west and of a tanker with water would undoubtedly have perished.
- 12.6.7** The evidence therefore plainly demonstrates that Messrs Lightfoot and Bedgood were lucky to escape. This should be recognised by all parties so that positive lessons can be learnt from this and the other near-miss incidents that occurred during the relatively short run of the relatively moderate Linton Fire. Endeavouring to credit Lightfoot’s escape to his experience and observation capacities is not something that is reflected by the evidence and only serves to dull or obscure the clear lesson to be learnt from the incident.
- 12.6.8** The Volunteer Associations submitted that Mr Lightfoot radioed for assistance and someone came to assist him and that another person positioned himself halfway between Hardies Hill tanker and Lightfoot’s utility to “watch out for them.”⁵⁸
- 12.6.9** The Volunteer Associations further submitted that:
- “Whilst the evidence on this point is unclear, it is understandable in events such as these that recollections will differ. The picture that emerges is that Mr Herrington went down to the utility to assist and it was probably Terry Bedgood who positioned himself between the utility and the Hardies Hill tanker.”*
- 12.6.10** It is clear on the evidence of Mr. Bedgood that at one stage he was in the utility with Lightfoot and in fact fled the utility with Lightfoot to the sanctuary of the Hardies Hill tanker. Other than Lightfoot, there does not appear to be any evidence of a person positioning themselves between the Hardies Hill tanker and his utility to “watch out”. The evidence does not disclose that any person was specifically positioned in a “watch out” position.
- 12.6.11** The Volunteer Associations further submitted that they “support Mr Lightfoot’s prompt action in telling his Strike Team to retreat the intersection.”⁵⁹ This submission misunderstands the evidence. When stranded down the Madden Flat Road extension, Mr Lightfoot in fact radioed his Strike Team for assistance. The Hardies Hill tanker endeavoured to respond but could not proceed any further down the track because of the extreme fire conditions.
- 12.6.12** Contrary to the submissions of the Volunteer Associations, by placing himself in a dangerous position and then radioing for help from his tankers, it is fortunate that the Hardies Hill tanker (and the other tankers) did not place themselves in a position of even greater danger by trying to go to Mr Lightfoot’s assistance.

- 12.6.13** It is also apparent from the evidence that Mr Lightfoot's instruction to his Team to reverse towards the intersection occurred after he made it to the safety of the Hardies Hill tanker. The instruction is recorded at 3.53pm on Channel 15B: *"Buninyong Group, all trucks reverse back."* Still at 3.53pm there is another message on 15B: *"...tanker, Hardies Hill tanker."* The call is acknowledged: *"Hardies Hill tanker."* The message continues: *"We are out of water ... can you come down to us"* and is then lost in static. This call was immediately after the burn-over, not before it, when Lightfoot was trying to get his tankers out of the clogged intersection. It also indicates that at least one tanker ran out of water during the burn-over.
- 12.6.14** The Volunteer Associations further submitted that it:
- "supports Mr Lightfoot's objective of seeking to assess the potential threat posed by the spot fire to the safety of his Team conducting the burn."*⁶⁰
- 12.6.15** The Volunteer Associations however do acknowledge the obvious in submitting:
- "The Associations agree that Mr Lightfoot did not adhere strictly to the basic safety principles when he drove ahead of his Strike Team to assess the fire."*⁶¹
- 12.6.16** The CFA submitted that:
- "The circumstances in which Mr Lightfoot lost his utility are matters of concern. Mr Lightfoot went ahead of the fire to scout the fire and obtain further information as to its position. It might be said in favour of Mr Lightfoot that he went ahead of the fire in a utility, which was much more manoeuvrable than a tanker. He was an experienced bushman who at all times was keeping his eye on the fire. However, he nevertheless got into difficulties because his utility became stuck in a mine shaft. The fact that he needed to beat a fairly hasty retreat is testament to the fact that the margin for error which he allowed to undertake the task was inadequate."*⁶²

12.7 Conclusions

- 12.7.1** Mr Lightfoot made an error of judgement in driving his utility down the Madden Flat Road extension leaving himself without water and surrounded by unburnt fuel near a growing threatening spot fire.
- 12.7.2** Messrs Lightfoot and Bedgood were fortunate to escape.
- 12.7.3** Proper reporting and analysis of the incident should have occurred including the making of an objective assessment of the impact that this incident had upon Mr Lightfoot and his capacity to carry out particular duties later in the day.
- 12.7.4** Information as important as the reporting of near-miss incidents should, under AIIMS ICS, be promptly reported up the chain of command to the IMT. This is neither an onerous nor a difficult task. It ought to have been encompassed by the proper supervision and reporting regimes applicable under the AIIMS-ICS system in any event.

Possum Gully/Madden Flat Road Extension Back-burn (the Lightfoot Back-burn)

13.1 Command Structure

- 13.1.1** By the time Mr Lightfoot took the group of tankers under his command down Possum Gully Road, at around 3.30pm, the management infrastructure for the incident had been established for some time. The IMT in Ballarat was set up, as was the Forward Operations Point at Linton. Both were staffed with experienced CFA and DNRE officers. Indeed, shortly before Phelan tasked Lightfoot and his crew to go down Possum Gully Road there had been a meeting at the Linton Fire Station involving Phelan, Graham, Anderson and Britton in communication with Leach and others at the IMT in Ballarat.
- 13.1.2** On the fireground, management was continuing along CFA group and agency lines.
- 13.1.3** Mr Lightfoot, a Strike Team Leader, understood that he was reporting to Phelan, who at this time was a Sector Commander.

13.2 Assessment of Fire and Operational Analysis

- 13.2.1** The radio communications that occurred from about 3.15pm are informative.
- 13.2.2** At 3.18pm there was a radio communication between Mr O'Rorke in the aircraft and Phelan.
- Phelan: *"Region 16 aircraft Group Officer Phelan.*
- O'Rorke: *Yeah Des, Go ahead.*
- Phelan: *Can you work out how far the front of the fire is off as NRE put a burn in in front of that fire about two years ago, can you ascertain how far away it is, over.*
- O'Rorke: *You'll have to give me a bit of time, there's a fair bit of smoke covering the whole area Des.*
- Phelan: *Roger, We believe if in fact if it's near that burn we probably be able to put a burn in from there and cut the front of it off, over.*
- O'Rorke: *Okay, well I'll go back to 73 and let DGO Wyllie know what's going on.*
- Phelan: *That'd be good and if you get back to me we can work it out from there, over."*¹
- 13.2.3** At 3.19pm there was a radio communication between Mr Phelan and Kavanagh where Phelan stated:
- "Roger, Johnnie we've got a dozer coming in, I'm about to go out and meet it and then we're going to take it from there ... we've got a lot of trucks coming in there so ... you just hang around there because Lightie will be up there with you in a minute ..." ²*
- 13.2.4** At 3.21pm there was a communication between O'Rorke in the aircraft and Lightfoot:
- O'Rorke: *"Buninyong Group Officer Region 16 aircraft.*
- Lightfoot: *Region 16 aircraft, Go ahead.*

O'Rorke: *Buninyong Group Officer Region 16 aircraft, Group Officer Millar from Beaufort Group is back on Pittong Road and he was wondering if it would be any advantage if he came over to you in Linton?*

Lightfoot: *Roger, Group Officer Phelan and I are going to go down the Linton-Snake Valley Road with the truck at the moment so just please yourself, that's where we'll be but the RO ..."*³

13.2.5 At 3.24pm the radio communication referred to in Chapter 11, between Mr Phelan and Ray Hadler occurred. Hadler regarded that transmission as his authority to conduct his burn. The communication was as follows:

Hadler: *"Group Officer Phelan, Rokewood Junction Captain.*

Phelan: *Go ahead*

Hadler: *Yeah Des we are up here near Rowlers Road and there's a grader here, can we put it to any use or not ...? Just wondering whether we should put it from the Snake Valley-Pittong Road around the edge back towards Linton. Did you copy that?*

Phelan: *Go ahead, over.*

Hadler: *Roger, Des ..."*⁴

13.2.6 At 3.26pm there was a communication between Mr Phelan and Lightfoot.

Lightfoot: *"...Group Officer, Buninyong Group Officer...Roger, Des, We stopped at Possum Gully Road now, over.*

Phelan: *Roger, we might go down there.*

Lightfoot: *Just looks as if way past us that's all.*

Phelan: *I'm nearly up to where you are now."*⁵

13.2.7 At 3.30pm there is a communication between Mr Phelan and Alice Knight:

Phelan: *"Grenville Group, Group Officer Phelan.*

Alice Knight: *Go ahead Group Officer Phelan.*

Phelan: *Alice, where I've been on the Snake Valley-Linton Road I think the fire is well over Possum Gully Road ..."*⁶

13.2.8 This call is cut across by Mr John Kavanagh making his mayday call for an ambulance.

13.2.9 The communications set out above demonstrate:

- (i) The use of Group rather than AIIMS call signs which was to continue throughout the incident
- (ii) Mr Phelan's belief that the fire was over Possum Gully Road at the time
- (iii) No mention of Messrs Hadler or Lightfoot lighting their respective burns
- (iv) The meeting between Messrs Lightfoot and Phelan at the corner of Possum Gully Road and Linton-Snake Valley Road was a short one.

13.2.10 The result of the meeting was that Mr John Taylor took a number of tankers back towards Linton and Lightfoot took five tankers down Possum Gully Road.⁷

13.2.11 In his statement Mr Lightfoot says that:

"At about 2.45pm (based on the radio communications it was over half an hour later than that – authors note) I left the Control Point and went to Snake Valley-Linton Road to meet DGO Taylor who was assisting me in controlling our trucks and the other trucks. We waited at this location for GO Phelan to arrive. A short time later Phelan arrived and we went down Snake Valley Road to the Possum Gully Road turn-off. At this location further discussions took place between myself, Phelan and Taylor about our plan of attack. This was for Taylor to take four trucks back to protect the houses on the north side of Linton and I continued down Possum Gully Road with the remainder of the trucks in order to meet up with the Grenville Group of trucks.

...(Phelan had told me to use my discretion and choose whatever action was necessary). The fire at this time had passed the point of Possum Gully Road and was heading towards Linton. The head of the fire was burning well and heading south towards Linton and the eastern flank was burning slowly and was quite docile. The flame height was up to a metre. Our concern at this time was to control the eastern flank to stop it from spreading further. This was because of a pine plantation on the east and the expected south-westerly wind change.”⁸

- 13.2.12** Mr Phelan stated that after the meeting in Linton he left Linton and proceeded up the Snake Valley Road towards Snake Valley. This is supported by the radio communications set out above.

“By the time we had got up into the Possum Gully Road area it was evident that the fire had crossed over the Pittong-Snake Valley Road. I knew that the fire was a real threat to Linton. I stopped at the Possum Gully Road intersection and told Group Officer Lightfoot to take four of his tankers into there and see where the fire was and see what he could do to fight the fire. I also sent a water tanker in with them in case they needed water. I told Lightfoot to use his discretion, meaning he should fight the fire in any manner he thought necessary, I have known him for 40 years and I have confidence in his ability.

I sent the other half of the Strike Team under DGO Taylor’s command back down into Linton to come up the western side of the fire. I also sent a water tanker with them just in case they needed water as well.”⁹

- 13.2.13** After Mr Lightfoot reached the intersection of Possum Gully and Madden Flat Roads, he met Hadler. The evidence concerning that meeting has been referred to in Chapter 11. It will be recalled Hadler’s understanding of what Lightfoot was going to do was that Lightfoot intended to light up the north-west corner of the intersection and burn up towards Hadler’s burn. In fact, as set out below, Lightfoot lit up the south-west corner of the intersection and continued in a southerly direction.

- 13.2.14** Apart from Mr Hadler, whose understanding was inaccurate, no one, including Phelan, knew that Lightfoot was going to light his back-burn. It was not part of any overall strategy decided upon at the Forward Operations Point or the IMT to suppress the fire.

13.3 Events

- 13.3.1** Accounts of what occurred during Mr. Lightfoot’s burn have been given by a number of the firefighters involved in the back-burning operation and in the entrapment of Lightfoot’s Strike Team. The perspectives of the witnesses necessarily vary because of their location during the entrapment. Recollections are also no doubt affected by the understandable stress caused by the situation that the firefighters found themselves in.

- 13.3.2** After Messrs Hadler and Lightfoot met at the corner of Possum Gully and Madden Flat Road, Lightfoot in his utility turned down the Madden Flat Road extension heading south towards Linton, driving beside the firefighters Herrington and Bedgood. Lightfoot’s utility was followed by the Hardies Hill tanker, which in turn was followed by the Napoleons Enfield tanker.

- 13.3.3** Mr Lightfoot’s utility and the Hardies Hill and Napoleons tankers were the only vehicles that actually turned down the track to the south, before the entrapment occurred.

- 13.3.4** The other tankers remained on Possum Gully Road. The Mt Buninyong tanker was still on Possum Gully Road facing west, close behind it was the Elaine tanker. Some distance behind the Elaine tanker was the water tanker. It can be seen in the foreground of the various videos evidence shot by news cameramen at the scene at the time.

- 13.3.5** The Wallinduc tanker had been directed down Madden Flat Road to the Possum Gully Road intersection by Mr Hadler. The details of this incident are set out in Chapter 11. It became entrapped in the traffic jam at the intersection and can be seen in the video clip moving to the left of the screen (south) as the Dereel tanker departs the intersection along Madden Flat Road to the right of screen (north).

- 13.3.6** The Dereel tanker was the final tanker in the Lightfoot Strike Team. Mr John Wolfe was the Captain of the CFA Dereel Brigade in Region 7. He is an experienced firefighter.
- 13.3.7** Mr Wolf realised the danger of the situation shortly after being deployed down Possum Gully Road. Based on his extensive training and experience he noted the following:
- (1) The Strike Team was near the head of the fire and apparently in its path with the prevailing wind direction;
 - (2) They were sitting on a ridge surrounded by unburnt ground;
 - (3) The fire was getting up into the trees which meant that spotting behind them was inevitable;
 - (4) The tankers were bottle-necked in the area, making retreat difficult.¹⁰
- 13.3.8** Mr Wolfe's opinion was in accordance with that of the Expert Panel, referred to below. The tankers should not have been in that position. It was an inappropriate tactic with no chance of success.¹¹
- 13.3.9** Having assessed the situation as one of danger, Mr Wolfe decided that the Dereel tanker should leave the area. He told his crew this and headed up Madden Flat Road to the north.¹²
- 13.3.10** Mr Hadler, in the Rokewood Junction tanker probably departed shortly before the Dereel tanker heading in the same direction. Because he had an inexperienced crew, Wolfe got on to the back of the tanker to ensure their safety. He was very concerned.¹³
- 13.3.11** The video clip shows the Dereel tanker moving north up Madden Flat Road. It shows the crew on the back testing their hoses and preparing for survival mode as the fire approaches.¹⁴ A radio transmission established the timing of what is depicted on the video clip as about 3.50pm.
- 13.3.12** Mr Wolfe estimated that it was roughly half a kilometre from the intersection when the fire started to burn over the top of the Dereel tanker and across the road. The tanker had a full tank of water and the fog sprays were operated to protect the crew and the tanker when it really hotted up with the fire above them.¹⁵ Wolf gave evidence that: *"It was just a wall of flames coming towards us."*¹⁶
- 13.3.13** The Dereel tanker travelled up Madden Flat Road towards the Pittong-Snake Valley Road and came upon the Cape Clear tanker. It had a substantial length of hose off the truck, endeavouring to put out a spot fire on the eastern side of Madden Flat Road.¹⁷ Mr Wolfe assisted Cape Clear getting its hoses onto the truck and both vehicles departed. Rokewood Junction tanker and the grader had proceeded out beforehand.¹⁸ Ray Hadler in his evidence stated that it was the Wallinduc tanker with Cape Clear (rather than Dereel) that he saw on the Madden Flat Road as he was heading north on Madden Flat Road in the Rokewood Junction tanker. Such could not have been the case, because Wallinduc was entrapped at the intersection of Madden Flat Road and Possum Gully Road.
- 13.3.14** Mr Hodgetts who was in the Hardies Hill tanker gave his account. He understood that the aim of the back-burn exercise was to control the eastern flank, he thought the head of the fire was about 300 metres ahead of them.¹⁹ Just before the fire came over the Hardies Hill tanker Hodgetts noticed the wind shift.²⁰ Hodgetts gave evidence that he was *"very uncomfortable"* but not *"panicky"* during the incident. He believed that the fire was not as intense where the Hardies Hill tanker was because they were protected to a degree by their back-burn.²¹
- 13.3.15** The crew on the back of the Hardies Hill tanker were operating the fog nozzle.
- 13.3.16** Mr Adrian Hine, the driver of the Hardies Hill tanker gave evidence regarding a radio message from Lightfoot to come down the track to help him. He said:
- "... that's when we received the message, we were backing out at the time, we had only gone about 20 metres when we heard Lightfoot come over the radio, he was in trouble, right."*

Who took that radio communication?—Well it just came over the wireless. I'm pretty sure Steve Hodgetts was in the truck at that time.

As a result of receiving that communication what was your understanding of the problem that Mr Lightfoot had?—He was caught in a mine shaft.

He was asking for assistance?—Yes.

Were you able to give him assistance?—No.

Why not?—Because we had only gone down this track about 20 metres, that I think we back-burned about 150 metres, and it was just too hot along the edge, we couldn't get along, because, you know, the stringybarks were on fire and you would have to knock them all out before we ..." ²²

13.3.17 Mr Hine said that he heard some noise on the back of the truck. He said:

"I hadn't seen it at that time, I hadn't seen it until, you know, it was nearly on top of us. All I seen was 30 feet flames coming. They were saying things and I was trying to back up, but I couldn't even see the back wheel of the truck, so I stopped and then Lightfoot hopped in and I had the blanket, I was down underneath with the truck running and the lights still flashing while it went over." ²³

13.3.18 Mr Hine was asked:

"Why did you feel that you were unsafe in the position that you were in there at that stage?—Why.

Yes?—Well, once – because probably just the fire coming towards us, you see.

The Coroner: How close did Mr Lightfoot come to being caught in the main fire?—He would have been pretty hot, I think, he was puffing.

But you think it was only a matter of seconds?—Yes, only a matter of seconds." ²⁴

13.3.19 Mr Hine was further asked:

"Did he just jump in as the fire hit the truck or what?—Yes about that, yes, just as it about hit, because I hadn't had the fire blanket out at the time he hopped in. I had just seen it, then he was at the door. There was only really enough time for Steve to get out and really for him to open the door and hop back in.

You say Mr Lightfoot had hot footed it up the track?—Very, very quick....

Do you know whether on the back of the truck they went into survival mode or not?—I had heard they did when we got out.

So what did you hear when you got out in terms of what happened on the back of the truck?—I heard they got into the survival mode, had the fogs going.

I know you were under the blanket but did you feel that perhaps there was some spray coming over the cab, was it a little bit cooler?—No, I don't know.

After the fire passed over, Mr Lightfoot was on the radio. Hine was of the opinion that the back-burn provided about 60 ft of burnt ground which helped protect them. Anyone out in the open would not have survived." ²⁵

13.3.20 When Mr Hine drove the truck down the track he did not know where the fire was. If he had known that it was so close – *"I wouldn't have taken the truck in there."* ²⁶ Hine gave evidence that because they were on top of a rise and the fire was so close, it was not a good place to light a back-burn. He would not do it again because *"... you don't play with fire twice ..."* ²⁷

13.3.21 Mr Hine gave evidence of inhaling smoke during the entrapment. He was asked:

"Did you get over that feeling of being tired or lacking energy, whatever it might have been on that day?—No, not really, not fully, not fully. We went back to the road down the pines you know, recuperated but after we done that first went in behind the bulldozer and we were dragging the hoses and that and moving the hoses, when we went back to the hydrant, then I could feel it then, I was just getting fatigued, yes." ²⁸

- 13.3.22** Another crew member named Donald told Mr Hine that he felt ill later in the day.
- 13.3.23** Mr Ian Getson, in the Wallinduc tanker, described moving past the grader in Madden Flat Road to the T intersection with Possum Gully Road. He said:
- "And I said to the driver ... 'look, we shouldn't be going in there' cos as I said earlier, I knew the area real well and I knew that – and where we were going, where we were actually leading – we went on a straight track, then the road veered to the right, and then we followed, and I knew once we went around that bend, we were going straight into the path of the fire.*
- Right?—And I guess their object was to try and stop it there, but it was coming from all angles...."*²⁹
- 13.3.24** Mr Getson said that the Wallinduc tanker was directed to the intersection and:
- "anyway, we got in there and, course, as we turned the corner, the back-burn decided it wanted to go straight ahead, because you can't control fire when you're not putting any water on it or anything like that ... and it was getting to the stage where it was getting a little bit fast, we got in, the fire virtually was on all three points of us, and we were right in the centre."*³⁰
- 13.3.25** Mr Getson described the Elaine and Mt Buninyong tankers as also in the vicinity and said:
- "but when we got in there we were getting pretty thick with smoke, and we couldn't see anything, virtually."*³¹
- 13.3.26** Mr Getson said the intersection was *"a bit congested"*³² and that one of the wheels of the Wallinduc tanker went into a hole. Getson described the situation as follows:
- "and the front left-hand wheel that I was on went in the hole. Anyway, we did get out of it. And we have been back since and seen where the truck did go. Anyway he stopped, and of course, when he stopped, we're off the track, we're on unburnt ground, which I knew, I thought, 'well, we're going to be in trouble', and we couldn't shift then because we had – I think with the Elaine tanker beside us, then I think the Mt Buninyong tanker was somewhere there. Then there was a private car – no, there was Ian Scott's water tanker came up, which he would have been coming from ... Possum Gully Road I guess ... and he was blocked behind the other, and then there was a station wagon coming behind that and I presume it was a media vehicle....and I said to Scott, yeah, I yelled out, I said: 'look, get out of the bloody joint, quick if you can' you know. He said: 'I can't, there's a car behind me'. I said: 'run over it'. You know. Because, I mean, it shouldn't have been there."*³³
- 13.3.27** Mr Getson's description continued:
- "... anyway, then all of a sudden someone yelled out 'Wallinduc tanker, you're on fire', which is the tanker I was in. And I just said to ... Michael Collins who was on the back, I said 'get the fog nozzle out' and I said 'make sure you put it on fog' and I said 'squirt everything. Wet everything'. You know...."*³⁴
- 13.3.28** Mr Getson said he radioed the Elaine tanker to put water on them and continued:
- "... and we were getting to the stage, we were thinking, 'well, we're gonna get burnt'. We could see it happening, you know and anyway, I think Michael got off and put it out and the Elaine tanker or Mt Buninyong tanker ... sprayed us with water. And we couldn't see a bloody thing at all then. We couldn't see probably a foot out of the windscreen for starters. Then they had this muddy coloured water out of the dam ... and it was yellow red mud... because you couldn't see a thing. So we sort of ducked down a bit to sort of shield from a bit of the heat. We never had time to look if we had a blanket or anything like that and then it sort of passed and then we sort of got out because we'd had enough of the heat and it ... put the shifts up us."*³⁵
- 13.3.29** In his evidence at the Inquests Mr Getson stated:

"No as we were going up into the Y shaped intersection all we could see was rolling fire coming towards us and smoke and visibility just dropped down to a minimum." ³⁶

13.3.30 Mr Getson was asked:

"As you are going south down Madden Flat Road where is the fire that you are describing?—It was probably only, probably less than 100 metres from us roaring towards us.

On which side of Madden Flat Road was it?—It would be the northern side, but we also had fire behind us because the back-burn had jumped and it was coming up behind us as well, so we had fire on all points."

13.3.31 Mr Getson was shown the video of the fire approaching. The Wallinduc tanker cannot be seen in the video, being obscured by other tankers in the foreground. It is in front of (further away from the camera) the water tanker. The Elaine tanker was immediately in front of the water tanker then Mt Buninyong. The Hardies Hill and Napoleons Enfield tankers, as described earlier, were off to the left, down the track being the extension of Madden Flat Road.

13.3.32 Mr Getson was asked about the presence of the media:

"Did you have any concerns about the press photographers?—Yes, because they blocked access – they blocked the road out, and I did say to the water tanker, which was Scott's private one 'can you get out?' He said: 'No I can't'. I said: 'Back over the so and so's', because, I mean, we needed to get out and it looked like we needed to drive from the fire but we were unable to get out because we were locked in. We couldn't get the tanker out to do anything. We were just in the lines then so to speak.

But were you concerned about their safety?—Yes, they shouldn't have been in there. I mean, they had no water. All they had was a station wagon. They were going to depend on us to look after ourselves plus look after them. I didn't see anymore of them, I don't even know what happened to them."

13.3.33 After the fire burnt over the Wallinduc tanker Mr Getson described:

"—We got out. There was nothing we could do because the fire had gone through. And it came through at rapid knots. It was travelling pretty fast. I mean, it didn't cover a big area, but it did to us in the bush because it was travelling on the ground and burning and then re-burning like all the debris. The foliage and that was still burning on the ground smouldering ... so we got out. We headed down Gascoignes Lane ..." ³⁷

13.3.34 Mr Getson described the heat inside the cabin when the fire went over as: *"I would say it was extreme."* ³⁸

13.3.35 In that respect he disagreed with the evidence of the driver Mr Keith Urch who said that the heat was not extreme in the cabin.

13.3.36 Fortunately, for the occupants of the cabin of the Wallinduc tanker, Messrs Getson and Urch, Bruce Pope, a volunteer firefighter on the back of the tanker had the presence of mind to go into survival mode. He used his fog spray as he observed the fire *"was crowning in the trees and just went up and down the trees and came over the top of us."* ³⁹

13.3.37 Mr Pope observed one tanker trying to get out, reverse into another truck in front of them.⁴⁰ Pope was not sure if it was the main fire or Hadler's back-burn that burnt over them but thought that it was the back-burn.⁴¹ He was asked:

"You expressed the view that it was the back-burn that had been lit up on Madden Flat Road that circled around and came to you?—Yes.

Do I take it that is not something you could physically see, the back-burn departing from its point of origin, circling round and coming back to you, it is something you assumed happened?—I saw it coming when it got closer.

If I put it to you this way, you saw the fire coming?—Yes.

*But you are not able to identify whether that was the main fire coming or the back-burn that had been lit off Madden Flat Road?—No, I couldn't tell ... but that's what I assumed, that it was the back-burn."*⁴²

13.3.38 It is clear that the trucks were all very close together and all in survival mode. To some extent they all probably benefited from each other's fog sprays. Most of the firefighters involved in this entrapment who were interviewed or made statements were dealt with "*on the papers*". That is, their statement or transcript of interview was tendered as their evidence rather than them being called to give evidence on oath. In fact because of the number of people involved in the Possum Gully-Madden Flat Road entrapment not all of those involved were interviewed or made statements.

13.3.39 The witness Mr Michael Collins, who was on the back of the Wallinduc tanker, was called to give evidence at the request of the CFA. Collins gave evidence that he did not think the situation was life threatening and did not believe the fire that burnt over the tanker was of high intensity. He did not believe the wall of flames was as big as shown on the video and believed the video was misleading. He said that he did not think it was necessary to go into survival mode:

"My answer is obviously still no, I don't believe it was. It did get warm, and I didn't at any stage say that it didn't, but it was not a life threatening situation to anyone in our tanker, or on the back....

What I am telling you though is that Mr Pope has given evidence that he had his fog spray going to protect the truck?—Yes.

Don't you think taking that into account that would have impacted on how hot you were feeling, that he had his fog spray going?—His fog spray, it may have, it may have....

*Do you think that is what may have given you some sense of comfort, rather than your assessment of the intensity of the fire, the fact that Mr Pope had his fog spray going anyway?—I don't believe so. I might be wrong but I don't believe so."*⁴³

13.3.40 Mr Collins was unaware that Pope, who was on the back with him, was in survival mode, applying the fog spray to protect the people on the back and the tanker. Having been involved in a demonstration as to the effectiveness of fog sprays as protection from radiant heat, those on the Wallinduc tanker, including Collins, were fortunate indeed that Bruce Pope had the presence of mind to behave as he did.

13.3.41 It is likely that the intensity of the fire that engulfed the group of tankers near the corner of Madden Flat Road and Possum Gully Road was in the range of 9400 kWm.⁴⁴ A tanker can only be expected to withstand up to 3000 kWm without the aid of water.⁴⁵

13.3.42 Mr Russell Ford the Captain of the CFA Elaine Brigade, was driving the Elaine tanker. His was the last tanker in the line down Possum Gully Road. His tanker was immediately in front of the water tanker. The Mt Buninyong tanker was in front of Elaine.

13.3.43 Mr Ford could see the fire building up and heard a radio call from Lightfoot asking for help as his utility had become stuck. He was asked:

"And what did you do at Madden Flat Road?—We were intending to do some back-burning.

Yeah and whose instructions?—Ian Lightfoot was in charge. He had his ute there. ... we were the last truck in line. There was a water tanker behind us, and a news crew in a car behind the water tanker.

*What happened once you were there?—Ian Lightfoot went off to his left, which you call to the south to start some burning, and his ute got stuck. He put out an emergency call for someone to help him, because by this stage the fire was building up on us. We could smell the smoke and the fire came at us from the right side of our truck."*⁴⁶

13.3.44 Mr Ford was asked:

"Were there other units there?—Yes, there were. There was another Strike Team apparently turning around and coming back the other way, or were at the corner.

*Well you'd say it was fairly congested there?—Yes ... and it was a very narrow road. Trees were right over the road."*⁴⁷

13.3.45 Mr Ford was asked:

"So what did you do when you saw the fire coming?—Just instructed the guys to protect themselves. Protect the truck. I think the fire hit our truck and Mt Buninyong's truck in front of us harder than it did the rest of the group. I think because the trucks parked on the narrow road the fire lifted up over us, and it was pretty hot where we were.

How did you feel about that?—I've been in hot situations before. I wasn't feeling threatened for my life or anything. But it was fairly severe.

But severe enough that you had to self-protect?—Absolutely. Without water we could've been in a lot of trouble I think, yeah.

*How long did this take?—Ten minutes."*⁴⁸

13.3.46 In respect of the news crew Mr Ford said:

*"The news crew ran – walked up the road to film. Suddenly they came running back, for their lives. And I dunno where they went. Whether they even got any film or not."*⁴⁹

13.3.47 Mr Ford was asked:

"The fire's gone over the top of you. Would you say you were entrapped at that stage?—Yeah. I guess so. We couldn't go backwards or forwards. We had a truck three feet either side of us, and there was another truck off to our left. The other Strike Team, turning around or whatever.

The other trucks had gone in beside you – why did they do that?—You mean why did I end up so close to the other trucks.

Yeah?—That's a good question. I guess because the guy in front stopped so suddenly and then the other one pulled up behind me. And the other Strike Team were coming back the other way, so there were trucks on the other side of us as well.

*What happened after the fire's gone over?—Ian Lightfoot came back, got in one of the other trucks, I think it might have been the Napoleons truck, and said, 'Look, we're not gonna stop it here, we're gonna have to go and back-burn somewhere else'.... so they took us back out to the Snake Valley-Linton Road and we just waited around there for about an hour or so or longer."*⁵⁰

13.3.48 Mr James Connell was on the back of the Elaine tanker. He described seeing the fire coming towards the truck and was asked:

"And when it's come towards you what have you done?—Well, we just got out the hose and everything ready ... we had plenty of time, like, for that and then it just all sort of built up and ...

What, flared up the fire, what did you do when that happened?—Well, just sort of got in behind the cabin a bit in protection and put the hose out over the side a bit and then put it in the air and let the water drop round to save the truck catching on fire and that.

So the fire itself came right up to the road, the track where you were was it?—Come right up and straight past ... over and all.

And how long do you think that lasted for?—Fully ten minutes I suppose.

Could you recall what the other units were doing at that time?—Not really, no. I think they were just doing the same ... trying to protect themselves ... with the water and that.

So you were basically in protection mode, self protection mode?—Yeah.

And did your truck sustain any damage?—Not really but there was a lot of burnt stuff around on it and everything ... I think we were well protected, like, with face masks and gloves and everything else ...

And what's happened as this fire's gone over the top of the trucks?—It went across the road and straight down the hill.”⁵¹

- 13.3.49** Mr Kevin McManus was the Captain of the Napoleons Enfield Brigade. He was driving the Brigade tanker on 2 December 1998. He described the group of tankers arriving at Possum Gully Road and was asked:

“And did you have a briefing?—We had a short briefing, yes.

What was discussed there?—That we were to proceed – that our Buninyong Group trucks would go in to Possum Gully Road to the fire and there'd be a back-burn. At that time, we weren't sure how far in we were going. That we would attempt to do a back-burn on the eastern side of the fire to contain the eastern flank of the fire.

And who gave you that information?—Group Officer Lightfoot.”⁵²

- 13.3.50** He described driving down Possum Gully Road to the intersection of Madden Flat Road and was asked:

“You've stopped at the intersection of Madden Flat Road and Possum Gully Road?—Yes.

Has any briefing taken place there?—Yes. Group Officer Lightfoot instructed us that the intention was to back-burn down Madden Flat Road in a southerly direction to try and contain the eastern side of the fire at that stage.

So what's actually happened from this point?—After we were given the direction what we was going to do, one of our firemen, Terry Bedgood, he proceeded to be the lighter of the back-burn. He then travelled, Ian Lightfoot – he proceeded down Madden Flat Road ... Terry was on foot doing the lighting ... and Lightfoot was in his ute.”⁵³

- 13.3.51** Mr McManus stated that:

“Instructions were that we would travel down one truck after the other down Madden Flat Road (heading south) and we were to put out any spotting that would occur off the back-burn over Madden Flat Road on the eastern side of Madden Flat Road.

Now you said earlier that Hardies Hill went down first?—Yes.

And you followed them?—Yes ...

How far did you go down?—Hardies Hill went down first. I waited for a little while and I went down. I would have been down probably 50–80 metres I suppose down Madden Flat Road.”⁵⁴

- 13.3.52** Mr McManus was asked:

“... How far was the fire from you – the main flank of – eastern flank of the fire?—It would have been 200 or 300 metres to the west of the road.

And how far did it extend, that you could see at that stage, was it both north and south of Possum Gully Road?—Yes, yes ...

And the fire behaviour at that stage?—It was normal I thought for that time of day for that type of wind we had. It was travelling as bushfires travel ...

How high were the flames at ground level?—They probably would have been 10 or 15 feet high I suppose that we could see ...

And they were up in the trees was it?—Yes they were up in the trees.”⁵⁵

- 13.3.53** When asked about the location down the track of the Hardies Hill tanker, he said:

“You've got Hardies Hill down the track first about 60 metres or so?—Yes.

And you're how far behind Hardies Hill?—Well they would have been down a little bit further than the 60 metres. They probably would have been down 150 metres or maybe a little bit more ... I couldn't see them.”⁵⁶

- 13.3.54** Mr McManus said that Bedgood had gone down about:
- "150, 200 metres perhaps. He may not have been that far, but within that ... cos Hardies Hill were following him."*⁵⁷
- 13.3.55** Mr McManus' evidence was that the other trucks were "just sitting" on Possum Gully Road. He was then asked:
- "So, what's happened from this point?—Well, we started to proceed down and we got about 50, 60 metres perhaps and then we got a message from Ian to say that his ute was stuck in a mine shaft. He'd proceeded to try and turn around and it got stuck in a mine shaft. And to come down and Hardies Hill were already on their way down at the same time – pretty much at the same time as I got the message that he was stuck in a mine shaft, we then had a wind change which would be a north-westerly change ... which brought the fire the back-burn back at us – onto us and the head of the fire – the eastern flank of the fire – or the head of the fire – the eastern flank of the fire had met up with the back-burn and then it proceeded – it came back over the top of us."*⁵⁸
- 13.3.56** Mr McManus said when the wind seemed to change the fire behaviour got a bit more severe and it spotted back over the track:
- "Your main concern at that stage or did you have any when that flared up like that?—Well, I did have a concern because I knew that Ian and Terry were down that track and the situation they were in because of what he'd said over the radio. I knew that Hardies Hill were down there but I also was unable to get down, to go down the track because I was concerned – my firemen that were on the truck with me, I couldn't proceed any further because I had to consider the safety of the members on my own truck at that time, but I was still concerned that they were down there and what was happening."*⁵⁹
- 13.3.57** Mr McManus described trying to back out of Madden Flat Road. He said:
- "Try and back out of Madden Flat Road. I did to an extent and our members on the back had gone into survival mode. They ... put their fog nozzle in fog over the truck to protect themselves and then I proceeded to try and back out, but I ... hit the odd tree or two so I decided to just sit where we were."*⁶⁰
- 13.3.58** Mr McManus described the conditions as: *"It was dense smoke and that sort of stuff."*⁶¹
- 13.3.59** Mr McManus was asked:
- "Could you see Ian Lightfoot or Terry Bedgood at all down the track?—No I couldn't, no."*⁶²
- 13.3.60** Mr McManus was then asked:
- "So, at this point, your crew's got the fog nozzle going, you're basically in survival mode, as you call it?—Yeah.*
How did the fire go over the top of the tankers?—Yes yep ...
How big were the flames at this time round your truck?—They were over up to the top of the trees and over the truck, passed over, yes.
*And subsequently the fire passed onto the eastern side of Madden Flat Road and continued across the bush ...?—Yes."*⁶³
- 13.3.61** Mr McManus described what happened next:
- "What's happened from that point?—At that time I have proceeded to reverse ... we sat for a while after the fire had passed over and just within ourselves took a bit of stock and when we were able and then I proceeded once the smoke had cleared a bit ...I checked our chaps on the back to make sure they were okay. I was continually doing this over our two-way you know ... to make sure they were okay ... and then we proceeded to back out onto the intersection and Hardies Hill then came out – we were able to back out and Ian and Terry came out with Hardies Hill."*⁶⁴

13.3.62 Mr Graeme Duncan was on the back of the Napoleons Enfield tanker. He described the truck turning off Possum Gully Road, south, down the Madden Flat Road extension and said:

"But we didn't get too far down that track at all and whether it was a change of wind or what it was, I'm not quite sure, but we just seemed to be engulfed in it.

How do you mean?—Well, the fire just seemed to sort of come from the north-westerly direction and basically went over the top of us.

Did you have to self-protect?—Yes ... at that point in time ... we were perhaps, I don't know, maybe 50 metres, at the most, down this track and, at that point in time, that was my only intention was to protect ourselves.

Fair enough. How did you feel about that?—Well I didn't feel as if ... I guess I didn't feel that my life was threatened in any way. It was awfully hot and probably not a position I would have liked to have been in but we came through it okay ... I mean, it was pretty hectic although I guess it was only a couple of minutes at the most, I suppose, and it was all over, but it was a pretty hectic time, but at no time did I feel threatened in any way no.

*So obviously the self-protection worked?—Yes."*⁶⁵

13.3.63 Mr Duncan was asked:

"The fire's gone over you. What's happened from then?—Well not a great deal ... at that particular point, I guess even before it had finished going over, we tried to reverse back up the track, but because of visibility and whatever we didn't sort of get too far and, basically, once the fire had sort of gone over us, I think everyone sort of made sure that everyone else was around and collected our thoughts and sort of tried to get back to a bit of safety, I suppose, ... but there wasn't a great deal happened as soon as it had gone – went over us....

*And after the fire had gone through and you'd sorted yourselves out where did you go from there?—We proceeded back to the Linton Township, where we filled the tankers up with water, had a bit of a breather and a bit of a drink and collected our thoughts I guess."*⁶⁶

13.3.64 Mr Michael Lewis was also on the back of the Napoleons tanker. He recalled being told to take cover and was asked:

"Who told you to take cover?—Graeme Duncan....he said the fire's coming up a bit too quick....

*So what's happened you've taken cover?—Taken cover. I've had the fog nozzle flat out. Graeme said: 'Whatever you do, don't let go of that fog nozzle, just keep holding it there'. So we just waited for the fire to go over us."*⁶⁷

13.3.65 Mr Lewis was asked:

"How do you feel about that being in that position?—Well, at the time, it didn't worry me. I thought it was just one of these things, and I didn't know how bad it was at the time. Because it was me first wildfire, I've been to. And it sort of didn't worry me too much.

So you had the fog nozzle going?—Yeah.

How long did it take for the fire to get over you?—Seemed like forever, but suppose might been only three or four minutes, you know. But then, you had to wait for the smoke to clear a bit before you put your head out. It seemed like a long time ...

*You said before, at the time you weren't too worried, what do you mean by that?—Well, I've heard, you know, blokes have been in different situations before, and, you know, they say as long as you keep your cool, and you should be alright. But it's more after I think, the following morning, when I heard about the Geelong West blokes getting killed. That's – because we went back to the site, a couple of weeks later, to see where we were and where they got killed and yeah. Shouldn't have been in that situation."*⁶⁸

13.3.66 Later he was asked:

"Where have you gone from there?—We backed the trucks out, because we couldn't turn around where we were, so we had to back the trucks out. ... then we went and refilled up the tank on the truck ..." ⁶⁹

13.3.67 Mr Daryl Thompson was also on the back of the Napoleons tanker. He described the Napoleons tanker turning down the track behind the Hardies Hill tanker. He said:

"We proceeded to do the burn-back....anyway the wind just seemed to change direction, then ended up burning back over the truck and that, and we had to go down – get into survival mode with fogs going.

How bad was the fire at that stage?—We didn't see much. We saw a lot of smoke, that was about it." ⁷⁰

13.3.68 Mr Thompson was asked how long they went into self-protection survival mode for and he said: *"It seemed like hours, but it was only probably 10, 15 minutes, yeah", and:*

"That's a fair while to be in protection mode?—Yeah well as I said, I've never been in that sort of situation before, ... it seemed a long time. Maybe it was less than that, but it just seemed a long time, you know.

Okay?—It was fairly scary, frightening." ⁷¹

13.3.69 Mr Thompson was asked if there was any damage caused to the Napoleons tanker. He said:

"The only damage we got is, we were trying to reverse out, and there was a truck that had – wasn't even our group, had parked across the back – come from a different area and parked across the intersection. And with all the smoke, and that, we didn't see him till the last minute, and we slammed into him, and that sort of stopped our avenue of escape. So we were ... sort of stuck there you know. And that's when we sort of had to get down and cover up and do all the survival bits and pieces." ⁷²

13.3.70 Mr Thompson then described what happened after this:

"What have you done from there. The fire's gone over you. You've self protected successfully?—We all sort of were amazed of what went on. We sort of you know we thought 'well, we got out of that' and then we realised that Ian's ute had been burnt to the ground, which was pretty frightening. And they were pretty shaken up about that, because they were in the ute, and they had to make a run for the Hardies Hill tanker, which they had already run out of water and we were just very lucky that, you know we had – I think their tank's 2500 litre and we had 3000 so we had a bit more water than what they had ... it was just ... very lucky you know – the trees weren't really close to the trucks, but the heat was still ... pretty intense ... so that was about it." ⁷³

13.3.71 After the entrapment, the Hardies Hill, Napoleons and Elaine tankers made their way to the Linton-Snake Valley Road where they were then engaged in other duties for the remainder of the day. The Dereel tanker departed north up Madden Flat Road and the Wallinduc tanker left to self-deploy around the Linton Township.

13.4 Analysis of Tactics

13.4.1 Mr Lightfoot agreed that he made a mistake in lighting the back-burn. He was asked:

"What was the error of lighting the burn?—Because I under-estimated the intensity of the fire, because, when I assessed it, the fire height was at about 1 metre, a metre and a half, stable, going south, and I thought we had a chance of achieving what Ray Hadler was trying to do, which was to control the eastern flank of the fire to Possum Gully Road, and that would have shortened the life of the fire by two hours. It also would have helped protect, as our aim was not to have the fire cross into the other forest....

Well, let me see. The burn that you did south of Possum Gully Road?—Yes.

That wasn't going to stop the fire at Possum Gully Road was it?—No we were trying to control – we were trying to control the eastern flank.

The eastern flank. Where did that road go?—That road went nowhere.

You knew that?—Yes.”⁷⁴

13.4.2 Mr Lightfoot was asked:

“You are no doubt aware, Mr Lightfoot that the tactic that you employed of lighting up from Possum Gully Road down the Madden Flat Road ... extension has been criticised?—Yes.

As an inappropriate tactic. What was the purpose, why did you do that on the day, what were you seeking to achieve?—First of all, it was a mistake to do what we did in hindsight. Well, we underestimated the fire, for a start, or I underestimated the fire, I underestimated the fire. It was a mistake. We should have just waited until Mr Hadler had come forward instead of trying to help him in what he was doing. We should have just waited. It would have been a better method in hindsight, Your Worship....The question why I did it was, first of all, I made the decision so I had to – the reason I made the decision to do it was to create an anchor point at that corner because, as you are aware, from that corner there is a ridge going up, it's got a northern slope. At the time it seemed reasonable because the fire was stable, there wasn't a great intensity in it. The idea was to burn the corner out and then, if we got the opportunity, to run the fire back towards Mr Hadler on the corner but we had to get an anchor point to do what we were doing to do that. In the end I was glad I did light it because it did give us protection.

Why didn't you light your fire from the other corner heading back towards where Mr Hadler was coming from, why did you light it on the southern side of the intersection?—Because if we had done that we wouldn't have had any protection if things went wrong, which I didn't know it was going to go wrong but I'm glad I did it.”⁷⁵

13.4.3 The Joint Experts Report considered the fuel and topography in the area from Possum Gully Road south down the Madden Flat Road extension. The Report said:

“The forest in this area did not appear to have received any particular silvicultural treatment and fuel hazard was rated high to very high as described in the report (the Joint Operations Review). When the fire crossed Possum Gully Road it also crossed the major east-west ridge through the forest. The topography south of the ridge had a general southerly or easterly aspect into Nuggetty and Sludge Gullies. It was also more steeply divided by the creeks at the head of these two gullies than the slopes with a north-westerly aspect north of Possum Gully Road.”⁷⁶

13.4.4 In relation to the impact of the Lightfoot back-burn on the course of the fire the Expert Report stated:

“This burning-out operation was overwhelmed by the wind shift at 1545 hours and did not have any significant impact on the behaviour or the course of the main fire.”⁷⁷

13.4.5 The Experts said this about the Lightfoot back-burn:

“This was a highly dangerous operation, with no tactical benefits, that could easily have resulted in fatal entrapment. The burn was not started from an anchor point and was always going to be out-flanked and overrun by the main fire. In this case this operation contributed little to the behaviour of the main fire. However, burning-out while the head fire is spreading strongly is always counterproductive. It can only serve to create another major fire but increases the width of the head fire, increases the potential rate of spread and reduces the chance of a narrow head fire being slowed by a break in the fuel or the topography.”⁷⁸

13.4.6 The following radio communication occurred at 3.45pm:

“Des, we are doing a back-burn on the edge of the fire on the eastern flank. We are following a track down through the bush and we are trying to hold it ...”

Phelan: *“Roger. That’s off Possum Gully Road, is it?”*
 Lightfoot: *From Possum Gully Road heading towards Linton but we’ve got a spot-over ...”*⁷⁹

13.4.7 This communication was how Mr Phelan became aware of the Lightfoot back-burn.

13.4.8 The observations made in Chapter 11 regarding the necessity of such operations as those carried out by Messrs Hadler and Lightfoot being part of an integrated plan for the suppression of the fire are again applicable to the Lightfoot burn.

13.5 Submissions

13.5.1 The CFA submitted:

*“In the circumstances Mr Lightfoot was acting pursuant to the general authority given to him by Mr Phelan to implement a strategy which Mr Lightfoot considered appropriate to assist with the burn-out being conducted by the Grenville Group further north along Madden Flat Road.”*⁸⁰

13.5.2 It is true that Messrs Lightfoot and Phelan both stated that Lightfoot had a general authority to do whatever he thought was necessary.

13.5.3 The second part of the submission however, does not accord with the evidence. The evidence referred in Chapter 11 demonstrates that Messrs Phelan and Lightfoot had no knowledge of the Hadler burn when Phelan sent Lightfoot and his team down Possum Gully Road. The Lightfoot burn could in no way be described as having been authorised as part of a plan to control the eastern flank of the fire. Phelan had no idea that it was going to occur and would have counselled Lightfoot against it had he had the opportunity.

13.5.4 The notion of “general authorities” as being sufficient approval in such circumstances cuts across the whole policy of having an IMT operating under AIIMS-ICS system. This matter is dealt with in Chapter 11 and the comments made there are equally applicable to the Lightfoot back-burn.

13.5.5 It is inappropriate from an operational and a safety perspective to have personnel, such as Messrs Hadler and Lightfoot, engaging in the type of activities which they did, when only in possession of a fraction of the information that they need to be aware of prior to the making of such important decisions. Whilst it may have been undertaken with the intention of stopping the fire, such conduct must be actively discouraged.

13.5.6 If such operational practices are encouraged, condoned or even tolerated they will inevitably result in further tragedies occurring.

13.5.7 The submissions made on behalf of the Volunteer Associations properly “acknowledge” the views of the Experts concerning the Lightfoot burn.⁸¹

13.5.8 The Volunteer Associations submitted that “the motivation was sound but the pre-planning was on the day inadequate”. The submissions continue:

*“The most fortunate outcome has been that this failed exercise has not caused injury, loss or damage. Instead, it has provided a solid learning experience which can hopefully be exploited by way of exemplifying the risks associated with firefighting in these conditions by way of ongoing training and instruction to volunteers and CFA employees.”*⁸²

13.5.9 The Volunteer Associations finally submitted that:

*“The events which occurred reinforce the need for utilisation of the AIIMS-ICS system from the outset of a forest fire, for thorough information gathering and assessment of the fire to take place after the initial attack has failed and before any tactical decisions are made and for no firefighting decisions to be made without first establishing an overall plan of control which is known of and approved by the person or persons who have the command responsibility for control of the fire.”*⁸³

- 13.5.10** Reference must be made to the CFA submission that *“the objective which Mr Lightfoot sought to achieve was certainly not unreasonable.”*⁸⁴ There is no evidence to support that assertion. The evidence relied upon by the CFA⁸⁵ does not support the assertion.
- 13.5.11** The evidence given by Mr Cheney and Dr Tolhurst was as follows:
- [Mr Cheney] “In hindsight you have said that this burn-out was always going to be overrun. In hindsight, no doubt it was. But again, it is a question of the true direction of the wind as to how – as to what it was and how long it would prevail. I am looking from the point of view of the firefighter who made the decision at the time?—Yes, had the wind remained in the – from the north-east for the rest of the day, then it would have been possible that that burning-out operation would have connected with the Madden Flat burn-out and secured that part of the flank.”*
- [Dr Tolhurst] “Can I qualify that statement. I think it is important that Mr Cheney said: ‘could have contained’. It is my observation that a lot of fires like this, even though the road direction is more or less the same direction as the wind, the amount of swirling and small shifts we talked about before would almost certainly throw spots over that road and make controlling that edge quite difficult even if the wind had stayed in that north north-easterly direction. So I think I just need to emphasise ‘could have’.”*
- The Coroner: “You are all agreeing with that, are you?”*
- The Panel: “Yes.”*⁸⁶
- 13.5.12** The CFA further submitted, relying on the above evidence:
- “Again, as Mr Cheney acknowledged if the wind had remained from the north-east, the strategy would have worked, and the burn-out would have connected with Mr Hadler’s burn-out.”*⁸⁷
- 13.5.13** That is not the effect of the evidence relied upon nor is it consistent with the content of the Joint Experts Report.
- 13.5.14** The CFA also submitted:
- “In conclusion, as Mr Lightfoot himself acknowledges, the decision to conduct the burn-out was a mistake. Although Mr Lightfoot was burning-out an area, which the Hardies Hill tanker used for protection when the wind changed (it was not commenced from an appropriate anchor point). The topography of the land, particularly north-west of the intersection, was inappropriate. The fuel load was too high. The burn-out was conducted without the support of a bulldozer. Nevertheless, in assessing the burn-out, the factors which we have referred to in the preceding paragraph should also be taken into account. When those factors are taken into account, the lessons become clear. Although a tactic may at the time seem appropriate and useful, nevertheless a full assessment of all the circumstances must be made before it is implemented.”*⁸⁸
- 13.5.15** The lessons to be learned are of broader compass. An individual firefighter on the ground, without all the necessary information and perhaps without the necessary training and expertise may make the mistake of perceiving a tactic to be *“appropriate and useful”* without having made *“a full assessment of all the circumstances.”*
- 13.5.16** It is unsafe and operationally unsound for such decisions to be made in these circumstances. That is why approval for such activities must be specifically given by the Operations Officer or the Incident Controller who, according to AIIMS-ICS principles, ought be appraised of all relevant information required to make safe operational decisions in furtherance of attaining the objectives set out in the Incident action Plan. This is the only way that the Incident Controller can ensure that the tactics used are safe for the firefighters on the fire ground.
- 13.5.17** Such decisions must be made as part of an integrated decision making process in furtherance of the approved incident action plan.

13.6 Incident Reporting

- 13.6.1** As with other near miss incidents that occurred prior to the fatal entrapment, the circumstances of the entrapment described herein were not reported up the chain of command to the IMT.
- 13.6.2** In fact the circumstances of these entrapments were only discovered following investigation initiated following an analysis of the radio communications and the video footage. The entrapments were not mentioned in the Joint Agency Review.
- 13.6.3** The evidence concerning the importance of such information to those managing a firefight has been referred to in other Chapters and need not be repeated here.

13.7 Conclusions

- 13.7.1** The evidence of the Experts set out above accurately describe the folly of the Lightfoot back-burn.
- 13.7.2** It was fortunate that there was no loss of life in the entrapment at Madden Flat and Possum Gully Roads.

Geelong City and Geelong West Entrapment and Deaths

14.1 Introduction

14.1.1 The Geelong City and Geelong West tankers were part of a Geelong Strike Team. The other tankers making up that team were Lara, Highton and Corio. The leader of the Strike Team when it left Geelong and at all critical times was a career firefighter, Mr Simon Scharf who, in December 1998, held the rank of Fire Officer attached to the Geelong City Brigade.

14.1.2 The crew of the Geelong City tanker was comprised of:

- Malcolm Stepnell (Crew Leader);
- David Bendle;
- Rhet Daly;
- Colin Sharrock; and
- Jeff Lowe.

14.1.3 The crew of the Geelong West tanker was:

- Stuart Davidson (Crew Leader);
- Gary Vredeveltdt;
- Chris Evans;
- Jason Thomas; and
- Matthew Armstrong.

14.1.4 Others having an important role to play in this incident were the crew of the Corio utility, which was the Strike Team Leader's utility. They were:

- Beverley Lancaster; and
- Steven McPhail.

These firefighters had the important function of monitoring radio traffic and bringing information relevant to the Geelong Strike Team to the attention of the Strike Team Leader, Simon Scharf.

14.1.5 At the time of this fatal incident the task allocated to the Geelong Strike Team was to follow behind a bulldozer cutting a mineral earth break along the eastern flank of the fire. The bulldozer was operating in a southerly direction and had been followed by the Geelong Strike Team from Possum Gully Road through the forest terrain towards Linton.

14.1.6 The Geelong Strike Team commenced its task at about 7.30pm. The team was allocated the task by Mr Ian Lightfoot who briefed them between 7.15pm and 7.30pm.¹ At that time Lightfoot was performing the function of Eastern Section Commander² and Scharf as a Strike Team Leader was directly answerable to him. As Eastern Sector Commander, it was Lightfoot's responsibility to supervise Scharf in the performance of his task as Strike Team Leader.

14.1.7 From Mr Lightfoot the line of command went up to Desmond Phelan³ who at the relevant time to the deployment of the Geelong Strike Team was performing the role of Eastern Divisional Commander. Phelan⁴ in turn was answerable to Robert Graham, Senior Forester with the DNRE, who was in charge of the Forward Operations Point at Linton.⁵ Graham was to report back to the Incident Control Centre, which had been established at Ballarat.⁶

14.1.8 The bulldozer operator being supported by the Geelong Strike Team was Mr David Rowan. Rowan had 20 years experience in driving bulldozers, however, for some four years prior to December 1998 he had been employed by Midwest Earthmovers Pty Ltd, as a contract estimator and quality assurance manager.⁷ He explained how he came to be at Linton on 2 December 1998:

“As a driver of a bulldozer being utilised for the CFA this occasion was my first uncontrolled bush fire. I attended this fire due to the fact that this was the third request for a bulldozer from the NRE on this day, Wednesday 2nd December 1998. Two other drivers had already gone to other jobs but our third driver was injured and not at work. My boss asked if I would attend to the request and go to Linton and I agreed. Robert Lakey drove the low loader with the D155 bulldozer on board to Linton, while I drove the escort vehicle.”⁸

14.1.9 The Geelong Strike Team was made up of the following tankers:⁹

- Corio which was 4 wheel drive and had a 3000L water tank;
- Lara which was 4 wheel drive and had a 3000L water tank;
- Geelong City which was 2 wheel drive and had a 3000L water tank;
- Geelong West which was 2 wheel drive and had a 2000L water tank; and
- Highton which was 2 wheel drive and had a 2500L water tank.

14.1.10 The Corio utility did not carry any water.

14.1.11 At the time of performing their task along the eastern flank of the fire each of the tankers had their radios on Channel 7C, a “go to” channel applying to the Geelong region. The strike Team utility was monitoring Channel 15B, which was the fire ground channel on the day.

14.1.12 At the time the Geelong strike team was performing its task there was an expectation that a south-westerly wind change of significant speed would reach the fire ground during the evening. In the conditions that prevailed on this day it was known to be common for such a wind change to occur late in the day.¹⁰ The state of knowledge of the command at the fire as to precisely when that change was expected, and the actual knowledge of Mr Scharf, the Geelong Strike Team Leader, were seriously contested issues at these Inquests.

14.1.13 There was also a significant issue about whether or not two messages, one which was sent out as a general broadcast, and the other being a conversation between Mr Peter O’Rorke, who was flying a spotter plane on behalf of the CFA, and Alice Knight, communicating officer at Grenville Group in Linton, was heard by anyone in the Geelong Strike Team.

14.1.14 The first of these messages was broadcast on Channel 15B at 7.53pm and on Channel 15A at 7.59pm. The text of the message was:

“This is Linton control with a general message to all divisional commanders weather update the weather change is at Wickliffe wind direction is south westerly wind direction is south westerly speed 35 carrying no rain could strike team Leaders, divisional leaders please confirm.”¹¹

There were a few acknowledgments. Certainly the Geelong Strike Team did not confirm receiving this message.

14.1.15 The second conversation occurred at 8.28pm on Channel 15A and was as follows:

V1: Grenville group Region 15 aircraft

V2: Region 15 aircraft group yes Peter

V1: Grenville group Region 15 aircraft I’ve just come through the front aah it was about aah 2 mile east of Skipton I was at 4,000 feet very very rough so I don’t know what it’s like on the ground but I’m just on the west side of Skipton now and it has settled down a bit.

V2: Thanks for that note that the change is 2 miles east of Skipton and things have settled down a bit on the other side of it sounds good.

V1: *Yeah but I think they want to be prepared for some pretty rough wind because aah I would say aah it was wouldn't know it could be nearly a 100 k of gusts at 4.000 feet.*

V2: *Right thanks for that Peter.*¹²

14.1.16 At the time the Geelong Strike Team was working south along the eastern flank a DNRE crew was working north towards them. That crew was also supporting a bulldozer.

14.1.17 Mr Daryl Scherger who was accredited as a Level 2 Fire Operations Officer, was the leader of that DNRE crew. Scherger's account of the allocation of this task to him is:

*"I arrived at Linton with my crew at approximately 6.00pm and went to the Old Shire Offices where I spoke to Operations Officer Bob Graham. Bob told me to take my crew and head out to Cemetery Road and that a wind change was due about 0100 hours. When I got there I was to contact and work with Peter Keppel, another NRE Officer who was assisting Bob Graham. The plan was to establish a control line along the eastern side of the fire before the wind change. Peter was to establish a dozer line on the eastern side of the fire to run north from Cemetery Road along the eastern side of the fire and link up with a dozer line being constructed by the CFA units further to the north on that side of the fire. Channel 118 was to be used for operations and trunk radio for command."*¹³

14.1.18 At about 7.50pm that evening Mr Scherger decided to leave his crew "... to walk ahead to see what the country was like and how far we were away from the CFA dozer line."¹⁴ He followed the fire edge and met up with the Geelong Strike Team about 15 minutes later at approximately 8.05pm. He had walked approximately 800–900 metres after leaving his crew.

14.1.19 Mr Scherger spoke with Scharf and suggested that the bulldozer driver should put in turnarounds because the track he was constructing was only one bulldozer blade wide. Scharf agreed to this and Rowan immediately put in a turnaround at the point the Strike Team had reached at that time.¹⁵ This point was about 400 metres south of Possum Gully Road.

14.1.20 After about 5 minutes Mr Scherger left to make his way back to the DNRE crew. He took a wide berth around the bulldozer as it was constructing the turnaround and this meant he went quite a distance to the east of the control line.¹⁶ There he discovered a track, which did not appear on any map of the region that was available on the fire ground, at that time.

14.1.21 Mr Scherger then described what he did:

*"As I was making my way back I noticed a track about 20 to 30 metres to the east from where the dozer was putting in the turn area. I had circled wide to avoid the chance of being hit by one of the trees the dozer was pushing over. I followed the track for about 100 metres and noticed that it was running parallel with the edge of the fire and about 50 to 100 metres from the fire and appeared to be 500 to 600 metres long. The fire at this stage was burning quietly with a flame height of about .5 of a metre along the western edge of the gully line that the track followed and I noticed the trees in the gully were larger and growing closer together than along the track. It would take some time to push a line through the trees in the gully but the dozer could widen the track reasonably quickly and I judged that they had sufficient resources to backburn that width of ground successfully. I believed that if we used the track we may be able to link up before the change arrived. I decided to quickly return to the dozer and inform the operator about the track. I waved him to stop, climbed up onto the machine and told the driver about the track to his east and suggested he could save some time if he widened the track rather than pushing along the gully. I then jumped down and spoke to the CFA person that was offside the dozer. I think he was the same person that had been with the Strike Team leader when I had spoke to them earlier. I asked him where Simon was and he told me that Simon had gone back along the line. I can then recall seeing Simon about two thirds of the way back up the hill. I then told the offsider what I had told the bulldozer operator and added '...if you backburn your way along there you'll be right.' I believe I also told the offsider to pass my suggestion on to Simon. I then left and marked the track with tape. The last I saw of the dozer he had completed the turnaround point and was pushing towards the track."*¹⁷

14.1.22 It was about 8.25pm¹⁸ when Mr Scherger left the Geelong Strike Team for the last time. He returned to the DNRE crew, which was working north at about 8.40pm and, after a few minutes with them, returned to his vehicle at about 8.45pm.¹⁹

14.1.23 Shortly after Mr Scherger had left the Geelong Strike Team for the last time there was discussion between Stepnell and Scharf about the Geelong City and Geelong West tankers going out to fill up with water.

14.1.24 In Mr Scharf's words what happened then was:

"I continued monitoring the operation and a short time later Malcolm Stepnell came back up to me and said that the dozer driver was pushing up to an existing track. Malcolm Stepnell also informed me at this stage that they were in need of water as they were down to a quarter of a tank. I mentioned my concerns to Malcolm Stepnell of the lack of water Geelong West tanker may have had and to keep an eye on them. I then consulted the map and showed Malcolm Stepnell the map and showed him where I thought the dozer trail and the existing trail met so as they could find the easiest way out to get water. I offered Malcolm Stepnell the map to take with them but he declined because he could see on the map where to go and it was not a problem.

The area where the bulldozer has changed directions to meet up with the other track is a bit of gully running north south. The bulldozer driver had been blazing his track in a southerly direction flanking the fire edge. When he turned east to join up with the existing track he has left the flank of the fire. The fire at this stage was of little concern, there was no real movement of the fire and the flame intensity was low. The weather at that time was still calm and it was still clear and visibility was reducing as the sun was starting to set. By the bulldozer going in that direction he has met up with the existing track and this has left an unburnt area of bush which because of the slowness of the fire at that time would require us to backburn. I had no concerns at this stage in relation to the current status of the fire. I wasn't going to try and backburn until all three tankers were back together having filled up with water again.

*Geelong City and Geelong West tankers proceeded to follow the track that the dozer had made up to the existing track in order to drive out and get water. I didn't send them back up the dozer because of the other tankers behind them and with the existing track taking them down to the water point on the edge of Linton, approximately 100 metres south of same. Region 15, map reference 438 – 262/270."*²⁰

14.1.25 The two tankers passed the bulldozer at a point about 525 metres down the control line, which was along what came to be known as the Homestead Track extension. A short distance further on, at approximately 550 metres down the control line, the two tankers stopped.

14.1.26 At this point Mr Stepnell described the events that occurred in the following way:

"At this point is where the Geelong West truck was burnt. We were travelling slowly in the trucks heading south along the track when something off to the right caught my eye. Something did not seem right. I looked over and saw the fire advancing towards us. I then stopped the truck and put the park brake on. I believed this was the safest action to take, because I knew that we couldn't protect ourselves whilst moving. The rate of the fire picked up and I called up Geelong West and told them to 'back up, get out'. I don't know why I told them to back up and can only surmise that I thought they were out of water.

I then yelled at the blokes on our truck to get the blankets and cover. I told Dave (who was in the front seat) to get the blankets out but he went to the wrong box behind his seat when the blankets were behind my seat. I grabbed the blankets out and we covered up.

After I covered up I got onto Simon, I think I called out 'Mayday' and asked him about West. I said we were in strife and asked if a dozer or help could be sent in to help us out. While doing this I was also yelling to the blokes in the back to try and see how they were doing. During this I could hear water hitting the roof and knew they were spraying water over us.

I am not sure at what stage but I remember looking at my rear view mirror and saw the interior of Geelong West's cabin was burning, the windscreen at this stage was still intact. At another point I looked out from the blanket and saw flames all around us. I thought then that 'this was not a good place to be'.

When I looked back at West's truck I recall not seeing anyone in the cabin and thought they had gotten out. I have no idea of time frame as I was too busy on the radio and shouting to the crew on the back of the truck.

At some point I believed it was cool enough to get out of the truck. Dave and I got out of the passenger side door and went to see how the crew was. They said they were alright.

*I told them to get the rakes/hoes off the truck and clear an area around it in case the fire came back. At this point with a blanket still around me I walked back to Geelong West's truck and looked in the cabin. I then went to the side of the truck but the rear was still burning fiercely and I could not get too close so I went back to our truck."*²¹

- 14.1.27** Mr David Bendle gave a slightly different account, which was consistent with the forensic evidence. He said:

"We stopped the truck and the Geelong west tanker stopped behind us about 2- to 25 ft, 'Dutchy' and Stewart Davidson came up and started talking to us standing beside the cabin of the truck. The fire at this stage was about 50 metres away to the right of the track. We were talking about the condition of the track when Malcolm Stepnell shouted out something like, 'The fire's coming, take cover'. 'Dutchy' and Stewart Davidson then ran back to their tanker.

When Malcolm Stepnell shouted out I looked across towards him, the wind was starting to pick up and I could see the trees moving and the fire was starting to crown and move towards us. All I could see was the big red flames coming towards us from the right side. The wind was making a terrific roar, prior to that it had been dead quiet. Malcolm Stepnell yelled out to the crew on the back to take cover. The tanker was then covered by a red glow. I could hear a garbled call coming over the radio and Malcolm Stepnell got the radio and called 'Mayday Mayday', I'm not sure if it was then or when he sent another message back that he said the Geelong West tanker was on fire, I could only see a bit of the tanker. It was then that the second front came over and we had to get back down under the blankets again. The second front was a lot hotter and the noise was about the same as the first roar. I've no idea how long all that took, whether it was minutes, second, I've no idea. Malcolm Stepnell and I looked up again and saw little bits of fire coming down and bits of trees falling down hitting the truck. Colin Sharrock was bending over knocking on the window and calling out to see if we were alright. Malcolm Stepnell and I got out then, it was still hot and bits and pieces were falling off the trees but it was still bearable to talk.

*Malcolm Stepnell got out and checked the crew asking if they were alright. Malcolm Stepnell and I then went back to the Geelong West tanker. The tanker was ablaze and the sides had holes in it where the fire was burning through."*²²

- 14.1.28** All five crew members of the Geelong West tanker died in this incident. Two members, consistent with Mr Bendles' account, were found a few metres to the north east of the rear of the Geelong West truck. They were Stuart Davidson and Gary Vredeveltdt. The remains of the other three members of the crew were found in the burnt out shell of the truck. They were Matthew Armstrong, Chris Evans and Jason Thomas.

- 14.1.29** All the crew of the Geelong City tanker survived unharmed. The Geelong City tanker suffered very little damage.²³

- 14.1.30** By comparison, the Geelong West tanker was comprehensively destroyed.²⁴

- 14.1.31** The Geelong City truck and crew survived because they went into "survival mode". Mr Rhett Daly described this in the following way:

"I was aware that we were going to pass the dozer and move down the track with Geelong West following and get out to fill up.

Just before we moved off I had asked Dave, who was at the back of the truck, to idle the pump down as we were heading out to get water and I could not see the use of having it running hard.

We moved off and about 20 metres later the truck stopped and I thought they may have been deciding which way to go. I was looking at the fire and it still was not doing very much. A very short time later I saw the fire pick up and turn towards us. At the same time I heard someone yell to get ready. We were already getting ready because I knew that we could be in trouble. I grabbed my hose, opened the gate, checked the others and hit the deck. We did not have time to get out our blankets as the fire wave hit us.

I kept the hose pointed towards the fire and on occasions I turned it towards the cabin to try and keep the front cool. There was a lull in the fire for a second. I turned off the hose and looked towards the Geelong West truck and I could see it was fully engulfed in flames. I have yelled to the boys that the West truck was gone. I thought the boys had got out of the truck and had run back to others. I was looking to make sure the boys had got out.

I don't know what happened then but I knew the fire was coming back so I hit the deck again and opened up my hose again. I was aware of our water situation and adjusted the stream as economical as I could. The fire was that intense that for a while I could not breathe. I grabbed a peaked cap that was on the rear seat and put it to my mouth and then I could breathe. The force of the fire actually forced the small door to the rear open. I remember slamming the door shut.

While this was going on I remember thinking that I was not going to get home tonight and I thought that this was not a good way to die and that I never thought that I would die this way. Just as suddenly as it had started the fire was gone and I knew we had survived. I got down from the truck and then noticed I had a rake/hoe in my hand, I just started to clean around the truck in case the fire came back.”²⁵

14.1.32 There was no direct evidence of what the crew on the back of the Geelong West tanker did when the fire front hit. The indirect evidence would tend to suggest that the three crew members took shelter in the ROPS.

14.1.33 There is no evidence that the Geelong West crew used any water at the time the fire front hit. Such evidence as was available to these Inquests showed that the water level of this tanker was low at that time, but just how low could not be established. At the time of the fire the pump on this truck was probably in recirculation mode.²⁶

14.1.34 The fire behaviour at the point where the Geelong West tanker was destroyed was considered in a report jointly commissioned by the DNRE and CFA and entitled “*Report of the Operations Review of the Linton Fire/Midlands #15 on Wednesday 2 December 1998*” (The “*Joint Report*”). In that report the relevant fire behaviour was summarised as:

“Overall, it appears that the fire quickly changed from one of relatively low intensity as it backed down the slope before the SW wind change, to a rapidly moving, high intensity fire moving up a gentle slope after the wind change. Smoke, burning embers and other hot gases would have preceded the flaming front of the fire, but the flaming combustion of the fine fuels would have been largely complete in about 2 minutes. Visibility would have been severely reduced for a number of minutes and the peak heat of the fire would have lasted a similar amount of time. The fire front probably took about 4 to 6 minutes to reach the tankers after the wind change. The intensity of the fire was estimated to be between 4,000 and 11,000 kW/m when it reached the tankers and flame heights averaged between 8 and 11m, but it also crowned in trees 21m tall immediately in front of the tankers. Without the aid of water, a tanker could only be expected to withstand forest fireline intensities of up to 3,000 kW/m (Cheney 1998).”²⁷

14.1.35 This Chapter is concerned primarily with the deaths of the five firefighters who were the crew of the Geelong West tanker. Contribution (if any) to the cause of death of each of these men will be considered. In practical terms, there is no basis for considering these issues separately in relation to each of the deceased as they all died at the same place, at the same time, from the same cause – the effects of the fire at Linton which changed course and

intensity at approximately 8.45pm on 2 December 1998 completely engulfing the five deceased and the truck that three of them were sheltering in.²⁸

14.1.36 Insofar as contribution to the cause of death was concerned, it is necessary to consider the acts and omissions of:

- CFA;
- DNRE;
- Desmond Phelan;
- Ian Lightfoot;
- Simon Scharf; and
- Malcolm Stepnell.

14.1.37 While not specifically submitting that a finding of contribution should be made against Messrs Scharf and Stepnell, the logical conclusion to be drawn from the CFA's submission is that that should occur. It was submitted by the CFA that:

“(a) The cause of the entrapment

32.10 *The cause of the entrapment was the circumstance that the wind change occurred while the Geelong City and Geelong West tankers were on unburnt ground east of the flank of the fire. The part of the flank which they were directly east of had not been controlled. As a result of the wind change, the flank of the fire flared up and escaped through unburnt fuel, and entrapped the two tankers ...*

32.12 *The cause of the two tankers being on unburnt ground, east of the fire, was the decision that the tankers should exit from the fire line to seek water along the Homestead Track extension, instead of travelling back along the control line. That decision is discussed in detail in Chapter 7 of the submissions. At the time of the entrapment, the two tankers were not engaged in fire suppression activities. They were not implementing the strategy upon which the Geelong strike team had been deployed. Rather, they were taking a short cut to obtain water.*

32.13 *As we have submitted in Chapter 7, the decision to use the Homestead Track extension to egress for water constituted a significant departure from the basic principles attaching to the direct attack strategy upon which the Geelong strike team had been deployed. The decision was made notwithstanding a number of obvious risk factors attaching to it. It was made notwithstanding the knowledge of the strike team leader and the crew leader that the wind change was (or at the very least might be) expected on the fire ground. In those circumstances, it cannot be found that the decision of the strike team leader and the crew leader to use the Homestead Track extension to egress for water could or ought to have been anticipated or foreseen by those in line command. That decision was not part of the strategy which was being implemented. The implementation of the strategy was the occasion for the Geelong strike team being on the fire line. However, it cannot be logically concluded that the entrapment was a consequence of the implementation of the strategy. It was not.”²⁹*

14.1.38 A similar submission was made by counsel for Messrs Phelan and Lightfoot:

“20.18 Mr Scharf chose the task of following the dozer south and constructing the control line behind the dozer. The dozer was cutting a track through virgin bush. Mr Lightfoot reasonably expected the Geelong strike team to be behind the dozer and adjacent to burnt ground as they performed their task. That is where he reasonably expected them to be when the wind changed, and if they had been, they would have been safe.

20.19 *At the time the entrapment occurred, the Geelong strike team were engaged in an activity very different from that which Mr Lightfoot tasked them to do. A decision had been made to send Geelong City and Geelong West out for water, ahead of the dozer, along an unknown track and through unburnt ground. This decision was not part of the strategy or tactics used when constructing a*

control line behind a dozer. It also involved a fundamental departure from fire fighting principles, safety principles and just basic common sense.

20.20 *It is submitted that there is simply no way that experienced senior volunteers such as Mr Lightfoot and Mr Phelan could have, or ought to have, anticipated or foreseen that such a decision would be made by the strike team leader and one crew leader.”³⁰*

14.1.39 The gist of these submissions is that Messrs Scharf and Stepnell acted in a manner that was contrary to their training, and the manner in which a prudent firefighter would carry out the task of supporting a bulldozer cutting a mineral earth break on the eastern flank of the fire with an expected south west wind change. Further, it is implicit in these submissions that such conduct would not be foreseeable to the reasonable employer. If that is so, then clearly the acts or omissions of Scharf and Stepnell or one or other of them contributed to the cause of death of the five Geelong West volunteers notwithstanding that such finding was not sought by such parties.

14.1.40 On behalf of Messrs Scharf and Stepnell it was submitted that:

“The decision by Scharf and Stepnell to use the Homestead Road extension as access for water before it was burnt out was not an effective cause of the death of the volunteers. They would not have made the decision if they had been informed of the expected arrival of the wind change or if they had been adequately supervised by the officers responsible for them. The decision that they made was a step in the logical progression of events, but it did not involve an element of departure from reasonable standards of behaviour having regard to their competence, the information available to them and the absence of supervision.

None of the members of the Geelong strike team regarded the decision as unreasonable or dangerous.”³¹

14.1.41 It was submitted that Mr Phelan contributed to the deaths:

“... by failing, when he had a clear opportunity and duty to do so, to:

- (i) supervise the Geelong strike team; and*
- (ii) ensure that the Geelong strike team knew of the expected arrival of the wind change.”³²*

14.1.42 Similarly, it was submitted in relation to Mr Lightfoot that:

“Lightfoot contributed to the effective death of the five volunteers by failing, when he had a clear opportunity to do so, to:

- (i) supervise the Geelong strike team; and*
- (ii) ensure that the Geelong strike team knew of the expected arrival of the wind change.”³³*

14.1.43 In support of Messrs Lightfoot and Phelan it was submitted:

“... that in light of the long standing practice and system and their apparent effectiveness, and because Messrs Phelan and Lightfoot were acting according to usual practice and the system in which they had been trained and used for decades, both Messrs Phelan and Lightfoot were acting appropriately with respect to their supervisory roles at Linton.”³⁴

14.1.44 In respect of the CFA it was contended that:

“The CFA contributed to the deaths of the five volunteers because the effective cause of their death was the failure of the CFA, by its officers, to discharge its duty of care, including the statutory duty, and –

- (i) provide the Geelong strike team with a safe system of work;*
- (ii) ensure the Geelong strike team was competent in forest fire fighting;*
- (iii) supervise the Geelong strike team; and*
- (iv) ensure that the Geelong strike team knew of the expected arrival of the wind change.”³⁵*

14.1.45 The CFA responded by submitting that the system of work in place at Linton on 2 December 1998 was a safe system. The reasons for this were summarised at length in its written submission.³⁶

14.2.46 Finally, it was submitted that the State of Victoria in the right of DNRE contributed to the deaths:

“... by failing to meet its duty of care to them:

- (a) to ensure that they were adequately competent, experienced and trained to perform the tasks for which they were deployed at Linton;*
- (b) to ensure that they were adequately briefed, informed and instructed so that they could perform the tasks for which they were deployed in a manner that was safe and without risk to their health; and*
- (c) to ensure that they were adequately supervised so that they could perform the tasks for which they were deployed in a manner that was safe and without risk to their health.”³⁷*

14.1.47 The gist of the DNRE’s response to these submissions was:

- “1. NRE does not, pursuant to the AIIMS-ICS system of work, have that level of control over the CFA and Volunteers that would attract a non-delegable duty.*
- 2. No NRE officer has by any act or omission failed in their duty of care.*
- 3. NRE has not breached its duty of care towards CFA personnel.*
- 4. If an NRE officer were in breach of his duty of care, thereby rendering NRE vicariously liable, or if NRE had a non-delegable duty towards CFA personnel, such liability or breach of duty does not involve any act or omission of NRE and so NRE could not have contributed to the cause of death.”³⁸*

14.1.48 This introduction presents an overview of the facts and issues considered and analysed in detail in the remainder of this Chapter.

14.2 Crews Training and Experience

14.2.1 General issues to do with training of CFA personnel have been previously considered.³⁹ This section is concerned with the specific training of the key members of the Geelong Strike Team who travelled along the Homestead Track extension and those supervising their activities.

14.2.2 The personnel considered here are:

- Desmond Phelan – Divisional Commander
- Ian Lightfoot – Eastern Sector Commander
- Simon Scharf – Geelong Strike team Leader
- Malcolm Stepnell – Geelong City Crew Leader
- Stuart Davidson – Geelong West Crew Leader
- Colin Sharrock – Geelong City Crew
- Rhett Daly – Geelong City Crew
- David Bendle – Geelong City Crew
- Jeffrey Lowe – Geelong City Crew
- Gary Vredelvelde – Geelong West Crew
- Jason Thomas – Geelong West Crew
- Christopher Evans – Geelong West Crew
- Matthew Armstrong – Geelong West Crew
- Steven McPhail – Corio Utility
- Beverley Lancaster – Corio Utility
- William Robertson – Crew leader Corio
- Stephen Waugh – Corio Crew
- Bradley Coulter – Corio Crew
- Paul Moore – Corio Crew
- David Abbey – Corio Crew.

14.2.3 The crew of the Highton and Lara tankers are not considered because they were not involved in the critical activities at the critical times.

14.2.4 In addition to the relevant members of the CFA it is essential to consider the training and experience of the bulldozer driver Mr David Rowan. At the relevant times Rowan was driving the bulldozer that was being supported by the Geelong Strike Team.

Issues

14.2.5 The submissions received from the parties on this issue present two opposite positions. Each argument focuses on the decision to leave via the Homestead Track extension, with one line of argument seeking the conclusion that the decision shows a lack of adequate training, whereas the opposing argument seeks the conclusion that the training was sound but that the decision to use the track was deliberate and contrary to the principles taught.

14.2.6 The first argument proceeds on the following basis:⁴⁰

- The course materials used by the CFA in training are of good quality;
- The content of the courses provided by the CFA is sound;
- That the key personnel considered in this section generally had a sound theoretical understanding of the principles taught in the courses; and
- The theoretical understanding of the key personnel was not translated into a practical understanding of the danger involved in using the Homestead Track extension as a means of accessing water.

14.2.7 The opposing submissions proceed on the basis:⁴¹

- The course materials used by the CFA in training are of good quality;
- The content of the courses provided by the CFA is sound;
- The key personnel considered in this section all had a sound theoretical understanding of the principles taught in the courses;
- The key personnel had sufficient practical experience to reinforce their theoretical knowledge;
- With their understanding of these materials and their experience Messrs Scharf and Stepnell must have recognised that travelling along the Homestead Track extension exposed the Geelong City and Geelong West tankers to an unacceptable risk of danger (while other crew members were content to sit by and to trust their judgment); and
- Messrs Scharf and Stepnell having knowledge of the danger to which the tankers could be exposed in using that track, nonetheless, to achieve a “*shortcut*” and save time, deliberately sent them out along that track.

14.2.8 The Bureau of Meteorology and Mr Neyland (the owner of the property where the fire started) did not make any submissions on this area. Counsel for Phelan and Neyland submitted that under the system of work in force in the CFA of 2 December 1998, they as supervisors of the Geelong Strike Team were entitled to assume that all personnel allocated to them were properly trained and competent to carry out their duties on the fire ground.⁴² This submission adds nothing to the debate on adequacy of training.

14.2.9 These competing arguments need to be considered in a context where:

- When briefed, the Geelong Strike Team was not informed of where the water points were that they were to use to fill up;
- There was no written communications plan made available to the Geelong Strike Team to tell them what radio channels to operate on;
- There was no written command structure in place;
- There is no evidence to show that the Geelong Strike Team was made aware of the messages that the wind change was at Wickliffe and later at Skipton; and
- The map provided to the Geelong Strike Team from which they were working did not have Homestead Track extension marked on it.

- 14.2.10** When considering the issues in this section it is also necessary to bear in mind that:
- A distinction must be drawn between factors that contribute to the deaths and those which are merely a background to them. In particular, the adequacy of the training of Messrs Scharf and Stepnell, who made the decision that the trucks go out along the Homestead track extension, could contribute to the cause of death of the Geelong West fire fighters, but as a matter of common sense the adequacy of training of the other members of the Geelong Strike Team who simply acquiesced in the decision would be too remote to do so; and
 - Care must be taken not to give undue weight to systemic error over individual error.⁴³
- 14.2.11** While care must be taken to balance issues of systemic versus individual error, it must be remembered that individual error in the situation that existed at Linton can have no meaning in the absence of an understanding of the system of work in operation. It is only if an individual has breached the system that it can be said that there has been an individual error. Further, it is only if the work system is a safe work system such as would be used by a reasonable employer in the circumstances that an individual breach can occur. While by necessity a great deal of this report examines the system of work of the CFA and DNRE, in reaching conclusions sight has not been lost of the fact, that for a variety of reasons, individuals may not adhere to a system, and that not every breach of a system of work by an individual is an indication of the inadequacy or the failure of that system.
- 14.2.12** It must be noted, however, that the overwhelming impression left by the evidence led and the submissions made on behalf of the CFA and DNRE was that both organisations relied very heavily on what is known as the “safe person” approach to occupational health and safety. In the conduct of this inquest both parties categorically rejected the notion of a “safe work place” approach to fire grounds. That rejection was based on the assertion that those who fight fires are in the best position to determine what is and what is not safe on the fire ground. Regrettably, the large body of evidence that was led came from people who had no occupational health and safety training. The few who did have such training in addition to their fire experience, with a few notable exceptions, showed an acceptance of the importance and applicability of those principles to the fire ground. Those matters are examined in detail later in this report.
- 14.2.13** The “safe person” approach relies heavily on training an individual fire fighter to a level where he or she can operate safely in a given fire situation. It must, however, be borne in mind that:
- “The safe person approach requires each and every fire fighter, the safe person, to:*
- (i) have available to them all relevant information (wind change information);*
 - (ii) have experience and training (competency) to make an informed decision;*
 - (iii) be in a position to challenge instructions/directions given by superiors.”⁴⁴*
- 14.2.14** Training and experience, to a level which enabled a fire fighter to safely suppress fire on an eastern flank of a bush fire in South East Australia, in the circumstances of an impending significant south-westerly wind change, was what was required at Linton on 2 December 1998. Only a person with such training was a “safe person” within the system of work that operated on this fire ground on that day. Were the key personnel of the Geelong Strike Team on this day “safe persons”? If not, did the fact that one or other of them was not contribute to the cause of death of the Geelong West crew? If the key personnel were “safe” then did one or other of them by acting “unsafely” contribute to those deaths? These are matters examined in this section.

Training Materials

- 14.2.15** The training materials used by the CFA for their formal courses were developed as part of the National Fire Curriculum by the Australian Fire Authorities Council (AFAC). These are generic materials for use throughout Australia with such modifications as are necessary for the particular area or agency.

- 14.2.16** The general structure of appropriate courses and the delivery of training have been dealt with elsewhere.⁴⁵ The training of volunteers and career staff takes place at a number of levels:
- Statewide;
 - Regional;
 - Group; and
 - Brigade.⁴⁶
- 14.2.17** The training courses prior to Linton were tailored to the needs for fire fighters in a given area. This was provided for in the Chief Officers Standing Order 3.01, which said:
- “... The structure and content of the training programme must recognise the risks in the brigade area, and the level of activity of the brigade, the level of skill and personal ability of the members.”*
- 14.2.18** The preamble to this Standing Order explains the reason behind it as:
- “Training is now to be undertaken in accordance with a program that recognises the risk in the Brigade area i.e: a Brigade with a grassland risk will have a different program to a Brigade with a residential and industrial risk ...”*
- 14.2.19** Chief Officers Standing Order 3.02 entitled “Training Requirements for Probationary Members” provided that:
- “...• Probationary members must complete a training course to the satisfaction of the Officer in Charge of the Brigade.
 - The Recruit Firefighter modular training package is recommended for this purpose and is available through all Regional Headquarters.
 - It is suggested that brigades consider joint probationary member training rather than individual basis ...”
- 14.2.20** The Officer in Charge of the Brigade was required to certify that a member had satisfactorily completed the course.⁴⁷ A record was to be kept of the training undertaken by each officer and member.⁴⁸
- 14.2.21** At the time of Linton it was also provided that:
- “... Probationary members are not permitted to attend fires/incidents except with the approval of the Officer in Charge of the Brigade. This order is to safeguard inexperienced personnel.”⁴⁹*
- 14.2.22** In addition to the course materials referred to in these Standing Orders, members also had access to or were given a red book called “OPERATIONS GUIDELINES” and various pamphlets and check lists which, among other things, dealt with the 10 Standard Fire Orders and the Watchouts, which are integral to the “safe person” approach of the CFA.
- 14.2.23** In some instances training was supplemented by attendance at prescribed burn offs.
- 14.2.24** The investigation into the training of the key personnel has been significantly hampered by the lack of and at times ambiguity of training records.
- 14.2.25** The CFA in its reply agreed that at the time of the Linton fire that the training records in relation to the Geelong Strike Team “... were not satisfactory”.⁵⁰
- 14.2.26** In his report on this fire, Work Cover Authority Investigator Mr Noonan concluded that:
- “In respect to the CFA, the lack of concise, detailed training records makes it difficult to conclusively state exactly what degree of training had been provided to the Region 7 Strike Team members, and in particular to the Geelong West and Snake Valley A crew’s. It has not been possible in all instances to simply align up the training records provided, with the National AFAC modules, and the Chief Staff Officers Standing Orders. It has also not been possible to conclusively state where and when a member volunteer or career staff has been accredited with training, and to what level was that accreditation obtained.*

The training requirements that were in place at 2nd December 1998 were within a change period with the CFA. That is, 1993 Chief Officers Standing Orders were in place, but the training modules had moved on from what those minimum requirements were.

Poor record keeping has also made it difficult to form any conclusive views as to the experience factor involved with the Region 7 Strike team and the Snake Valley A tanker.

There is not a detailed record of what volunteers or career staff might do once they are deployed to a fire. Their service history does not provide the necessary detail, and it is probably that the only ones that know what they did at any particular fire are those firefighters themselves.

By way of example, the Region 7 Strike Team Leader has stated that once the strike team arrived at Linton, one of two possibilities or options were to occur.

These were that they would be fed and sent home, or fed and deployed in the field. Had the strike team been fed and then sent home, the fire history details (or resume) would still have indicated that they had attended the Snake Valley/Linton fire, when in fact they would have done nothing at that particular fire.

The same is true of other witness statements when relating to an experience factor. They may well have attended different wildfires, but what did they actually do there? Were they for example involved in control line construction before? Had they provided bulldozer support before? Had they ever been a strike team leader before? Had they ever worked the eastern flank of a fire before? Were they only involved in mopping up exercises or had they been directly involved in fighting the fire?"⁵¹

- 14.2.27** In order to overcome the difficulties identified by Mr Noonan, key witnesses were orally examined at the inquest in an attempt to supplement the information on training contained in their CFA records. It has to be noted, however, that this process was fraught with difficulties. In particular, witnesses were asked about events that occurred a long time before they were questioned. In addition there was the difficulty that many of the witnesses received extensive training after the Linton fire and they had to remember what they learnt before and what they learnt after the fire. Finally, the detail of the courses studied or the experience gained in various circumstances was difficult to recall.

- 14.2.28** The evidence of the training and experience of the people listed in para 14.2.2 will now be examined.

Mr Desmond Phelan

- 14.2.29** No written record of Mr Phelan's training was tendered at the Inquests. The only evidence available was that given by him in his written statements and orally at the hearing.

- 14.2.30** In his statement Mr Phelan gave the following description of his training and experience:

"After my election as a Group Officer training was mainly through burning off and actual fire fighting with the CFA. After I was elected as G.O. I have attended courses and these have been G.O. seminars and these were held at Fiskville. I have also attended normal fire fighting courses at Fiskville. The fire fighting courses cover a range of things from grassland fire fighting, building, gas and forest fire fighting. The forest fire fighting was only theory, the grassland fire fighting was simulation fire fighting. The building and gas fire fighting is conducted in specially built facility at Fiskville.

During my years as a member of the CFA I have attended numerous fires including Cann River in 1980, two fires at Rokewood and Pittong in 1981, I attended the fires on Ash Wednesday at Mt Macedon as a Task Force Leader, Avoca in 1985, Greendale, Maldon/Castlemaine, the Enfield fire, a big one that came through Jol Jol out of Ararat, Creswick, Springhill, Flowerdale over the other side of Wallan and other large fires. I have also attended hundreds of little ones, 10, 20 acres fires.

Group Officer courses are run every couple of years. I would have attended a half a dozen lectures for Group Officers at the most since becoming a Group Officer. The last lecture I attended was about 5 years ago and that was held at Fiskville. The Region has every pre fire season an awareness weekends where we get NRE and CFA fire

fighting people to talk and discuss different things from new fire fighting techniques and the oncoming fire season. These weekends are held at conference centres and are attended by Group Officers, D.G.O's, NRE.

Ian Lightfoot and myself attended seminars around the State giving talks on our experience on putting out the fires at Enfield in 1996, I think.”⁵²

- 14.2.31** Prior to Linton he had not done a course on AIIMS-ICS.⁵³ He had some basic training on the system, but the nature of it was not identified.⁵⁴ Prior to Linton he had not been at a fire at which AIIMS system was used.⁵⁵

- 14.2.32** Mr Phelan was questioned about his understanding of the Operations Guidelines.⁵⁶

“Could the witness be shown Exhibit 20, please. Are you familiar with the Operations Guidelines, Mr Phelan?—Yes, well I have read it.

At the time of the Linton fire were you familiar with the Operations Guidelines?—Well, I had read it, I’m not saying that I was totally across it, no.”⁵⁷

- 14.2.33** Later on the same topic he said:

“... You, as at the time of Linton, you had some familiarity with the red book which you have been shown?—Yes.

Do I take it from that that you read it through or you have been trained on it or how did it work?—I read it, I think we had exercises at Fiskville at some period of time and parts of that book were used in the exercise.

How about the old red book on Tactics Administration in the Field, is that a book you are familiar with?—That’s a fair while ago. Yes, I have seen it.

Is that a similar situation, it’s something you have read?—That’s right.

Have you been specifically trained on that?—Not really, no. I read it and I think that most of my training has been from experience. I think that practical experience on the fire line and even though you can read books and there is a lot of thing written in them, then when you get on the fire line things aren’t always presented the way they are written in the books and then you have to make educated judgments.”⁵⁸

- 14.2.34** When questioned about training concerning supervision of personnel Mr Phelan said:

“I have done a command and control course at Fiskville, I don’t know when it was.

Was that a short period ago or many years ago, you have been in the game for 33 ...? —Probably, it might have been in the late ‘80s, I’m not quite sure. I don’t know when it was, but I had done that course.

Do you recall details of it or not?—Not really, no.”⁵⁹

- 14.2.35** Mr Phelan on the basis of the evidence presented at these Inquests had no formal training prior to Linton which qualified him to have a senior role such as Divisional Commander under the AIIMS System. Indeed, his training was given under and was relevant to the Group System that was in place in the CFA before the adoption of AIIMS as the system of work.

- 14.2.36** On this day at Linton Mr Phelan’s conduct was consistent with that of a person operating under the Group System. Throughout his time at the fire his communications identified him as the Grenville Group Officer.⁶⁰ At no time is he recorded as using the description Sector Commander in his communications. When he communicated with others at the fire he addressed them by Group titles or by name and not by AIIMS titles.⁶¹

- 14.2.37** In the time prior to Linton Mr Phelan had only been involved in Group fires and the leadership and operational experience he had was in relation to that type of administration of wildfire. He only received the most rudimentary training in AIIMS and he frankly admitted he had little knowledge of the system:

“Is that really just a small example of this general point, that is that under the incident control system, as it operates, as the CFA participates in it, different people have different roles to play?—

*Well, at the point of the Linton fire I wasn't really across the AIIMS System because I hadn't done the course, I have since done that course, but at that point of time I wasn't really across the internal workings of it."*⁶²

14.2.38 Since the Linton fire Mr Phelan has completed an AIIMS-ICS course and he understands that he is accredited to work in an Incident Control Centre in the roles of planning officer and logistics officer.⁶³

14.2.39 It is of particular importance that at the time of the Linton fire the Operations Guidelines of the CFA provided that:

" 7.1 CHIEF OFFICER'S STANDING ORDERS

"All incidents are to be managed in accordance with the Incident Control System of AIIMS. The Incident Controller is responsible for the overall management of the incident."

*(Refer to Chief's Standing Order SO 2.01 Command and Control of Incidents)."*⁶⁴

In other words, AIIMS-ICS was the system of work to be applied by volunteers and officers of the CFA on the fire ground. It had been adopted as such since early 1990.⁶⁵

14.2.40 In his statement Chief Officer Roche dealt with the topic of the *"move to ICS within the CFA"*.⁶⁶ The first point he made was about the general adoption of ICS:

*"15.1 When the AIIMS ICS system of command and control was first introduced to the CFA in 1990, it was presented as the system the Groups used to manage individual incidents. Group and Brigade personnel would still often perform the basic roles they had by virtue of their rank, but the ICS structure would be superimposed over the Group hierarchy and take precedence over that hierarchy. It was envisaged that smaller incidents would continue to remain within the control of individual Brigades or Groups, but the incidents would be managed in accordance with the principles of AIIMS ICS."*⁶⁷

14.2.41 He then went on to speak of the difficulties involved in the implementation of this system of work. In particular, he acknowledged that the management of the CFA permitted a situation to exist 8 years after the adoption of AIIMS/ICS as the system of work, where people who were not trained in that system could hold senior and responsible positions in the hierarchy of control operating in relation to a serious (type 3) fire:

"153. At the times AIIMS ICS was first introduced it met with some resistance for two reasons. First, it represented a major change in the overall structure of incident management and a move away from the traditional and familiar Group structure. Secondly, the introduction of AIIMS ICS relied on people being trained and accredited. At the time, there was a considerable amount of opposition within the CFA to the concept of accreditation. This was exacerbated by the fact that, to become fully accredited AIIMS ICS, officers and volunteers were required to attend a 5 day course and a 24 hour exercise. This was seen by many volunteers as not practical and beyond what could reasonably be expected of members of a volunteer organisation like the CFA.

154. In recognition of these difficulties, while the CFA mandated that it would run all emergency incidents in accordance with AIIMS ICS, it did not take the path of breaking down the Group structure and replacing it with a structure that was more compatible with AIIMS ICS. Senior management at the time, being conscious of the level of resistance for cultural reasons (but not because of any concern about the effectiveness or validity of AIIMS ICS as a system for incident management) decided that they would prefer to let it evolve over time as the primary system for incident management. As discussed above, this is the way change is often necessarily introduced in the CFA.

155. Thus, although acceptance of AIIMS ICS has grown over the years since its introduction, there has as yet been no complete evolutionary change. Many of our more senior and experienced volunteer personnel have lived with the system of incident management based on the Group system for so long that they have

found it difficult to make the transition to full implementation of AIIMS ICS. In most cases, this is not because of any ingrained hostility to the newer system. In fact, the vast majority of our volunteers in positions of command at Brigade level and above understand and accept the need to employ a system of incident management that accommodates multi-agency involvement and a limited span of control. Many of them have been in the position of trying to take full responsibility for the management of an incident that has escalated to the point that they have become overwhelmed by the influx of resources and associated logistical issues. Rather, it is a factor of the general difficulties associated with introducing change referred to above.

156. *The Linton fire is an example of the time it can take to fully implement systemic change and how, in the interim period, the level of uptake can be patchy. In the case of the Linton fire, it appears that some parts, vestiges of the old Group system were still in operation. To some extent, this reflects the position around the State. In some regions, there has been a full uptake and acceptance of AIIMS ICS, in others it is still meeting resistance while in some the implementation has been achieved in part.”⁶⁸*

14.2.42 Mr Phelan was one of those experienced fire fighters brought up under the Group system, who was, it would seem through no fault of his own, not trained in the new system of work he was expected to apply at every fire he attended after 1990. His training, background and experience did not prepare or qualify him to act as a Divisional Commander at the Linton fire on 2 December 1998.

Mr Ian Lightfoot

14.2.43 Mr Ian Lightfoot became a member of the CFA in 1955 and since that time has fought many forest fires.⁶⁹ In 1962 he became an officer of the Napoleons Brigade.⁷⁰ In about 1980 he was elected to the position of Buninyong Group Officer which he has held ever since.⁷¹ In 1995 he was awarded the Australian Fire Service Medal for his work with the CFA.⁷²

14.2.44 No official CFA record of Mr Lightfoot’s training was produced in evidence at this Inquest. As with Phelan, reliance has had to be placed on the oral evidence and statements forming part of these proceedings, to determine the extent of Lightfoot’s training.

14.2.45 In his statement Mr Lightfoot described his training in the following way:

“I have completed numerous courses whilst I have been with the CFA. Some of these include Wildlife Response, Plantation Fire Fighting, Floor Map Mock fire fighting, Brigade and Group Tactics Seminars, Comms Plans and Planning and many other courses pertaining to structural fires and gas fires etc.”⁷³

14.2.46 After about 6.00pm on 2 December 1998 Mr Lightfoot said he was acting in the position of Sector Commander on the eastern flank of the fire. The critical evidence in relation to that is:

“In terms of your deployment to the south-eastern sector, as you have told His Worship, you understood your responsibility was as a south-eastern sector commander for that area of operation that the Geelong Strike Team was involved in?—Yes.

In pursuing the obligations imposed on you under the system, did you require to be formally notified that that was your job, or did you understand it to be your job and position?—Mr Phelan informed me that I was looking after the eastern sector, that part of the eastern sector. He actually didn’t say, ‘You are sector commander’, but he said – I was well aware of what he meant.”⁷⁴

14.2.47 Mr Lightfoot understood that he held that position at the critical time of the entrapment of the Geelong City and Geelong West crews. The important question therefore becomes whether or not he was trained and experienced enough to perform the role of sector commander under the AIIMS system.

14.2.48 Prior to Linton Mr Lightfoot had received no training course in AIIMS or the role of a sector commander under that system.⁷⁵ Since the Linton fire he has received training in AIIMS and has received some form of accreditation,⁷⁶ although it is not clear what he is accredited to do under the AIIMS system:

"It would be correct to say, wouldn't it, Mr Lightfoot, that for about the first 30 years that you were a volunteer you were operating on the group system?—That's right.

That's before the introduction of the AIIMS/ICS?—Yes.

As I understand it, Mr Lightfoot, since Linton you have undergone an AIIMS/ICS course?—Yes.

And are you now accredited?—Yes.

*But that wasn't the case as at the time of Linton, was it?—No."*⁷⁷

- 14.2.49** When asked about his experience in the role of sector commander he at first indicated that he *"had been involved in sector commander roles"* previous to the fire.⁷⁸ When cross-examined on this issue later he indicated that he had carried out the equivalent role under the Group system.⁷⁹ When pressed further:

"You are aware that AIIMS came into operation in 1992?—Yes.

And since 1992 have you acted as a sector commander, Mr Lightfoot?—No, divisional commander.

Divisional commander?—Yes.

You have never actually acted as a sector commander, is that right?—Not that I can recall – not in a Level 3.

*All right. What about in other level fires?—In a Level 2 I have been operations officer, I have been strike team leader on many occasions during that period, I can't recall exactly when I was a sector commander actually since then."*⁸⁰

- 14.2.50** Under the AIIMS system a sector commander is responsible to the Divisional Commander and is in charge of no more than 5 Strike Team Leaders. This is the important principle of span of control built into AIIMS to ensure effective supervision.⁸¹ The responsibilities of the sector commander under AIIMS are:

"Sector commanders report to the Operations Officer or to the Division Commander if appointed. They are responsible for implementation of their portion of the Incident Action Plan, management and command of the resources allocated to their Sector, and execution of tasks allocated to them.

The responsibilities of the Sector Commander are:

- *obtain briefing from Operations Officer/Division Commander*
- *implement Incident Action Plan for Sector*
- *brief Strike Team/Task Force leaders*
- *identify resources allocated to the sector*
- *review sector assignments with subordinates and allocate tasks*
- *advise Resources Unit of changes in status of resources allocated to Sector*
- *co-ordinate activities with adjoining sectors*
- *determine need for assistance on allocated tasks*
- *provide situation reports to Operations Officer or Division Commander*
- *report special incidents/accidents*
- *resolve problems as they arise*
- *participate in development of operation plans for the next operational period*
- *ensure safety and welfare of personnel*
- *maintain a log of activities"*⁸²

- 14.2.51** There was no equivalent position described in the Manual Tactics and Administration in the Field Volume 1. That manual described the manner in which and the structure of major fires fought under the Group system which applied before 1990.

- 14.2.52** A look at the description that Mr Lightfoot gives of the role which he called a sector commander by another name, shows it bears no resemblance whatever to that of sector commander under the AIIMS system:

"Yes, all right. Can I ask you some questions, please, about your role as a sector commander that day. You have told us that you had acted as a sector commander before, is that right?—Yes.

Where? Whereabouts—Where?

Yes, which fires?—Which fires? Cann River.

Cann River?—Yes.

That was in – when was that?—1980.

1980?—Yes.

You were a sector commander in 1980?—Different name but same principle.

I see, what was the name you were operating under then?—I believe it was control.

Control?—Yes, whatever sector or area, you were control such and such, yes.

At the Cann River fire 20 years ago did you have crews under your command?—Um—

CFA crews?—You are stretching my memory a bit now. Yes. How many of them?—Probably, if I recall, 15.

15?—In one, and there was no strike team leaders in those days.

Was that 15 tankers or 15 volunteers or officers?—15 tankers.

Tankers. That was quite a big, difficult fire, wasn't it, the Cann River fire?—Yes.

How long were you deployed as a controller for at that fire?—Three days.

Three days, all right. And then after the Cann River fire what was the next occasion that you carried out duties as a sector commander?—Well, they are really too numerous to mention, but if I had a list, I think there is one somewhere, I could tell you."⁸³

Such experience as Mr Lightfoot had prior to 1990 under the group system did not qualify him to perform the role of sector commander after 1990. At no time between the introduction of AIIMS in the CFA and the Linton fire did he have experience in the role of sector commander.

- 14.2.53** To the extent that Mr Lightfoot understood the role of sector commander under AIIMS, that understanding came from reading the Operations Guidelines.⁸⁴

"In your capacity as group officer of the Mt Buninyong Brigade, you would be familiar, wouldn't you, with the CFA Operations Guidelines?—It is Buninyong Group actually.

Buninyong Group, I am sorry, you would be familiar with the CFA Operations Guidelines?—Yes.

Could the witness be shown Exhibit 20U, please (handed to witness)?—Thank you.

Just have a look at p.10.6. Listed there, Mr Lightfoot, are the sector commander responsibilities, do you see that?—Yes.

Are you familiar with the responsibilities of a sector commander as provided for in the CFA Operations Guidelines?—Yes, looking at that briefly, yes.

At the time of the Linton fire you would have known that one of the essential responsibilities of a sector commander was to ensure the safety and welfare of personnel?—Yes."⁸⁵

- 14.2.54** When questioned further on this point by his counsel:

"I just want to ask you a little bit about your training, Mr Lightfoot. Mr Dean asked you whether you were familiar with this (indicating), the red book?—Yes.

And you answered him "yes". How many times would you say you have read through that?—Once or twice over a long period of time.

How about what is referred to as "the old red book" or "Tactics and Administration in the Field"?—Yes, that to me is the same book with further additions.

You are more familiar with "Tactics and Administration in the Field", is that right?—Yes.

The Coroner: Had anyone involved in training you prior to Linton asked you any questions to indicate just that question, like, you know, "How many times have you read the red book"?—It is handed out to us, Your Worship, everyone is given a copy, but it is not monitored to say whether who reads it and how often they read it.

Ms Fox: We have heard evidence that at the time of Linton and, in fact, as I understand it still at this very time, there is no specific courses on roles like sector commander, is that your experience?—?—Yes.

— with the CFA? There are no specific courses, are there, Mr Lightfoot, on what it means to supervise anyone below you, is that fair?—That's fair, yes.

*Certainly at the time of Linton you weren't AIIMS accredited, but you had worked at a large number of fires in different roles—?—Yes."*⁸⁶

14.2.55 There was no evidence at this Inquest to show precisely what was the content of the training courses received by Mr Lightfoot. What can be seen however, is that the training undertaken occurred long ago and before the Linton fire. On the face of it the mere reading of the "*Red Book*" over a long period of time would hardly be likely to give a sufficient understanding of the sector commander's role under AIIMS.

14.2.56 An examination of the evidence of the way Mr Lightfoot performed the role of sector commander at Linton confirms that he did not perform the role in the way expected of the job description contained in the Operational Guidelines.⁸⁷ In particular:

- He used the title Group Officer and not Sector Commander when introducing himself to the Geelong Strike Team⁸⁸ and in all recorded communications;⁸⁹
- He did not co-ordinate activities with adjoining sectors, in particular with the DNRE team working north from the cemetery;⁹⁰
- He did not determine the need for assistance on allocated tasks, instead he expected to be contacted if something was needed by the Strike Team Leaders;⁹¹
- He did not provide any situation report of the progress of the Geelong Strike Team to the Divisional Commander;⁹²
- He did nothing to ensure the safety and welfare of the Geelong Strike Team;⁹³ and
- He did not maintain a log of activities.

There is therefore, no support for the notion that by experience since 1990 he had acquired an acceptable understanding of the role of sector commander to carry it out at any AIIMS fire.

14.2.57 Mr Lightfoot is another one of those experienced fire fighters brought up under the Group System, who was, it would seem through no fault of his own, not trained in the new system of work he was expected to apply at every fire he attended after 1990. His training, background and experience did not prepare or qualify him to act as sector commander at the Linton fire on 2 December 1998.

Mr Simon Scharf

14.2.58 Mr Simon Scharf joined the CFA as a volunteer in 1984.⁹⁴ In July 1986 he was elected to the position of Foreman at the North Geelong Brigade.⁹⁵

14.2.59 In September 1987 Mr Scharf attended the Fiskville Training College as a trainee fire fighter.⁹⁶ In September 1988 he became a permanent firefighter and was posted to the North Geelong Brigade.⁹⁷ At the time of becoming a permanent firefighter Scharf had almost completed an apprenticeship as a boilermaker.

14.2.60 Mr Scharf went through a series of promotions and moves to different stations.

- Leading firefighter North Geelong Brigade July 1991 to August 1993;⁹⁸
- Leading firefighter at Corio Brigade between August 1993 and February 1998;⁹⁹ and
- Fire officer Geelong City Brigade since February 1998.¹⁰⁰

14.2.61 The training Mr Scharf has had falls into three categories:

- Courses at the Fiskville College;
- "*In Station*" training; and
- Private study.

- 14.2.62** It is fair to say that the evidence presented to this Inquest and such records as were available indicate that Mr Scharf was a very diligent and capable student of subjects related to fire fighting.¹⁰¹ He was sufficiently capable to be entrusted with the task of training others.¹⁰² Included among the courses he taught to volunteers over a number of years before the Linton fire were:¹⁰³
- Firefighting Practices;
 - Blacking Out techniques;
 - Firefighting Theory;
 - Safety and Survival;
 - Basic Firefighting Tactics;
 - Communication; and
 - Radio Procedure – VHF Radios.
- 14.2.63** The written materials used in these training courses were exhibited to Mr Scharf’s affidavit in these proceedings.¹⁰⁴ Reference is made in those materials to three videos:¹⁰⁵
- Fire Weather;
 - Topography and Fire; and
 - Fire fuels,
- none of which were placed in evidence. It would appear, however, from the examination questions asked as part of each course that these videos went into more extensive detail than the written materials.
- 14.2.64** It is important to note that most of Mr Scharf’s formal training was conducted prior to 1995 and it was underpinned by the book *“Tactics and Administration in the Field.”*¹⁰⁶ That book was based on the Group System,¹⁰⁷ as were the materials referred to in para 14.2.57.
- 14.2.65** In September 1987 Mr Scharf did a 13 week recruit course at the CFA Training College at Fiskville.¹⁰⁸ That course provided recruits with the basics of firefighting.
- 14.2.66** In 1989 Mr Scharf completed the Level 2 Firefighters course at Fiskville.¹⁰⁹ That course lasted for two or three days and involved practical drills. The drills related to urban firefighting and included multi-story building and motor vehicle accident exercises.
- 14.2.67** The next course undertaken by Mr Scharf was the Senior Firefighter assessment in 1990. The course involved the theoretical study of:
- Legislation;
 - Tactics and Administration in the Field Vol. 1; and
 - Knowledge of equipment.
- The course also involved a one day practical component dealing with:¹¹⁰
- pumps;
 - knot tying;
 - gas detectors; and
 - fire attack.
- No part of the course related to rural fires.¹¹¹
- 14.2.68** In March 1992 Mr Scharf participated in training as part of promotion to the rank of Fire Officer.¹¹² The course took four weeks and included theoretical training in:¹¹³
- Legislation;
 - Fire behaviour; and
 - Fire weather.
- There were training exercises using models of a fire ground to simulate a fire and the management systems required to fight it.¹¹⁴ Rural fires were included among the scenarios involved.¹¹⁵ Mr Scharf was assessed for and passed the Fire Officers examination.¹¹⁶
- 14.2.69** In May 1992 Mr Scharf received a copy of the AIIMS-ICS manual together with a covering note from his District Officer.¹¹⁷ He understood the document set out what was to be used in the future as the CFA’s incident management system.

14.2.70 In 1995 Mr Scharf received a copy of the book “Operations Guidelines” which replaced “Tactics and Administration in the Field Vol. 1.”¹¹⁸ The principal difference between the two works is that the “Operations Guidelines” was based on AIIMS-ICS whereas the other work was based on the Group System.

14.2.71 Mr Scharf told the Inquests:

“I was not given any instructions or training as to how the Guidelines differed from TAF. Nor were any formal meetings or informal discussions held where the differences were pointed out to me.

I have read the Guidelines volume.

The Guidelines volume contains a section entitled “10 Standard Fire Orders” at page 23.17, and a section entitled “Watchout on the Fireline When:” at page 23.18.

I believed the Standard Fire Orders (“SFO’s”) were “common sense” principles of fire fighting. I was never specifically trained in SFO’s. Specifically, I was never trained to use “safe anchor points” in a wildfire situation. Safe anchor points were not the subject of specific training.

There are 13 “watchout” situations listed on page 23.18 of the Guidelines volume. These match some of the 18 “watchout situations” referred to in section 7.2 (pages 34–5) of the CDA and NRE’s 11 March 1999 Report of the Operations Review of Linton Fire/Midlands Fire #15 on 2 December 1998. I was never specifically trained to observe the 13 “watchout” situations in the Guidelines, and my subsequent training has not alerted me to any amendment or alteration to the list of watchout situations. I do not know why there are 18 watchout situations listed in the 11 March 1999 Report.”¹¹⁹

14.2.72 The 13 watchouts contained in the “Operations Guidelines”¹²⁰ were revised and reprinted in December 1997. The revised guidelines (with explanations) was released as a booklet called “Wildfire Safety and Survival”.¹²¹ The 18 watchouts contained in that publication are set out below.

“Firefighters watch out when:

- 1. **Building a control line downhill towards a fire.** Fires race up hills. Look at where the fire is going and don’t get into this situation. It can be particularly unsafe at the head of a gully where the wind may funnel the fire.*
- 2. **On a slope – rolling material can ignite fuel below you.** There is the possibility of you being caught between the fire you are working on and a new one burning up hill toward you.*
- 3. **The wind changes speed or direction.** A change in wind direction will mean a change in how the fire burns, how it needs to be controlled and how much it threatens your safety. A wind change could change the direction of fire spread or it could turn the flank of a fire into the fire head. An increase in wind speed will lead to an increase in fire spread and intensity. A drop in wind speed may be the forerunner of a dramatic weather change.*
- 4. **The weather gets hotter or drier.** This leads to decrease in fuel moisture and therefore more intense fire behaviour. A fire that was mild and easy to control at the start of the day can become a major threat as the fuel dries out.*
- 5. **In heavy cover, with unburnt fuel between you and the fire.** Heavy loads of fuel mean very intense fires and rapid rate of spread when they burn.*
- 6. **Terrain or vegetation impedes travel or visibility.** If you cannot move across the ground easily you will need extra time to escape from any problems, or you will need to look for good refuges not far away. If visibility is impaired you cannot be sure of the whereabouts of the fire or how it is behaving. You may not be able to see your workmates or people operating mechanical equipment and they may not be able to see you.*
- 7. **In country you have not seen in daylight.** You may not be aware of potential fire hazards in the area. You will need good briefing information, good maps and good lights, torches etc.*

8. **Unfamiliar with weather and local fire behaviour.** Different parts of the state have very different topography and fuel types. In these circumstances fire behaviour can be very different to what an “outsider” might predict from looking at a map but should be familiar to local people. Steep terrain can cause unexpected wind channelling and unpredictable wind changes, not necessarily the same as the prevailing winds on the “main fire”.
9. **Frequent spot fires occur over your control line.** Spot fires present fire control problems as well as safety problems.
10. **You cannot see the main fire or communicate with anyone who can.** If you cannot see how the main fire is behaving you cannot be sure
 - how it is behaving
 - how effective the work you are doing will be
 - how far away the fire is; or
 - how much time you have until it is near you.
11. **Unclear instructions or tasks are given.** Unclear instructions can lead to confusion and misunderstandings about where people are and what they are meant to be doing.
12. **You feel exhausted or want to take a nap near the fire.** If you feel exhausted or sleepy as a result of fatigue or illness then it is not safe for you to remain working at a fire and you should let your supervisor know.
13. **Frontal attack on a fire or constructing a fire control line without a safe anchor point.** When building a fireline, be sure it starts at a safe anchor point like a rock or clearing.
14. **No communications link to crew members or supervisor, and working alone.** Communication between crew members and their supervisor is the key to keeping all members of the crew informed of what is happening.
15. **Uninformed on strategy, tactics and hazards.** A crew needs to have a clear understanding of what they will be doing, what standard of work is expected and what hazards they are likely to encounter to be able to complete their own tasks effectively and safely.
16. **Safety zones and escape routes not identified.** It is no use waiting until an emergency arises to start thinking of a way out of it.
17. **Fire not scouted or potential assessed.** Until a fire has been properly assessed on the ground the full range of possible fire behaviour and possible safety threats will not be understood.
18. **Keep a reserve of water in the tanker for protection and safety of the crew.** Never completely empty the tank before refilling.”¹²²

14.2.73 A comparison between the checklist in the “Operations Guidelines” and “Wildfire Safety and Survival” shows that:

- In the latter publication there is an explanation accompanying the watchout; and
- Watchouts 14 to 18 in “Wildfire Safety and Survival” are additional concepts.

14.2.74 The additional watchouts deal with topics that are of great significance to what occurred with the Geelong Strike Team. In particular:

- 14. – which deals with communications with supervisors;
- 15. – information about strategy tactics and hazards;
- 16. – identification of safety zones and escape routes;
- 17. – scouting the fire to assess potential safety threats; and
- 18. – keeping a reserve of water.

14.2.75 “Wildfire Safety and Survival” also has a very useful summary, which deals with the watchouts:

“SUMMARY

Teach yourself to observe. Observe fire and the environment around you. Understand how fire may behave, and what the hazards and threats are. Think about how you will react to life threatening situation.

Remember the **WATCH OUTS**:

Weather dominates fire behaviour, so keep informed

Actions – must be based on current and expected fire behaviour

Try out – at least two safe escape routes

Communicate – with your Officer in Charge, your crew and adjoining crews

Hazards – beware of variations in fuels, steep slopes

Observe – changes in wind speed or direction, temperature, humidity and cloud

Understand – your instructions, make sure that you are understood

*Think – clearly, be alert and act decisively before your situation becomes critical.*¹²³

14.2.76 The difficulty, however, is that while these materials were available, Mr Scharf was not familiar with them.¹²⁴ There is no evidence that he ever received a copy of this booklet.

14.2.77 Around about 1995 the CFA adopted the Australian Fire Competencies (AFC) as its system of skill recognition and assessment.¹²⁵ At the time Mr Scharf was a Fire Officer under the old system and he was deemed to be competent in a number of AFC's.¹²⁶ He did not carry out any further courses or assessment on the AFCs before Linton.¹²⁷

14.2.78 Since the Linton fire Mr Scharf has undertaken and passed courses, gaining the appropriate certificates in:

- Fire Suppression 2;
- Wildfire Behaviour 2;
- Category 1 Training;
- Maintenance of Equipment; and
- Road Accident Rescue – Vehicle and Heavy Rescue.

14.2.79 Mr Scharf's additional statement also sets out the extent of his "In Station" training between January 1993 and November 1998.¹²⁸ Of importance to the fire at Linton are:

- Safety and survival which was a one hour training session based on the training package 4.4 SAFETY AND SURVIVAL;¹²⁹
- Meteorology and Fire Weather;¹³⁰ and
- Radio Procedure.¹³¹

14.2.80 Other qualifications obtained by Mr Scharf include:

- Air Observer;¹³²
- ARMS;¹³³ and
- ICS update December 1997.¹³⁴

14.2.81 The first crucial question therefore is what degree of knowledge did Mr Scharf have about the critical issues of: fire behaviour, water conservation on tankers, working to the black and use of safe exit routes from the fire line?

14.2.82 The written materials exhibited by Mr Scharf to his statement deal quite extensively with these topics. Some of the important matters are extracted in the following paragraphs.

14.2.83 Looking at the first topic – fire behaviour. Course materials in relation to this topic are found in Exhibit 16 to Mr Scharf's statement.¹³⁵ The Introduction to that says:

"Firefighters are often placed at great risk when they are fighting fires in grass and bushland.

The behaviour of a fire can change dramatically with changes in the weather, fuel or topography.

A failure to understand the influence of these three factors on fire behaviour can greatly increase the risk to firefighters.

On the other hand an understanding of the influence of these factors will enable a firefighter to make decisions that protect their lives.

This understanding will also enable a firefighter to select appropriate fire suppression methods and tactics."¹³⁶

- 14.2.84** Following on from that are two sections entitled “Wind Speed and Direction” and “Hazardous Situations”.

“WIND SPEED AND DIRECTION”

Wind speed is the most important factor in determining fire behaviour in dry fuels. Any fire burning in a bone dry fuel will be relatively easy to control provided winds remain calm. Once the wind speed increases, the whole range of fire behaviour increases dramatically. Wind acts on a fire in the following ways:

- *tilts the flames forward and provides a more effective radiation and preheating of unburned fuels*
- *increases the chances of direct flame contact with fuels ahead of the fire*
- *maintains the oxygen supply to the combustion zone and so increases the intensity*
- *shifts the convection column ahead of the fires so that the convective energy of the fire reinforces and increases the wind speed in the flaming zone, providing additional momentum to fire spread*
- *blows burning embers ahead of the fire and initiates the spotting process.*

HAZARDOUS SITUATIONS

The following situations must be recognised by fire fighters so that they can understand what fire behaviour might be expected and how they should react while fighting the fire.

- *Wind changing speed or direction can lead to spot fires and flare ups.*
- *If spot fires start to fall in an area around you the situation is critical. You must evacuate the crew from the area. Do not attempt to suppress multiple spot fires unless a large safe refuge is nearby.*
- *Gusty wind results in erratic fire behaviour particularly in fine fuels which respond rapidly to changes in wind speed.*
- *Passage of cold front results in a change of wind direction which turns the flank of the fire into the main front. This can increase the area of the fire and make suppression difficult and dangerous.*
- *Sudden drop in wind strength may mean:*
 - *you have moved into a sheltered location*
 - *a change of wind direction (and perhaps an increase of strength) is about to occur*
 - *you are directly down wind of an intense fire*
- *Increase in wind strength can result in an increase in the rate of fire spread.”¹³⁷*

- 14.2.85** Further on the topic of “Effects of Cold Front Wind Change on Fire Behaviour” is dealt with.¹³⁸ That topic is also extensively dealt with in the “Operations Guidelines.”¹³⁹

- 14.2.86** Topography is another important topic considered. Under that heading the authors say:

“Topography is one of the three major factors affecting fire behaviour, the others being weather and fuel.

The effects of topography on fire behaviour can be divided into 3 groups:

- *meteorological:*
creation of local weather, especially winds
- *botanical:*
the vegetation types which grows in different localities
- *barriers:*
the existence of natural and man made barriers, eg. rivers, fire breaks.

METEOROLOGICAL

Topography affects the flow of the winds, just as rocks and snags affect the flow of water in a creek.

A valley may channel a wind, increasing its speed. Turbulence may be formed with the wind direction becoming unpredictable.

Slopes create their own local winds.

Slope has much the same effect on rate of spread as wind velocity. The flame front is tilted forward and preheating becomes more effective. Ignition of fuel particles ahead of the flame front is easier, and convective heat transfer is more effective.

As a general rule of thumb, spread doubles on a 100 upslope and increases fourfold on a 200 slope. Spread is correspondingly slower on a downslope and a 100 downslope reduces the rate of spread by about 40%.

The combined effect of wind blowing directly upslope makes the angle of flames very acute and exceptionally high rates of spread may occur.

Although fires generally burn slowly downslope, the situation on a lee slope is not as straight forward due to mechanical turbulence of wind flowing over the ridge or hill. This may cause fire whirlwinds at the crest of the ridge or hill. This may cause fire whirlwinds at the crest of the ridge which move erratically downslope or there may be eddy winds which draw spot fires in the lee slope rapidly into the main fire.

Hence, topography greatly increases suppression difficulty, and extreme care should be exercised when working upslope of a fire due to the chances of a sudden upslope run.”¹⁴⁰

14.2.87 That topic concludes with the following warning:

“Fire fighters must be alert for potential hazards, ever wary that small changes in wind speeds, fuel types, temperature and humidity, small local factors, influenced by topography, or changes in the topography itself, can help then control a fire or cause the fire to develop into a threat to life and property.”¹⁴¹ (sic)

14.2.88 Senior Counsel for the CFA cross-examined Mr Scharf about the content of the course materials in the exhibits to his statement in some detail.¹⁴² The only conclusion to be drawn from that cross-examination is that Scharf had a good knowledge of the theory contained in those exhibits. Matters of particular importance are:

- Fire behaviour can change rapidly with changes in wind speed;¹⁴³
- A change in wind direction can convert a flank of a fire into a head;¹⁴⁴
- It was important that the crew be able to make their way on to burnt ground in the case of an emergency such as a change in wind direction;¹⁴⁵
- The effects of fuels on fire behaviour;¹⁴⁶ and
- Blacking out techniques.¹⁴⁷

14.2.89 This was confirmed by Mr Scharf:

“The Coroner: So if you look at all these documents, Mr Scharf, would it be correct to say that you knew all the theory?—Yes.

Mr Kaye: I want to take you, I will try to avoid taking too lone, but it is an important subject matter, Your Worship.

The Coroner: If one reads the documents one can see all the theory there. He says he knows all the theory. He’s acknowledged he knows all the theory. You can do it piece by piece, Mr Kaye.

Mr Kaye: I’m not going through every point on every page—

The Coroner: It seemed to me that’s what you were doing, I was trying to short-cut the process.

Mr Kaye: You understand all these concepts you were teaching?—Pretty much so, yes.”¹⁴⁸

14.2.90 The second part of the question to be answered here is: given the undoubted theoretical knowledge Mr Scharf had, did he have sufficient experience to apply that knowledge in a practical sense on the fire ground? This is very important because Scharf was the person in charge of the Geelong Strike Team and was the one responsible for making the critical decisions that led the Geelong City and Geelong West tankers to the point on the Homestead Track extension where they were entrapped.

14.2.91 Mr Scharf was confident of his own abilities to supervise the carrying out of the tasks the Geelong Strike Team was entrusted with at Linton that evening:

"You mistakenly or otherwise felt quite confident that night, would that be right?—yeah, I didn't have any problem with the task we were about to do.

Looking back on it now you would agree, wouldn't you, that that was misplaced, that confidence—Absolutely.

Why didn't you say to somebody, 'Look, this is my first time as a strike team leader, I have never gone down a track behind a bulldozer before'?—because I didn't believe at the time when we were deployed with the task that we had it was a complex or difficult task, I thought it was quite a simple task and I didn't have any problem with doing that, so I didn't raise that issue, Your Worship.

*Getting back to the fact it was your first experience as a strike team leader, and your first experience working with a bulldozer, why didn't that come together for you to query somebody and ask them as to whether or not it was a suitable task for you?—I suppose I had the – I suppose my own confidence, you know, that I would be able to carry out that task. I didn't think at any stage, you now, that the task was difficult or I couldn't undertake that task."*¹⁴⁹

14.2.92 It was submitted on behalf of some parties that Mr Scharf's sound theoretical knowledge of forest fire fighting was supplemented by significant experience.¹⁵⁰ This argument, it was said, led to the conclusion that the combination of training and experience that Scharf had meant that he knew that the decision to send the Geelong City and Geelong West trucks out along the Homestead Track extension was dangerous in the circumstances, but it was made to reduce the time taken to refill those trucks.¹⁵¹

14.2.93 In terms of actual experience at wildfires prior to Linton, Mr Scharf had attended three incidents over a period of 14 years.¹⁵² First, in 1985 as a volunteer, he attended the Little River fire where he did mopping up and blacking out.¹⁵³ Next, in 1997 he attended the Dandenong Ranges fires where he engaged in the protection of houses and the extinguishing of spot fires.¹⁵⁴ Finally, later in 1997 he was a member of a strike team at the Ocean Grove fire.

14.2.94 When cross-examined about these incidents Mr Scharf was asked the following questions and gave the following answers:

"You have already told us about your experience at the Little River fire as a volunteer. You didn't hold any supervisory position at that fire, did you?—No.

You were on a tanker, is that right?—That's correct.

How long were you in attendance at those fires?—I think we arrived, working from memory, round about 2 or 3 o'clock, something along those lines.

Yes?—We probably worked for about 2 to 2½ hours, I suppose, before we broke an axle on the truck, so that virtually put us out, for a number of hours, out of action.

When you say you worked for 2 to 2½ hours, were you actually involved in the extinguishment of spot fires, as you say on p.17?—Yes, spot fires that were in, like, house back yards and front yards and those sort of things.

*Then finally you refer to your experience as a crew leader at the Ocean Grove fire in April of 1997. How long, as best you can recall, how long were you in attendance at that fire?—At an estimate maybe 4 or 5 hours, maybe a fraction longer."*¹⁵⁵

14.2.95 Turning then to matters absent from Mr Scharf's fire ground experience in a bush setting of importance is:

- Mr Scharf had never before worked on a control line in a forest in support of a bulldozer;¹⁵⁶
- He had never worked on a control line being constructed in a forest;¹⁵⁷
- He had not had any training in relation to the construction of a control line by a bulldozer in a forest;¹⁵⁸
- Mr Scharf did not have any training in relation to the supervision of crews supporting a bulldozer constructing a control line in a forest;¹⁵⁹

- He had never been a strike team leader before.¹⁶⁰
- He had never carried out any backburning operations;¹⁶¹
- He had never been in “close quarters to wildfire in a eucalypt forest” before;¹⁶²
- He had never experienced local wind changes as a result of topography;¹⁶³
- He had not been taught to assess fuel loads in the field;¹⁶⁴ and
- He had never seen the effects of a wind change when fighting grass fires.¹⁶⁵

14.2.96 Nothing in the experience Mr Scharf had prior to Linton gave him sufficient preparation in the critical skills required by him at Linton to avoid the catastrophe that occurred. He did not have the necessary practical understanding to accurately assess the fuel loads in Sludge Gully or to draw the appropriate conclusions about the danger posed by the topography in that area if there was a sudden shift of wind to the south west. In particular, he underestimated the fuel load and how quickly the fire could change and spread in that area if there was a wind shift.

14.2.97 Mr Scharf gave a description of the process of reasoning he adopted and the circumstances surrounding his decision to allow the Geelong City and Geelong West tankers to travel along the Homestead Track extension to the water tanker near the cemetery to refill. He said:

“In diverting the control line eastward for a short distance, and then returning to a southerly path along the existing track, it followed that we would be increasing the amount of unburnt fuel between the control line and the fireline. Given that the slope was very slight, and the fire behaviour was very mild, it did not seem to me to be a significant reason not to follow the NRE officer’s suggestion. We had been backburning other sections of bush and decided to backburn this section after the tankers had returned. This would have been done from the track and in stages.

When Stepnell and I consulted the map, and worked out where it appeared the existing track was, we decided it would also be a route to Kellys Road and to obtain water at the cemetery. In my experience forestry tracks of this sort lead to other main tracks or roads.

It was a reasonable and safe option to direct Geelong City and Geelong West to obtain water by making use of the existing track. I knew that the Lara tanker was working up to the base of the steep gully on the control line and that for the Geelong West and Geelong City tankers to take that route it would require Lara to drive to our point to turn around. We would also have to turn around each of the tankers that were going out to get water.

The factors I took into account in directing Geelong City and Geelong West to take the existing track out to get water were –

- (a) the very mild fire behaviour;*
- (b) the nature of the terrain;*
- (c) my estimate that it would take less than 5 minutes for the tankers to travel along the track to reach Kelly’s Road.*
- (d) the distance between the firefront and the existing track;*
- (e) the fact that the weather appeared stable and the wind had not freshened or changed direction;*
- (f) we had not received any information alerting us to an imminent change in the weather; and*
- (g) the advice given to us by the NRE officer that the track would make the construction of the control line easier meant that it was unlikely that the track deviated significantly from the fireline.”¹⁶⁶*

14.2.98 There was extensive cross-examination on this paragraph of Mr Scharf’s supplementary statement. He was asked these questions and gave these answers:

“... you know in your supplementary statement you have identified or attempted to identify all the reasons why you make the decision that you did to go out on the extension track, ... —

I don't want to go into the question of how long it took you to prepare this statement and what level your discussion and consideration was before you formulated these propositions, but can we all take it, Mr Scharf, that the explanations (a) to (g) set out at pp. 29 to 30 were set out after full and careful consideration by you and following discussion with your legal advisers?—Yes.

Let me take (g) now ... I'm sorry, I better put this to you first. I want to suggest to you that you didn't seriously take all these matters into account before you said to Stepnell, "I agree with you", you are not seriously suggesting you went through this process, are you?—I think so.

You do?—Yes, I think so, albeit in a brief process.

Then the answer to His Worship's question this morning, when he asked you did you go through some risk assessment, was positively "Yes, and I've identified each of the risk factors which I took into account and which led to my decision"?—It was very brief, you know...

Can I look at the other factors you have listed there, please, (a) "the very mild fire behaviour". You are familiar with the Bible, Exhibit 20, yes?—Reasonably, I haven't read it for about 18 months prior to Linton, I suppose.

There's a section there on fighting forest fires?—Yes ...

16.6, starting at p.16.20, dealing with forest fires. Just have a glance at it and if you want to we can go back to anything in particular you would like to, but what I want to establish is were you familiar with this section of the booklet?—In general terms, it wouldn't be something I would recall straight out of it ...

You were aware, for example, that what you are instructed is that fire behaviour characteristics in a forest - if you go to the first page, that's immediately under 16.6, you can get rates of spread in a forest of up to 4 kilometres?—Yes, I wouldn't say I am totally familiar with that distance.

If you had given any thought prior to Linton, the sorts of thing you were instructed about, if a fire was travelling at 4 kilometres an hour in the forest, that is a rate of one point - sorry, a hundred metres in one and a half minutes, roughly translated?—Mathematics—

Did you have any grasp of the fact that in being given this sort of information, and if you look over the page, 2 pages, there's a graph there which lists what you ought to do depending on the height of the fire, what sort of fire you are dealing with, depending on the height of flame. Did you not have any conception at all, Mr Scharf, before this day that a fire in a forest could run at a rate of a hundred metres, run a hundred metres in something less than 2 minutes; you had no idea of that?—A general idea, but, I mean, it is all factored in with weather and fuel loads and those sorts of things, I suppose.

You certainly knew, if not from your own observations of forest fires, you knew from fires you had seen, from film footage, when you have a forest fire you can have a fire that's burnt to the very tops of the trees, you knew an intense fire can crown?—Yes.

You know when crowning it would be going at a pretty fast speed?—Yes.

Nonetheless, knowing that, you made a decision on the day that it would be safe to send them out with this unburnt fuel to your right?—The fire was benign, I didn't ...

Yes, but you knew from all your training that it might not be benign in 5 minutes time, you knew that from all your training?—I don't think I recognised that at the time with the conditions that were existing.

Just listen to my question. Before the day of the fire at Linton you knew from your training that what is currently a benign fire can change into a ferocious one in a matter of minutes; you knew that from all your training?—I had never seen that and -

So we are now talking about—

The Coroner: Mr Redlich, let the witness answer the question, I think he was going to say something else.

Witness: I had never seen a fire change with that sort of force, from benign conditions to what that was, I never would expect it would have done that that quickly.

Mr Redlich: What you are saying is you were aware from your training that it can change very quickly but you had never actually visually observed it doing so?—Yes.

You see, don't all these factors, if we look at them, don't these factors say what you did on the night was to say, "I think I've got a shortcut here that's going to save us a lot of time and inconvenience, and I don't think, taking all the things that I know into account, that I'm exposing my strike team to any appreciable risk by taking that shortcut"; isn't that what you did? I didn't believe just looking at the fire conditions and those other factors that it was dangerous.

But you knew what you were doing was in effect taking a shortcut?—I hadn't considered how we were going to properly manage 9 tankers on the control line, and that seemed to me to be a reasonable thing to do.

Mr Kaye has very carefully taken you through your knowledge and understanding of all of the safety principles and, as you said graphically to the Arson Squad in your re-enactment, as you were burning down the control line you were very conscious of the fact that your crew was safe because they were working with the safety of the black?—That's right.

And you were conscious that that's what you should be doing, even though it was a benign fire, correct?—We had to follow the dozer and do that.

But you were doing that knowing it was safe because even though it was a benign fire, you know the fire behaviour can change?—I would not have expected the fire behaviour to change at that rate, Mr Redlich, I can tell you.

Do you think, on reflection, Mr Scharf, now having listened to a number of counsel cross-examine both you and Mr Stepnell, do you accept now that it was an error of judgment on your part to tell any members of your team to go out on a road when you didn't know where it went?—In hindsight I would agree ...

Mr Scharf, I want to make this clear, what I have been putting to you about this portion of your supplementary statement, what I'm really putting to you is that what you have listed there is really your reconstruction of things aided and abetted by input from your counsel, that those weren't the factors that you actually thought about on the night?—I think I thought about all of those things in a brief way."¹⁶⁷

14.2.99 Despite the extremely skilful and persistent cross-examination of Mr Scharf by Senior Counsel for the DNRE, he remained firm that he did consider all the factors he listed and that he simply did not expect that the fire could change and spread in the Sludge Gully area so quickly on that night if a wind change occurred. There was nothing in Mr Scharf's demeanour during this portion of his cross-examination, which suggested anything other than he sincerely believed the truth of the answers he gave and that he was recounting what occurred on the night.

14.2.100 In its submission to the Inquests the DNRE conceded as much by submitting:

"Much has been said about the speed at which the fire moved from the fire edge to the Homestead Track extension upon the arrival of the wind change. The strike team leader and crew leader said that the speed at which the fire moved caught them both by surprise. Numerous other witnesses from the strike team expressed a similar view. The Coroner can safely act on the proposition that Mr Scharf and Mr Stepnell did not anticipate that a wind change would produce the speed and intensity of the fire which entrapped the Geelong West crew. This belief probably affected the weight which Mr Scharf and Mr Stepnell gave to their knowledge that there might be a wind change, whether it was the predicted wind change or a local change which their safety training had warned them should always be anticipated.

Mr Scharf was in fact familiar with the CFA guidelines which dealt with forest fires and fire behaviour. Mr Scharf had a general idea that the forest fires could run at a rate of speed of up to 100 metres in something less than 2 minutes, but that the speed of the fire would depend upon weather and fuel loads. He was also aware, either from

*his own observation or from films, that forest fires can burn to the very tops of trees and that when they crown the fire would be going pretty fast (T.10252-2). He agreed that he was aware from his training that a fire can change from a benign condition to ferocious on in a matter of minutes but he had never actually visually observed it doing so (T.10253)."*¹⁶⁸

14.2.101 This submission accurately and fairly evaluates the evidence, and the conclusion that "... Mr Scharf and Mr Stepnell did not anticipate that a wind change would produce the speed or intensity of the fire which entrapped the Geelong West Crew...", is clearly correct on the evidence.

14.2.102 The evidence on the wind change information available to Mr Scharf and his expectation of the wind change is fully analysed elsewhere.¹⁶⁹ At this point, however, it is relevant to observe that the conclusion to be reached on the available evidence is that Scharf had an expectation that a wind change was likely to come some time during the construction of the control line, but he had no knowledge of when it would arrive. On the basis of that conclusion the observation that the lack of anticipation of the effect of wind on the fire "*probably affected the weight Mr Scharf and Mr Stepnell gave to their knowledge that there might be a wind change*" needs to be considered very carefully.

14.2.103 These two matters, however, cannot be looked at in isolation but must instead be considered together. The inability to assess the undoubted danger of the situation of sending the two trucks out along the Homestead track extension to refill with water must be considered in the context of Mr Scharf's knowledge of the impending wind change. The situation facing Scharf shortly before 8.45pm that night was that he believed that:

- The fire behaviour was very mild;¹⁷⁰
- The weather appeared stable and the wind had not freshened or changed direction;¹⁷¹
- The fuel load did not appear as heavy;¹⁷² and
- He estimated that it would take less than 5 minutes for the tankers to travel along the track to reach Kelly's Road.¹⁷³

14.2.104 The first two of these beliefs accord with the evidence of other witnesses and cannot be criticised.¹⁷⁴ The fuel load assessment was, in view of the expert evidence, clearly wrong.¹⁷⁵ The final factor has come under considerable criticism, particularly in the submissions filed on behalf of the CFA and DNRE.¹⁷⁶

14.2.105 When questioned about the decision to use the Homestead Track extension to exit for water Mr Scharf said:

"Mr Kaye: I will come back to this later, but when you made the decision that the two Geelong tankers go out along that Homestead Track extension, you didn't radio in to check just where the extension went to?—No.

Or what its condition was like—No.

Whether it had obstacles across it or not?—No.

You felt confident that those two tankers could find their way out at that time of night on an unmarked track?—I believed – I concluded where that track would most likely come out from my previous experience of four-wheel driving and stuff in similar sort of bush, those type of smaller tracks generally lead to bigger tracks.

You have had quite a bit of four-wheel driving in bush settings?—Yes.

The Coroner: But that was a guess, was it?—Sorry, Your Worship?

Was that a guess, then, was it?—For where the track came out?

Yes?—Yes, I believe so.

Mr Kaye: There are plenty of forest tracks that simply go nowhere, aren't there?— Not many I have come across.

*You have been lucky?—It's been my experience, Mr Kaye."*¹⁷⁷

14.2.106 Further on he made the following concessions:

"In terms of the fuel and topography, you told His Worship you just made an assumption as to what these two tankers would encounter on their way out?—Yes.

And you made an assumption, didn't you, that there wouldn't be a local change, I am sorry, a change in fire conditions brought about by the local factors that you and I have been discussing?—Sorry?

Yes, it was poorly worded. You made an assumption when you sent those two tankers out that the fire conditions would not change, such change being brought about by the type of local factors that you and I have been discussing, topography and fuel?— Yes.

*You also made an assumption that the wind change which you mentioned to your crew leaders on Possum Gully Road wasn't going to come?—That's correct."*¹⁷⁸

14.2.107 At the time of making the decision to send the trucks out along the Homestead Track extension there was no reasonable basis on which Mr Scharf could conclude where the track would lead, what its condition was or how long the trucks would be on it. His conclusion that the trucks could get out to Kelly's Road by taking that route was simply a guess.

14.2.108 In the course of this inquest there has been some debate as to whether or not Mr Scharf would have agreed to the trucks taking that route had he been properly informed on the impending wind change at the time the decision was being made.

14.2.109 In evidence Mr Scharf was asked the following questions and gave the following answers:

"I want to ask you what you would have done had that not been the case, in other words, had you received such information, and I want to ask you in a specific manner. If around about 8 o'clock, or just before that, you had received official information through the chain of command or via a general broadcast that the wind change had arrived at Wickliffe and, further, that you were in a position to know that that meant it was going to be on the fire ground within three quarters of an hour, or an hour or so, would you have sent the Geelong West and Geelong City trucks out along that track at about 8.30 as you did?—No.

The Coroner: If you had received information that it was at Wickliffe, and you didn't know where Wickliffe was, what would you have done?—I think I would have pulled out the VicRoads country directory and establish where Wickliffe was, at least give me some idea how far away it was and then seek further information from the sector commander.

Mr Rozen: I don't know if you were asked this, but did you know where Wickliffe was on the night?—No.

*The Coroner: You have a country directory in your van, do you?—We had one in the strike team leader's van, in the vehicle, that's how we found where Linton was."*¹⁷⁹

14.2.110 It was submitted that this evidence was unchallenged and should be accepted as showing that Mr Scharf would have made a different decision if fully informed about the imminent wind change.¹⁸⁰ No party cross-examined Scharf on that evidence. While in other proceedings, as a result of the rules of evidence, that may have considerable weight in leading to the conclusion that the evidence should be accepted, this was an inquest where the rules of evidence do not strictly apply.¹⁸¹ In the context of this case Scharf has been aware of the fact that it was contended against him that the decision he made to allow the two fire trucks to travel along the Homestead Track extension was contrary to his training and experience. Indeed, in the course of the evidence he was asked questions by his own counsel that were irreconcilable with the proposition that he would have acted differently had he been aware of the wind change.

14.2.111 In evidence Mr Scharf said;

"At the time that you and Mr Stepnell made the decision for the tankers to use the track as access for water, did you consider that if the wind changed while the tankers were using it for that purpose, that they were going to be in a dangerous or hazardous position?—No.

Well, why not?—You know, I didn't think the fuel load there was particularly heavy and I, you know, wouldn't consider the fire would change with such force the way it

did, to go from such a benign type fire to that absolute inferno was unbelievable, I have never seen anything occur like that before ...

Did you have any idea at the time of Linton that if the wind changed at the fire that you observed that night, that the conditions could become so intense that they would cause that sort of devastation—No, not at all. This just – just looking at that photo I imagine you would see this on a 35 to 40 degree day with a howling wind.

Can I ask you about what you observed in relation to the fire conditions and the change in them. What was it that first drew your attention to the fact that the fire conditions had changed?—The first thing I noticed, Your Worship, was like an increase in the flame height and then an increase in light off that.

Prior to making that observation did you notice any change in the wind?—No.

Did you notice any change in the way the smoke was behaving on the fire ground?—Not at all.”¹⁸²

14.2.112 In other answers Mr Scharf indicated that:¹⁸³

- Weather and fuel loads would make a difference to the speed at which fire travelled;
- With the conditions that were existing he did not recognise that the fire might not be benign in 5 minutes time.

14.2.113 In view of these answers it can not be concluded that the decision Mr Scharf made would have been different had he known of the impending wind change. The reality was, irrespective of the state of the wind, he did not believe that the fuel load in the area was sufficient to change the character of the fire to the point where it constituted a danger to vehicles travelling along the Homestead Track extension.

14.2.114 At the time of making the decision to allow the trucks to exit along the track Mr Scharf believed that they would be safe. It was the failure to recognise the danger that led to the trucks being in the position where they were engulfed by the fire.

14.2.115 At the time of making that decision Mr Scharf knew that a wind change could come at some time that evening but he had no knowledge it would come so soon after he made his decision. His state of mind was, whether or not it came it would not impact on the movement of the trucks along the track. There is no basis to conclude that his assessment of the fuel levels or other conditions prevailing at the time “*affected the weight*” he gave to the possibility that there might be a wind change.

14.2.116 It was contended that the decision to send the trucks out along the Homestead Track extension was motivated by a desire “*to take a short cut because it was quicker, closer and less difficult*”.¹⁸⁴ When questioned about this motivation Mr Scharf said:

“You see, don’t all these factors, if we look at them, don’t these factors say what you did on the night was to say, ‘I think I’ve got a short cut here that’s going to save us a lot of time and inconvenience, and I don’t think, taking all the things that I know into account, that I’m exposing my strike team to any appreciable risk by taking that short cut’; isn’t that what you did?—I didn’t believe just looking at the fire conditions and those other factors that it was dangerous.

But you knew what you were doing was in effect taking a short cut?—I hadn’t considered how we were going to properly manage nine tankers on the control line, and that seemed to me to be a reasonable thing to do.”¹⁸⁵

14.2.117 On the face of these answers Mr Scharf did not accept that he intended to take a short cut. What he was saying was that he did not properly consider the management of the trucks when they were required to refill with water (which contrary to some submissions made is part of the construction of the control line¹⁸⁶) sending them out along the track seemed a good idea at the time, and in the conditions that prevailed he could see no danger in doing so.

14.2.118 Such evidence that is available suggests that Mr Scharf managed his strike team with care and an eye to safety. In particular:

- The strike team stuck to the black when constructing the control line;¹⁸⁷
 - When the two tankers left to get water Mr Scharf ceased the strike team's involvement in the construction of the control line and intended to wait till the tankers returned before continuing;¹⁸⁸
 - The strike team was waiting in a safe refuge at the time the fire struck.
- 14.2.119** The fact that Mr Scharf did not stop the bulldozer from continuing its work on the control line was due to Scharf's lack of understanding.¹⁸⁹ Similarly, with respect to the construction of turnarounds before being told to do so.
- 14.2.120** It is concluded therefore, that Mr Scharf, while well trained on relevant theory for forest fire fighting, did not have sufficient practical experience in the application of those theories. In particular he did not, at the time of the Linton fire, have the ability to accurately assess fuel loads and topography and the effect they could have on fire behaviour to be a strike team leader on the eastern flank of the fire at the time of the Linton fire. That lack of experience resulted from insufficient practical training by the CFA prior to Linton.
- 14.2.121** It is to be noted that since the Linton fire Mr Scharf (and many other CFA personnel) has undergone practical training in the bush to assess fuel loads. Scharf said:

"The Coroner: Have you gone out with Mr McKenzie to the forest since then?—Yes, I have, Your Worship.

Is there any difference between what you knew then and what you know now as a result of what Mr McKenzie has told you?—There is a huge difference, Your Worship.

*Can you illustrate it in any way?—Yes, well, prior to Linton as far as I knew if they tried to calculate a fuel load they would take a metre square box, drop it into the bush, collect all the fuels in that metre, weigh them and then transpose that into tons per hectare or whatever. Mr McKenzie's course gave us a fuel hazard card and we were able to look at the fuel load on the ground and then calculate into the assessment the elevated fuels and then look at the species or the type of trees around in that environment and calculate the bark fuels, so you are then able to table these three factors and then look at a total fuel load, and that would then give you an assessment then of what the fuel load was."*¹⁹⁰

- 14.2.122** As a result of his additional training and the experience at Linton Mr Scharf is now well equipped to be a strike team leader in a forest fire. At the time of the Linton fire he was not sufficiently trained to be a strike team leader on the eastern flank in the face of impending south-westerly wind change.

Mr Malcolm Stepnell

- 14.2.123** Mr Malcolm Stepnell joined the CFA as a volunteer on 31 March 1980.¹⁹¹ At the time he was a labourer in the building industry and later he became a carpenter.¹⁹²
- 14.2.124** In February 1984 Mr Stepnell became a permanent employee of the CFA.¹⁹³ On becoming a permanent employee Stepnell commenced the 13 week recruit course at Fiskville.¹⁹⁴
- 14.2.125** On completing his recruit course he began as an *"above strength fire fighter"* stationed at Norlane.¹⁹⁵ He also served in that position at North Geelong and Boronia Brigades before being offered and accepting the position of fire fighter at Geelong City in August 1984.¹⁹⁶
- 14.2.126** In 1988 Mr Stepnell was promoted to Senior Fire Fighter.¹⁹⁷ In 1991 there was a rank restructure in the CFA and his position became *"Leading Fire Fighter"*.¹⁹⁸
- 14.2.127** Mr Stepnell's training falls into two streams:¹⁹⁹
- Training courses at Fiskville; and
 - In-station training.
- 14.2.128** The primary text relied on in this training was *"Tactics and Administration in the Field"* which was based on the Group System.²⁰⁰ That text was referred to consistently during training exercises both at Fiskville and In-station.²⁰¹

14.2.129 In about December 1995 the replacement text “*Operations Guidelines*” was received by Mr Stepnell.²⁰² In relation to this work he said:

“I was not trained in the new Guidelines. I wasn’t told or instructed on how the Guidelines differed from TAF. I remember reading the new Guidelines. Standard Fire Orders (SFO’s) and Watchouts were not given any special emphasis by senior fire officers.

It was my understanding that the new Guidelines changed the management structures of fires, but not the firefighting techniques.

I have been aware that there were ‘watchouts’, but they have never been the topic of any specific training.”²⁰³

14.2.130 Between receiving the “*Operations Guidelines*” and Linton Mr Stepnell read the book twice.²⁰⁴ He has also read the book a few times since Linton.²⁰⁵ When cross-examined he said one of the differences between the old and new books was the existence of the Fire Orders and Watch Outs in the new book. While the new book was distributed before Linton, before that fire there wasn’t much emphasis in training on the watch outs.²⁰⁶

14.2.131 As a volunteer the training Mr Stepnell received was very basic. Over four years it involved two or three Group exercises and two or three fuel reduction burns.²⁰⁷ The only training course he did at Fiskville, while a volunteer, involved the control of fires in buildings and structures.²⁰⁸

14.2.132 The recruit training undertaken by Mr Stepnell at Fiskville took 13 weeks. Only part of the syllabus he studied was in evidence²⁰⁹ and that contained:

- Practical drills with incidents;
- Films – “*Black Out*”, “*Dangerous Summer*” and “*Water is the Weapon*”; and
- Safety and Survival.

At this course he was issued with a copy of the book “*Tactics and Administration in the Field*.”²¹⁰

14.2.133 While in the position of an “*above strength fire fighter*” Mr Stepnell trained every day. That training involved learning how to use various items of equipment.²¹¹

14.2.134 In-station training undergone by Mr Stepnell includes:

- July 1988 Communications Skills Course;
- 26 October 1995 Practical assessment on tanker and pumping;
- 2 November 1995 Practical session as instructor on tanker operation;
- 13 October 1997 Incident Control System;
- 23 December 1997 Incident Control System;
- 9 January 1998 Map Reading;
- 24 January 1998 Fuel Reduction; and
- 16 November 1998 Staging Area Manager’s Course.²¹²

(Mr Stepnell did not have any records of his In-station training from early 1988 until 1991²¹³)

14.2.135 When Mr Stepnell’s rank was restructured to that of Leading Fire Fighter in 1991:

“... As a senior firefighter, I was required to complete four transitional modules.

The transitional modules were:

- *Command and Control*
- *Teaching and Communicative skills*
- *Equipment*
- *Administration*

I undertook the Command and Control module. This was a practical assessment in an urban fire situation. I also undertook the Administration module. This was an open book theoretical examination.

I was exempt from module on Communication because of the course I had undertaken in 1988 (see above). I was also exempt from the Equipment module because I had sat the senior fire fighter’s examination.”²¹⁴

14.2.136 Mr Stepnell summed up the relevance of his training prior to Linton to the fighting of bushfires in the following words:

"Prior to the Linton fire I had only basic fire weather training. I had received no formal skills in meteorology and how to assess weather patterns. I knew that I had to take notice of the wind in trees and on my face and any changes in cloud formation. However, prior to the entrapment I was not able to use this basic training to assess whether a wind change was imminent because of the time of day and the canopy of trees which prohibited my sight of the sky. Hence, I was dependent on communications for my information about the weather.

I had no training on how to work behind and back up a dozer. My training did not deal or encompass working with a dozer or constructing control lines or turning points.

No training was provided to me as to what a 'safe anchor point' was in a wildfire situation. In fact, I didn't know what a safe anchor point was until after the Linton fire. My training with the CFA did not emphasise the importance of always 'working to the black'" ²¹⁵

14.2.137 Mr Stepnell was extensively cross-examined on these matters by Senior Counsel for the CFA. During that cross-examination he was asked the following questions and gave the following answers:

"Can I ask you in relation to your understanding or the basic principles before Linton, we have heard a lot of witnesses say that they understood, as they worked on the eastern control line that day following the bulldozer, that the burnt ground beside them was the safest part of the fire. Is that something you say you understood on that day?—I certainly appreciated that the safest place on a fire is on the burnt ground or the burnt ground right next to you.

That was something you knew and learnt before Linton?—Yes.

And you knew that in performing a flanking operation, of the type that the strike team you were in was performing on that day, that you had to have burnt ground beside you for safety should fire conditions change? ... Well, I was aware that working as we were, as we worked down the control line, it seemed to be a safe operation at the time.

That was because you had a safe area next to you because it was burnt out, a safe area on your right?—Yes, well, it was certainly a safe area.

And you knew that on the day?—I'm not sure we thought about it at the time, but it appeared to be a safe practice at the time.

That was something that had been taught to you before Linton?—It had never been drummed into me that you can't leave that area ...

I was going to come to that in a moment, but ...?—But I was certainly appreciative of the fact that it is a safe area to work in.

You also knew if you placed unburnt fuel between that safe area and yourself that you were getting into a less safe position"—yes.

For obvious reasons?—Yes.

Because you are then leaving unburnt fuel, should the direction of the fire change"—Yes, that's right.

That was something you knew before Linton?—Yes.

You, in fact, in your own statement, the first statement you made, stated that your crew was taking care to burn out unburnt areas as you went along?—That's right.

You knew on the day as you performed that function that you were doing it to ensure that the fire was fully contained?—That's right.

And also to ensure you were taking safe ground with you?—Well, it was more at the time that I knew we were doing that job of burning our to me sure the control line was consolidated, the fire couldn't jump the control line, that was my main thought about what we were doing there.

...

Okay. Now, I think we have already been through this, but you knew, and indeed we have just had a look at part of the guidelines that shows it, when you were working on the eastern flank, as you were that day, if there was a change in wind direction, that the flank could turn into a running head?—Yes.

And thereby not only let the fire get away but endanger anyone who wasn't in a safe position?—Could you repeat that?

Thereby not only would the fire get away, but if someone was in front of that part that got away they would obviously be in an unsafe position?—Obviously they would be in an unsafe position then, yes.

That was something you knew before Linton?—Yes.

...

You knew that what can change the direction of the wind is changes in topography and local conditions?—That's possible.

And you knew that before Linton?—I believe so.

So you knew that before Linton?—I believe so.

So you knew before Linton that even if there was not a predicated wind change that a fire can change direction because of the effect of local conditions?—Yes, I think I was aware of that.

You also knew before Linton of the importance of having a safe escape route when working in the bush?—Yes, I believe I was aware of that.

And I think in both your statement and in your interview you talk about your knowledge of what we have heard called in this inquest the quarter tank rule?—Yes, I was aware of that at the time.

A lot of witnesses have actually said that sort of rule is drummed into them?—It was drummed into me to have a reserve. I am not sure when I started to use the quarter tank rule, but certainly to have a reserve of water.

You certainly in your statement ...?—Yes.

Somehow or other that must have been identified to you as a rule of thumb before Linton?—Yes, that's right.

In your statement you also identify the reason why that rule was in operation, because it was necessary to retain a reserve of water available should an emergency arise and a crew be required to go into survival mode?—Yes.

That in fact is what saved the Geelong City crew on that day, is that right?—It did."²¹⁶

14.2.138 Mr Stepnell also agreed that he had a knowledge of:

- Indirect attack and parallel attack strategies;²¹⁷
- The effect of a westerly wind change on the fire on an eastern flank;²¹⁸ and
- Bulldozer and grader use.²¹⁹

14.2.139 From these materials it can be concluded that Mr Stepnell had a reasonably good theoretical understanding of most of the important principles involved in fire suppression in the bush. There is, however, a deficiency in his training in respect of the assessment of fuel loads.²²⁰ That deficiency shows up in the input of Mr Stepnell to Scharf's decision to use the Homestead Track extension as the means of exit to refill tankers working on the eastern flank with water.

14.2.140 It would seem that the idea to use the Homestead Track extension came from Mr Stepnell. He explained his reasoning for using the track in the following way:

"Are you able to explain to me how it happened, from your perspective?—How the entrapment occurred?

M'mm, not the detail, in the final analysis, but how in your assessment it led up to – the entrapment occurred?—I'm not sure ...

Just what led up to it, why the decisions were made from the strike team's point of view?—From my point of view or the

From your point of view, how you view it?—Once Mr Scherger had redirected the dozer I knew that we were low, we had to go and fill up with water. I spoke to Mr Scharf and he indicated that Geelong West were low on water. I knew that was going to be a time-consuming process, we would have to bring the tankers down from the fire trail we were on to a point where we could shuffle them around, for our tankers around to go out and get water. I suggested to Mr Scharf possibly that a traffic plan would be we have this new track which had been discovered by Mr Scherger, if we use that we can make it one way traffic along this trail, as trucks run out of water they can go out along that trail, as they fill up they can come back in and continue the work down along that trail.

All right. Anything else?—Well, that's how we came to be going along the trail.”²²¹

14.2.141 Later when cross-examined on this matter Mr Stepnell said:

“Now, a further phrase that you have used to describe problems as you saw them going back out to use the control line to the north is that it was time consuming. I think it was - it doesn't matter who it was, it was counsel this morning – you agreed with the proposition that there was no sense of urgency, so if, in your mind, there was no sense of urgency with the task you were doing, which included getting the water, why was the issue of going out to the north being time consuming...?—Because ... a factor against it? ... Each time a tanker had to fill up we would have to do the same process.

Go round three sides of a rectangle instead of cutting across the direct line towards the cemetery; is that right?—No, bring all the trucks down to a turnaround somewhere and shuffle around so we can get out for water, to travel north up the track again.

The Coroner: So the time consuming aspect, you weren't relating that to completing the control line?—No.

That wasn't your thinking?—No.”²²²

14.2.142 Further on he said:

“Aren't you really saying this, Mr Stepnell, that comparing driving out in the direction that you were heading with turning around and heading back to the north, that there was more involved in doing the turnaround than in heading straight out; isn't that what you are saying, you are comparing the two courses?—Can you go through that again?

The vehicles are already facing to the south or southeast, aren't they?—Yes.

It is easy to keep driving in the direction they are facing?—I thought it would be a better use of resources if we could establish some sort of traffic plan where the trucks were doing a one-way circuit.

That was easier than backing to the turnaround and doing the turn and heading to the north, wasn't it?—Yes, it was.

That doesn't necessarily mean it was a terribly difficult task to back up and turn around?—I said that.”²²³

14.2.143 Finally, Mr Stepnell was asked the following questions and gave the following answers on this topic:

“Ms Fox: When you made this decision you spoke to Mr Scharf about, the fact that turning all the tankers around would be time consuming?—Yes.

Was Mr Scharf concerned in any way about the time that it would take, did he seem to consider that a factor?—I believe he agreed with my observation on that.

You say there was no – you didn't have any sense of urgency on the night about getting this job done?—No, no.

Why was the fact it was time consuming, therefore why did it matter?—Because it would have been repetitious then every time we wanted to get a tanker out to get filled up we would have to go through a similar process.

You weren't concerned about the amount of time, just the amount of hassle?—it was going to slow down how we did our task if each time we had to do that.

You thought you had endless time to do the tasks?—I don't know about endless time, it was nearly 9 o'clock at night, we were all fairly keen to get the job done, get finished.

You appreciated, when you made this decision to go down the track with your own tanker and Geelong West, you did appreciate there were two choices didn't you, going back the way you had come or going out the way you did?—Yes.²²⁴

- 14.2.144** The concern about using the completed control line to send trucks out to refill was a legitimate one and a reasonable matter to take into account when preparing a traffic plan for the purpose. As is revealed in the video re-enactments along the bull dozer track and in the photographs taken of it,²²⁵ and as was confirmed on the view held at the site, the track was narrow and in difficult terrain which meant there were not many places where trucks could pass each other along it. The difficulties with the terrain were that on the eastern side of the track there was a significant drop into a gully, on the western side for a considerable distance there was a ledge for trucks to get over, and on both sides there were trees and bush which prevented vehicles leaving the track. It is also to be recalled that no turnaround areas had been constructed along the track until a point about 400 metres short of Possum Gully Road. Realistically this was the first point along the track where vehicles could pass each other.
- 14.2.145** Having realised the inconvenience and difficulty involved in moving vehicles out the way they came in Messrs Scharf and Stepnell turned their minds to alternatives. In considering the alternatives, however, they seemed to think that the problems, which applied at that time in relation to the refilling of the Geelong City and Geelong West would be ongoing problems.
- 14.2.146** The release of these two tankers could have been achieved by bringing the Lara and Highton tankers down to the turnaround. By doing that the remainder of the track back to Possum Gully Road would have been freed up for those two tankers to leave that way. Alternatively, the Highton and Lara tankers, which had gone to fill up with water, could have been asked to wait at Possum Gully Road until Geelong City and Geelong West came out to there.
- 14.2.147** If that course had been taken, then more turnarounds could have been put in as the construction of the control line continued down the Homestead Track extension, which would give more points along the control line where vehicles could pass each other. In such circumstances there would be no need for all the trucks to congregate at one point for change overs to occur, but instead they could be spread out along the control line and pass each other at different points.
- 14.2.148** It is to be remembered, however, that the Geelong Strike Team did not put in the first turnaround until advised to do so by an experienced DNRE officer, Mr Scherger. On this point it is as well to visit Stepnell's description of why the turnaround was built: In his first statement he said:

"Detective Sergeant Daly and I then moved to just before the 400 metre marker. The NRE male had returned just before we reached this point and asked me if the dozer had been putting in turnarounds and I then went to the dozer driver and asked him to put some turnarounds in which he did. Simon had spoken to the NRE male but I don't know what was said."²²⁶

- 14.2.149** In his additional statement Mr Stepnell expanded on this by saying:

"During the conversation Scherger said something like 'have you considered putting in a turning point?' Up until that time I hadn't considered putting in turnaround points. I didn't know how long we were going to be in there for, or how much water we'd use. I remember that Scherger did say something about how far away his crew was, but I don't remember what words he used, or any specific distances. I do remember however, having a sense, from what he said that we were reasonably close to the other crew. Prior to this I do not believe that I knew that a team was working north.

I then went up ahead and spoke to the dozer driver and asked him to put in a turnaround point. While I was doing that, Scharf and Scherger spoke to each other. Scherger had walked off back into the bush by the time I had finished speaking to the

dozer driver. I walked back to the Geelong City tanker crew and resumed supervision of their activities.”²²⁷

14.2.150 It is also useful to examine what Mr Scharf said when questioned on this topic:

“The Coroner: When Mr Scherger requested the bulldozer to put a turnaround in, did that at all alter your picture of your own confidence about what was going on?—No, Your Worship, I thought that was a good idea, a good suggestion from him to do that.

Why didn’t you work that one out yourself?—Sorry, Your Worship?

Why didn’t you work that one out yourself, before Mr Scherger arrived?—I don’t know, Your Worship.

Didn’t that raise doubts in your own mind as to your ability at that particular time?—No really, Your Worship, no.

*Did you think about the fact that you hadn’t put any turnarounds in before then?—No.*²²⁸

14.2.151 It is plain from this material that the thought of the construction and use of turnarounds had not entered either Mr Scharf’s or Stepnell’s mind, until it was suggested by Scherger. In these circumstances it is not surprising that a proper evaluation of the use of turnarounds for moving tankers on and off the control line was not made. Quite simply, neither Scharf nor Stepnell understood the practicalities of what was involved.

14.2.152 It was in this context that they sought an alternative means of moving trucks on and off the control line to refill with water. With the events that transpired at that time the opportunity presented itself to use the Homestead Track extension as an alternative. The two men then turned to an evaluation of that alternative.

14.2.153 Mr Scharf’s assessment of using that track as an alternative has already been examined.²²⁹ It is now necessary to consider Stepnell’s assessment.

14.2.154 Mr Stepnell carried out some examination of the track before suggesting that it be used. He held a discussion with Mr Scharf about it. A difficulty they had, however, was that the track was not marked on the map. In Stepnell’s words:

“From where you were standing you simply made an assumption that that track would lead you out to get water, is that correct?—We both discussed it and we could see from the general direction of the track that it led out to the road that I now know is Kelly Road and we concluded that’s where that track was going to end up and, in fact, it does in fact connect into Kelly Road.

But you know that in hindsight?—Yes, that’s right.

But you had no assurance it did that, that night?—No.

All you could say was, from the general direction, from what you could see of the track, that it appeared to head towards Kelly Road?—That’s right.

You didn’t reconnoitre the track at all when you made that, when you and Mr Scharf made that decision?—I think just after we made the decision I just walked across to where the bulldozer had actually, had actually made it across to the track at that time and I could see the size of the track and it appeared to be big enough to take a tanker at that stage.

You couldn’t see very far ahead at that stage?—As far as I could see. I can’t remember exactly how far ahead I could see.

You certainly couldn’t see the whole length of the track?—No, I couldn’t.

So that you were relying on what you could see of the track, its general direction and your sense of direction to say, ‘It looks as though it goes out towards Kelly Road’?—Yes.

But you had no assurance at all that it did so?—No.

So to that extent you took a risk as to where the track was going to lead you?—We both came to the conclusion together, after discussing it, that that’s where the track was going to take us.

You were taking a risk that night, weren't you ...?—We made a decision to use it.

I'm sorry?—We made a decision to use it.

The Coroner: Did you think you were taking a risk?—Not at the time.

Were you taught, as part of your training prior to Linton, anything about identifying – or anything about risk management?—I think it was probably discussed but not under the heading of "risk management", but probably through discussions and some training it would have been, that would have covered some sort of that decision-making process that you need to factor in some things, but on the night we didn't see it as a risk.

I want to try and understand why you didn't see it as a risk, because this is important for the future, do you understand that?—Yes.

Can you explain to me further why you didn't see it as a risk? Is there anything you can add to what you have said already?—On the night I just felt we were in a safe environment, I didn't see any risk on the night.

So it was your perception of the risk ...?—Well, it was on the night." ²³⁰

14.2.155 The difficulty with the decision that was made is that there were many important factors that were unknown to Messrs Scharf and Stepnell. On that view by the Court it was apparent that the Homestead Track extension is a meandering track that changes direction quite often. In walking from the point where the track was joined to the existing control line visibility along the track is limited to small sections of the order of 50 or 60 metres at a time. At the commencement of the track where Stepnell made his only observation before the trucks commenced to go out along it, the track had been widened by the bulldozer. Some 75 metres further along the track is narrow, barely wide enough for a fire truck to pass between the trees. This is evidence from the photographs. It continues in that way until joining another track, which went out to Kelly Road. Along the side of the track from its commencement at the join to the control line out to Kelly Road there are many uncovered pits used by goldmines in the past.

14.2.156 At the time the decision was made Mr Stepnell did not know:

- Whether the track would lead out to Kelly Road;²³¹
- What condition the track was in;²³² and
- How far they would have to travel along the track to get to Kelly Road (if it led there).²³³

14.2.157 In using that track Mr Stepnell was aware that:

- He was moving away from the safety of burnt ground and going parallel to the flank of the fire;²³⁴ and
- He was going up-slope from the line of the fire.²³⁵

14.2.158 The question then arises: in these circumstances why did Mr Stepnell consider it a better option to use the Homestead Track extension to go out and get water? In evidence Stepnell was asked these questions and gave these answers:

"Was part of your decision making this evening, I am not suggesting that it was right or wrong, but was part of your decision making this evening that as best you could judge there was relative safety in going out the way you started to go out...?—It appeared to me to be at the time.

The Coroner: I understand your evidence is that you didn't see any danger in it, or any risk in it?—That's right, Your Worship." ²³⁶

14.2.159 Later in evidence there was the following:

"I want you now to indicate to the coroner whether you now view, looking at it in retrospect, that you were capable on the day, having regard to what you now know, to undertake the task that you were required to undertake the task that you were required to undertake?—Capable to a certain extent, but I didn't have the tools with me to recognise the risk factors that I didn't take into account on the night." ²³⁷

14.2.160 In evidence Mr Stepnell contrasted that with the position he would now be in if the same circumstances arose:

"The Coroner: Do you think your training prepared you for this?—No.

Why not?—I've since done the wildfire, I haven't completed it but I've done the wildfire two module, that's been provided in my area, and as part of that we did a practical day trip out in the bush with the instructor Jamie McKenzie, and I just learnt so much out of going out and him explaining fuel loads and types of fuel loads in the bush, and it is just something I hadn't picked up on before, and also the dry firefighting techniques of the NRE, I'm more appreciative of that now. And, of course, what happened on the night, I just don't think I was prepared for that by the CFA.

How long did this course take you?—It's a four day course and I have been given a certificate for the course but I haven't completed it, because as part of the course you have to participate in a fuel reduction burn but I haven't been able to do that yet.

Do you have instructors at this fuel reduction burn?—I would be – yeah, there would be someone there just to walk you through what is going on and instruct you how to conduct the fuel burn, that is my understanding of it.

Did the training teach you about working with bulldozers, in the wildfire course?—It went through it, I can't remember exactly what we went through on the day, we went through it, the considerations, but they are just in a classroom, not practically out working with the bulldozer.

Mr Kaye: I don't think there is any argument that the training has increased quite significantly since Linton; is that right?—No argument there.

*And it has been, to your mind, very effective and good training?—It certainly has, and also I learnt from the night, it is just embedded in my mind what can happen."*²³⁸

14.2.161 In essence, Mr Stepnell considered that he failed to understand how dangerous the use of the Homestead Track extension was in the circumstances that prevailed on that night. He put this down to lack of experience and training.

14.2.162 For the sake of completeness, reference should be made to Mr Stepnell's experience in forest fires. In his statement he said:

"(i) In January 1994 I attended the NSW bushfires in Port Stephens for three days. I was a crew leader. As a crew leader on the Geelong City Tanker, I was involved in backburning, township protection and patrolling for flare-ups and spot fires.

(ii) In January or February 1995 I attended for half a day at the Berringa Fires as a crew leader.

(iii) In March 2000 I attended the Colac bushfires. I was again a crew leader with Geelong City.

*I remember that both at Port Stephens and Berringa the fire was hostile and volatile. I was aware of the need to be cautious. I did not believe that the Linton fire was supposed to be anywhere near as dangerous as these fires."*²³⁹

14.2.163 Nothing of significance was added to this in cross-examination.²⁴⁰

14.2.164 It should also be noted that on 2 December 1998 at the Linton fire there were many other instances of fire fighters misinterpreting fuel loads and topography which placed the lives of many people at risk. Just two examples of this are:

- Those involved in the attempt to stop the head of the fire along the Pittong-Snake Valley Road early in the run of the fire; and
- The entrapment of the Snake Valley 'A' tanker between 2.30 and 3.30pm.

These incidents have been examined in detail elsewhere and this issue has been examined there.²⁴¹

14.2.165 Some parties have submitted that the decision to take the Homestead Track extension was in effect a deliberate decision contrary to all the knowledge that Messrs Scharf and Stepnell had from their training and was motivated by a desire to take a "short cut."²⁴² In essence, the

effect of the submission was that the decision was made to cut corners to save time in the knowledge that by doing so the risk was increased.

14.2.166 The analysis of the evidence so far indicates that in reality neither Messrs Scharf nor Stepnell appreciated the risk presented by using the Homestead Track extension to exit from the fire line.

14.2.167 That point is made in many passages of Mr Stepnell's evidence but most poignantly in the following exchange:

"Are you aware as at 8 December 1998, the date this statement hears, that in fact you should have used to control line?—In hindsight I was aware of that, yes.

On that date, 8 December?—Yes.

*You were aware of that because it accorded with all your training and experience, didn't it?—No, I was aware of that because we got trapped on a track when the wind change came through."*²⁴³

14.2.168 To displace this finding it has been sought to establish a motive of saving time by cutting corners as being behind the decision to use the track. The high-water mark of the evidence to support this contention is to be found in the following questions and answers:

"Mr Langmead: I will repeat it. You said on the night you were aware on the night that there was safety near the black?—Yes.

You were aware that the Homestead Track extension involved moving into an area away from the black?—Yes.

You were aware that going up the control line meant staying near the black?—Going back up the control, yes.

Yes. So therefore you must have been aware that the decision you made entailed a higher level of risk that the alternative that you abandoned?—I didn't think of that at the time and I am not sure exactly why but I didn't think that.

But you agree it follows necessarily and logically?—Yeah, I can't argue with that now.
...

The Coroner: I think he is saying he didn't know whether he made that analysis or not, just of the relative risks and I think that is the lesson of his evidence, the ability to make proper risk assessments for fire fighters.

Mr Langmead: Is it your evidence that on the night you took the view that the Homestead track extension was less difficult and less time consuming than the control line?—Yes.

*So it follows then that the decision was made to save time and to avoid difficulty?—Save time in the long term because I knew what time we wanted to move out to get water we would have the same process, whereas if we had a one-way track it would be more efficient."*²⁴⁴

14.2.169 Other evidence indicated that the strike team was not under any time pressure to complete their task.²⁴⁵ In these circumstances the evidence points to the conclusion that the choice to use the track was motivated by a desire to produce a more efficient traffic plan on the control line. There is no evidence of sufficient weight to conclude that there was a motivation to complete the job with undue haste, and by doing so choosing a more risky option to perform the job.

14.2.170 As with Mr Scharf, a question arises here whether or not Stepnell would have recommended the use of the Homestead track extension if he had known of the impending south-west wind change which was almost at the fire ground when the decision was made.

14.2.171 Mr Stepnell was asked the following questions and gave the following answers:

"Just what led up to it, why the decisions were made from the strike team's point of view?—From my point of view or the ...

From your point of view, how you view it?—Once Mr Scherger had redirected the dozer I knew that we were low, we had to go and fill up with water. I spoke to Mr Scharf and

he indicated that Geelong West were low on water. I knew that was going to be a time-consuming process, we would have to bring the tankers down from the fire trail we were on to a point where we could shuffle them around, for our tankers around to go out and get water. I suggested to Mr Scharf possibly that a traffic plan would be we have this new track which had been discovered by Mr Scherger, if we use that we can make it one way traffic along this trail, as trucks run out of water they can go out along that trail, as they fill up they can come back in and continue the work down along that trail.

All right. Anything else?—Well, that's how we came to be going along the trail.

So what you are saying is that the actual information about the wind change is crucial to your making that decision. If you had have received it, what would you have done?—If we had received it?

If you had received information about a forthcoming wind change, what would you have done?—Stayed where we were.

Why would you have done that?—The fire would have burnt across the track, at that stage the fire would have blown through there.

*Mr Kaye: With that knowledge you didn't take any steps, not to your knowledge did Mr Scharf take any steps to contact the sector commander to ascertain what had happened to that wind change?—No, I didn't."*²⁴⁶

14.2.172 On the face of it this would indicate that Mr Stepnell would not have recommended the use of the track if he had known that the south-west wind change was only minutes away from reaching the point on the control line where the Geelong Strike Team was. But there are problems with reaching this conclusion.

14.2.173 The first problem is that the "Wickliffe" wind message broadcast just before 8.00pm was meaningless. This was so because it would be necessary for a person hearing to know where Wickliffe was and how long it would take to travel from there to the fire ground. Mr Scharf did not know where Wickliffe was and there is no evidence to show that Stepnell did.

14.2.174 The second communication on the wind occurred at 8.28pm when Mr O'Rorke, the pilot of the Region 15 aircraft, sent a message to Alice Knight, the communication officer at Grenville Group:

"V1: Grenville group Region 15 aircraft

V2: Region 15 aircraft Grenville group yet Peter

V1: Grenville group Region 15 aircraft I've just come through the front aah it was about aah 2 mile east of Skipton I was at 4,000 feet very very rough so I don't know what its like on the ground but I'm just on the west side of Skipton now and it has settled down a bit

V2: Thanks for that note that the change is 2 miles east of Skipton and things have settled down a bit on the other side of it sounds good

V1: Yeah but I think they want to be prepared for some pretty rough wind because ahh it was wouldn't you know it could be nearly 1 100 k gusts at 4,000 feet

*V2: Right thanks for that Peter"*²⁴⁷

14.2.175 The information contained in this communication was not processed by the personnel at the Forward Control Point at Linton or in the IMT. It did not result in any general broadcast stating that the wind change was about to reach the fire ground. If the Geelong Strike Team had overheard this message what would it have meant to them? What would they have done after interpreting it? The answers to these questions would be purely speculative.

14.2.176 The decision making on the night needs to be evaluated on the basis of the messages that actually went out, not on the basis of a hypothetical message actually giving the time of arrival at the fire ground. The fact that an adequate message was not transmitted to the Geelong Strike Team is relevant to the adequacy or otherwise of the system of work that was in place, but is too remote to be considered as anything other than background to this tragic incident.

- 14.2.177** The second difficulty with finding that knowledge of the wind change would have altered the decision to use the Homestead Track extension was that on the evidence it would appear that like Mr Scharf, Stepnell did not recognise the inherent danger *if* the wind changed. This can be seen from the following questions and answers:

“Mr Dean: At the time of the Linton fire, Mr Stepnell, did you have any idea that if a wind change arrived on the fire ground, as you observed it that night, that it would result in the fire burning so intensely as to cause that sort of destruction in a short time?—No, I wasn’t.

Did you appreciate that if the wind change arrived on the fire ground that it could result in such a dramatic change in fire behaviour that the vegetation would be affected in that way?—No, I didn’t.

*Or that an appliance would be affected in that way?—No.*²⁴⁸

- 14.2.178** On the basis of the evidence it is not possible to conclude that the decision to use Homestead Track extension would have been different had the wind change communications that were on air been heard by the Geelong Strike Team. To go further and suggest it would have been different had an appropriate message been broadcast or transmitted to the Geelong Strike Team is too speculative to act on.

- 14.2.179** The decision to use the Homestead Track extension was made as a result of discussions between Messrs Scharf and Stepnell. The suggestion it would appear came from Stepnell. Scharf, however, was the Strike Team Leader and the decision to use or not to use the track lay within his sphere of responsibility. To his great credit Scharf acknowledges this:

“Is it correct to say that the decision to sent the two tankers out along Homestead Track extension was a decision made between yourself and Mr Stepnell?—That’s correct.

*The Coroner: Who actually made the final decision and told the team to go out?—Well, I suppose the buck stops with me, I was happy for that course of action, that was my decision.”*²⁴⁹

- 14.2.180** In this situation Mr Stepnell’s actions were merely background to the decision to use the track. As part of that background it is reasonable to assume that had Stepnell been adequately trained and experienced in evaluating fuel loads and topography in the context of a wind change, he would have concluded the risks in using the track were too great. Given Scharf’s disposition to act on advice received the decision to use the track may not have been made.

- 14.2.181** At the time of the Linton fire Mr Stepnell was not adequately trained or experienced to be a crew leader on the east flank of a fire at a time when there was an impending south west wind change due. The deficiency in his training was his inability to accurately assess fuel loads and his lack of understanding in practical terms of what could happen in a forest area such as Sludge Gully if a significant south west wind change reached the east flank of the fire.

- 14.2.182** It should be noted that as a result of his experience on this night and additional training he has received since then Mr Stepnell would now be qualified by training and experience to carry out the task he was performing at Linton on 2 December 1998.

Mr Stuart Davidson

- 14.2.183** Mr Stuart Davidson began as a reserve volunteer at Geelong West on 12 December 1988. He became an active volunteer on 11 September 1989. He was elected to the rank of 3rd Lieutenant on 2 November 1992. Davidson took leave of absence from 15 January 1995 to 24 July 1996 and was elected 3rd Lieutenant on 1 July 1998.

- 14.2.184** At Linton on 2 December 1998 Mr Davidson was the crew leader on the Geelong West tanker. He died in the fire on that day.

- 14.2.185** A summary of Mr Davidson’s training records is found in Noonan’s Report into the Fire.²⁵⁰ Noonan’s summary of training undertaken by Davidson is:

- Various practical hot fire training nights at Fiskville
- Brigade Officer course
- Team building and leadership

- Structural fire attack
- Breathing apparatus
- LPG and Natural Gas
- Practical Firemanship
- A Class Foam
- TEWT (Training Exercise Without Troops)²⁵¹

14.2.186 In considering the training records of Mr Davidson the difficulties referred to earlier must be borne in mind.²⁵² Obviously Davidson's record was not able to be supplemented by oral evidence from him.

14.2.187 What is apparent from the material that is available is that Mr Davidson's training related primarily to urban fire fighting. There is no evidence that he had training or experience in forest fire fighting. There is no evidence that he had been trained in fuel load assessment or fire behaviour.

14.2.188 It must be noted, however, that Mr Davidson's lack of training and experience did not affect what occurred on that night to lead to his death and that of his crew. This is so because Davidson was not involved in the decision making process that led to his tanker using the Homestead Track extension. That is clear from the evidence of Stepnell:

"In addition to that, you and Mr Scharf also decided to use that track for the purposes of enabling both the Geelong West and Geelong City tankers to exit from the fire line to get water?—That's right.

Now, when you then returned to your crew did you discuss that decision with the Geelong west crew at all, or did you leave that to Mr Scharf to tell them what to do? —I did discuss it with Stuart Davidson, I am not sure whether Mr Scharf mentioned it to him as well or not.

What did you tell Mr Davidson?—We were going to use the track as an access to get out to the road and then travel down to the cemetery to replenish our trucks.

In terms of your own crew, we have heard Mr Bendle, Mr Daly, Mr Lowe and Mr Sharrock each say that they knew that they were going out for water when they diverted off the fire line, but they did not know where they were going?—Right.

Now, does that reflect the instructions you gave them, that is, that you told them, 'We're going out for water', but you didn't give them any detail as to where they were going, or how they were going to go out to get the water?—I don't remember what I said to them. I know I indicated what we were going to do, but I don't know what the detail was.

*You wouldn't disagree with their evidence that they knew they were going out for water, but they didn't know where they were going to get it?—I couldn't argue with that."*²⁵³

14.2.189 Later in his cross-examination Mr Stepnell expanded on his answers slightly:

"Mr Langmead: In terms of the issue of the crew following the decision, and I understand your evidence to be in relation to Mr Davidson that when he was informed of the decision he acknowledged it; is that correct?—Yes.

And presumably all you told him about it was that you were going out for water and you were heading down that track, that was about it?—Yes, as far as I can remember, yes.

*You didn't tell him, for example, that you didn't know where the track led?—I don't believe so, no."*²⁵⁴

14.2.190 Mr Scharf confirmed that the decision was one made by him in discussion with Stepnell.²⁵⁵

14.2.191 While Mr Davidson's lack of experience and training did not directly affect the decision that was made, it does form part of the background to what occurred. If the system had worked as it should have, and only properly trained and accredited people were on the fireline at the time of this incident, then there would have been a safety net that could have resulted in the inherent dangers of the proposed course being brought to the attention of the strike team leader. This is relevant to the adequacy or otherwise of the system of work that operated at Linton on that day. This will be developed later in this report.²⁵⁶

Mr Gary Vredeveltdt

- 14.2.192** Mr Gary Vredeveltdt was a crewmember on the Geelong West tanker. He died in the Linton Forest on 2 December 1998.
- 14.2.193** On 5 October 1987 Mr Vredeveltdt became a reserve volunteer at Portarlington. He became an active member at Portarlington on 16 January 1989. On 7 December 1993 Vredeveltdt became a reserve member at Geelong West. He became an active member at Geelong West on 6 June 1994. Vredeveltdt took a leave of absence between 14 December 1995 and 21 March 1996 when he returned to active status at Geelong West.
- 14.2.194** The records available on Mr Vredeveltdt's training indicate that he did the following courses:
- Practical Hot Fire Training – Fiskville
 - Structural Fire Activities – Fiskville
 - Hose laying and water relaying
 - TEWT
 - A Class foam – theory and practical.²⁵⁷
- 14.2.195** There is no evidence of Mr Vredeveltdt having any training in Forest Fire fighting or fire behaviour. There is no evidence of the experience (if any) that he had in forest fire fighting.
- 14.2.196** Mr Vredeveltdt did not have the necessary training or experience to be part of a Strike Team on the east flank of a fire with an impending south-west wind change. As was the case with Davidson, the lack of training represents the background to this incident but was not the cause of any of the deaths that occurred on this night.

Mr Christopher Evans

- 14.2.197** Mr Christopher Evans was a crew member of the Geelong West tanker at Linton on 2 December 1998. Mr Evans died in that forest fire that night.
- 14.2.198** Mr Evans began as a reserve volunteer with Highton on 24 June 1991. On 6 April 1994 he became an active volunteer at Connewarre. He transferred to become a reserve member at Geelong West on 3 August 1998.
- 14.2.199** The courses completed by Mr Evans were:
- Portable Fire Extinguishers
 - Draughting from static supply
 - Grass fire attack drills
 - Tanker operations and stowed equipment
 - Pumping drills and exercise
 - Recruit training course – Session 4, pumper operations
 - Recruit training course – Session 3, Fire Ground Practices 1.1. to 1.10
 - Recruit Training course – Session 2, Fire Ground Practices 1.1 to 1.10
 - Recruit Training Course – Session 1, CFA Structure, Scope and responsibility
 - Hazmat Exercise
 - Building Fire Attack and Ventilation.²⁵⁸
- 14.2.200** Mr Evans did not have the necessary training or experience to be part of a Strike Team on the east flank of a fire with an impending south-west wind change. As is the case with other members of the Geelong West crew, the lack of training and experience was not the cause of any of the deaths that occurred that night, but does form part of the background to them.

Mr Jason Thomas

- 14.2.201** On 2 December 1998 Mr Jason Thomas was a member of the crew of the Geelong West tanker. He died in the forest at Linton that night.
- 14.2.202** Mr Thomas joined the Geelong West Brigade as a probationary member on 1 December 1997. He completed his probationary period on 3 September 1998. He became an active member of the Geelong West Brigade on 4 August 1998.

14.2.203 The training records available for Mr Thomas indicate that he completed the following courses:

- Practical Fire Fighting
- A Class Foam – Theory and Practical.²⁵⁹

14.2.204 The records contain a summary of call outs attended by Mr Thomas, which shows that he attended 81 fires broken down into the following types:

Fire – Other	40
Structural Fire	33
Vegetation Fire Not Specified	2
Forest or Wood Fire	1
Grass/Crop Fire	4
Vegetation Fire less than 1 ha.	1
Total	81

14.2.205 There are no additional details to show what role Mr Thomas played at these fires, or the extent of them.

14.2.206 Mr Thomas did not have the necessary training or experience to be part of a Strike Team on the east flank of a fire with an impending south-west wind change. This lack of training and experience was not the cause of any of the deaths that occurred at Linton that night but it does form part of the background to them.

Mr Matthew Armstrong

14.2.207 Mr Matthew Armstrong was a young man dedicated to the CFA and enthusiastic about working as a fire fighter. He kept extensive computer records of his activities in the CFA.²⁶⁰

14.2.208 Matthew began at Geelong West as a junior on 12 October 1992. He completed his junior membership on 24 March 1997. He was a volunteer at the Geelong West Brigade and he commenced his probationary period on 1 December 1997.

14.2.209 Matthew completed the following courses:

- A Class Foam – Assessment and Theory
- A Class Foam – Theory.²⁶¹

14.2.210 Matthew attended 56 fires broken down into the following types:

Fire – Other	21
Structural Fire	31
Vegetation Fire Not Specified	1
Grass/Crop Fire	2
Vegetation Fire less than 1ha	1
Total	56

14.2.211 Matthew had not attended a forest fire prior to Linton. He had no training or experience in fighting forest fires. As a probationary volunteer he should not have been allowed to work on the east flank, the most dangerous part of the fire in the event of a south west wind change. This lack of training and experience was not the cause of any of the deaths that occurred at Linton on that night. As with the other members of the Geelong West crew, it does form part of the background to them.

Mr David Bendle

14.2.212 Mr David Bendle emigrated to Australia from the United Kingdom. For 15 years before arriving in Australia he was a fully retained fire fighter. For approximately 5 years before arriving in Australia, Bendle was the sub-officer in charge of the fire station in Pontyellun, Wales. Whilst in the United Kingdom Bendle attended a number of training courses which included courses in:

- HAZMAT;
- Fire fighting;
- B.A.; and
- Command and Control.²⁶²

14.2.213 On 4 December 1987 Mr Bendle joined the CFA as a reserve volunteer. On 16 January 1989 he became an active member. On 1 July 1992 he was elected foreman at the Geelong City Brigade. On 24 September 1996 Bendle was elected 1st Deputy Group Officer for Geelong Region. On 1 July 1997 he was elected 2nd Deputy Group Officer of the Geelong Region, a position which he held at the time of the Linton fire.²⁶³ At the time of the Linton fire Bendle was the senior volunteer officer in the Geelong City Brigade where he was stationed.²⁶⁴

14.2.214 As the 2nd Deputy Group Officer for the Geelong Region Mr Bendle acted as the training officer for that Group. In that position he was responsible for organising the training for the seven brigades making up the Geelong Group. This involved organising group and brigade training nights, weekend exercises and training courses at the CFA's college at Fiskville. In performing those duties he liaised closely with the Area Training Manager, Philip Beasley.²⁶⁵

14.2.215 In his CFA amended statement Mr Bendle described his training and experience in the following words:

*"During my time ~~With~~ as a member of the CFA I have undertaken numerous courses at the Regional Complex at the Fiskville Training College. I am also the Group Training Officer for the Geelong Group of fire brigades. ~~I have been doing this for about 3 years.~~ I have attended numerous fires in my time with the CFA ~~both~~ including structural, vehicle and bush fires. Some of the bush fires I have attended are the fires in New South Wales ~~last year as a Lieutenant~~ in 1997 where I was second in charge of the tanker I was on. I also attended the fires in Ballarat and Anglesea last year in 1997 at which I was crew leader of the tankers I was on (explain what this role involved) and numerous ~~ones~~ fires in rural country. Over the years I have been with the CFA I have attended two or three local grass and/or scrub fires each year. I have been a strike team leader on two occasions. A strike team leader is in charge of five tankers."*²⁶⁶

14.2.216 As was the case with many of the other members of the Geelong Strike Team, Mr Bendle had received theoretical training of and could recount many of the important watchouts that applied to forest fires. Prior to Linton he had no training in assessing fuel loads in the forest. His practical experience was limited. This is borne out by the following passage from the transcript:

"I would like to take you back to the pre Linton training that has been under some discussion for some time?—Yes.

You said in a couple of different ways that the nature and quality of the training post Linton has been different?—Yes.

In the sense of improved?—yes, sir, it has improved.

Before the Linton event in the context of a fire like this, had you ever experienced a fire of this nature?—No.

You have said in your evidence today and it appears in your statement that you had never experienced a fire like this in your experience as a fire fighter or otherwise; is that right?—That is correct.

What was there about the circumstances in which this fire developed that made it so unique?—Well, it was just a normal little type fire which, nothing of concern until it spread rapidly within seconds, the way it just travelled that 50 odd metres or whatever the distance was, say, approximately 50 metres, that the way it come it through and the noise it was horrific, sir. I couldn't believe anything could travel that fast.

And had anything in your instructional training prepared you for that experience?—Not really, sir, no, except you know just what we done, get the blankets out and things like that.

No, I was thinking in terms of the lead up to the positioning of the two vehicles when the fire struck?—It happened so quick, sir, by the time we had done anything it was on top of us.

Before your experience at Linton can you tell His Worship and the court in general terms, not so much of training you received but whether it was practical, theoretical

and whether it involved bush wild fire circumstances in any respect?—It was a mixture of both, sir. You would have some lectures one week, practical another week, free another week, it was split up. You were down the river. We used to have a grass fire simulator which used to run on kerosene with a mixture of other things and ...

We are talking about bush wild fires, sorry to interrupt?—The bush?

Yes?—No, sir, only our training along the river banks and in the Geelong area.

The Coroner: So that would be grass fires (indistinct)?—yes, sir.

Mr Moore: Have you had any practical experience or exposure to, say, controlling an eastern flank in anticipation of a south westerly wind change prior to Linton?—Only what we have covered on our training nights and things like that, sir. But practically, no, sir.

The Coroner: Was this prior to Linton; we are again talking prior to Linton?—Prior to Linton, yes.

Mr Moore: And that practical experience did it extend to wild fire bush fire or again are we down on the river bank?—Mostly down on the river banks round the Geelong area.

The Coroner: When you say the river bank, whereabouts?—Down along the Barwon River where they have got grass, and we can practice pumping from the river and things like that, sir. Then you can do three or four little exercises like a round robin, so you are only - grass would be perhaps six or seven inches high, sir.

Mr Moore: So as you have said to my learned friend, Mr Kaye, you have certainly read and you understand Exhibit 20, the operations guidelines and you did so before Linton in general sense?—Yes.

What is contained in there ever been put into a practical exercise in the context of a bushfire or wild fire?—We have tried on numerous occasions to work with that book. It is a book they have been using at Geelong City as well.

Could you keep your voice up?—Sorry. It is a book that we have been using at Geelong City for training. It is a book that the group have been using as well, so we have tried to keep as much as possible to the book.

So that is the theoretical training, is it?—Yes, as well as after you do it there, then you may go out the following week and practice it – or practice as much as possible out of it.

But if I can ask you again, in bush wild fire situations?—No, mostly along the river bank, again, sir.”²⁶⁷

14.2.217 Mr Bendle's experience in forest fires was limited:

“Have you prior to the Linton fire, had you attended any forest wild fires?—Not really forest. I did a lot of scrub and bush, but not actually forest, except in New South Wales where we were doing back burning. That was in a forest.

When was that? When were you doing that back burning?—In 19– two years ago when we were in New South Wales.

Were you sent up there as, what, part of a training exercise or how did you ...?—No, we went up as a strike team from the CFA to assist the New South Wales Bush Fire Brigade.

What role did you play at that forest fire, what did you actually do?—I went with the Lara crew because they couldn't get sufficient crew to go away for the week and I went as a crew member, as a lieutenant on the back of Lara's tanker.

What duties did you carry out at that fire? Did you put out spot fires or did you follow a dozer through? What did you do?—No, we put out spot fires and mostly blacking out to the forest.

At any time were you following a dozer through a control line and blacking out between the control line and the fire?—No, sir.

At any fire that you had previously attended had you been involved in a task similar to the one you were involved in on 2 December at Linton?—I have been back burning and blacking out but never with a bulldozer.”²⁶⁸

- 14.2.218** The limitations of his training and experience led Mr Bendle to the same conclusions as Stepnell and Scharf about the danger of exiting along the Homestead Track extension: As the strike team was reaching the point where the Homestead Track extension was discovered:

“The Coroner: When you are going down that track towards where the turnaround was eventually bulldozed, did you have any concerns about what you were doing?—Not really, sir, because I didn’t think the fire was a threat to anybody at that stage. It was, like I said, I would call it a marshmallow fire where you could have walked up to it and tossed a marshmallow on the end of a stick and the flames were only two or three inches on the ground, and it is sparse country there and I had no concerns at the time, sir.

But you weren’t aware of the fact there were mine shafts there?—No, sir, I didn’t know that until I went back a couple – well – two or three weeks after when the region took us there to have a look. That is the first I knew there were mine shafts in the area.

You couldn’t have turned a truck around on the track?—I don’t believe so, no, sir. You may have done it with a half dozen shuntings or turns like that, but I can’t be really certain, sir.

Did you at any stage develop any concerns about being in that environment?—No, sir.”²⁶⁹

- 14.2.219** The effect of this general perception of the fire was that Mr Bendle could see nothing wrong with going off to fill up the two trucks in the strike team by going along the Homestead Track extension:

“You gave some evidence about this being a marshmallow fire and flames of only two or three inches, you being pretty bored sitting in the truck. As far as your perception of what was occurring as you proceeded down behind the bulldozer, was it really pretty much of a non event and over as far as you were concerned?—I’d say, yes, sir, that would be the case.

You, because it was pretty much a non event, didn’t see any problems leaving the fire line and proceeding - and leaving this unburnt bush?—Not really, sir, no.

Your view would be different were you in the identical circumstances today?—I would probably alter the way I think, yes, sir.”²⁷⁰

- 14.2.220** Mr Bendle had no input into the decision made by Scharf, to use the track to exit for water. He did not see any obvious danger as the trucks left, and therefore made no attempt to have the decision changed.

- 14.2.221** When the trucks had travelled about 100 metres along the track they stopped and a discussion began about whether they should proceed further or not. Mr Bendle’s description of this is as follows:

“If I can take you to the point when, after you’d gone past the bulldozer, on the Homestead Track extension, and went some way along, and then the Geelong City tanker stopped, did Mr Stepnell tell you why he stopped at that point?—We were, I believe, having a conversation, in the truck, about the state of the track. It seemed to us to be getting narrower, and we thought we’d better consult the map and see exactly where we were. And with that, we stopped. It was getting dusk. You could see the fire, probably 40 or 50 metres away, to our right. We just sort of stopped there, and got the map out, and we were there when two members of the Geelong West crew come up to my side of the cab and we started talking, and that’s when Simon’s – sorry, Malcolm – said the fire was coming.

Before that happened, had Mr Stepnell indicated to you that you should reverse back; that the truck should reverse back out of that track?—We were having a conversation about it, yes, sir. Different things. On, you know, the – how narrow the track was going; where it actually leaded; what come off the end of this track. And we were looking at the map, when it happened.

Had Mr Stepnell actually put the truck into reverse, do you know?—I’m not certain on that, sir. No, I can’t answer that question; I wouldn’t know.

Can you recall, as best you can recall, and tell His Worship, what was said about reversing out of the track, or the possibility of reversing out of the track?—I can't actually remember, sir, what was said. It's so long ago now. We were just having a general discussion on the condition of the track, exactly where it led to, and where a water supply was. We were trying to see if anything was marked on the map.

Had the both of you, or Mr Stepnell, taken a decision that you weren't going to go any further down the track; that it would be necessary to reverse out and go another way?—I believe we were discussing that when the incident happened, sir. We hadn't actually, I don't think, come to a firm decision on exactly what to do.

And the reason you were discussing that, was because the track was getting narrower?—Well, with the – the daylight, you know, coming to dusk, it did look as though it was getting narrower, and ...

And did it veer in an off-straight direction; was that a matter that you discussed?—It wasn't straight, it was a bit – you know, it's hard to explain; it sort of come up and round, and...

Did you also discuss that you didn't really know where it led to?—We were talking about it, when it happened, yes, sir.”²⁷¹

14.2.222 The only part of Mr Bendle's evidence on this point that was challenged was whether or not there was a map in the truck and it was being examined. Other evidence on this point was:

- The Geelong Strike Team was given one copy of the map at the staging ground;²⁷²
- There is no evidence of them receiving another copy of the map;
- Messrs Scharf and Stepnell consulted the map prior to the two tankers leaving to fill up with water;²⁷³
- Mr Scharf offered to give the map to Stepnell to take with him but Stepnell did not accept the offer;²⁷⁴
- There is no evidence that Mr Bendle, Scharf or any other person removed the map from the cabin of the Geelong City tanker;
- On the night of 2 December 1998 Mr Anderson collected a pile of papers left at the Linton Shire Offices by Mr Scharf;²⁷⁵
- On the next day when Mr Anderson sorted through Scharf's papers he found the map (which was clearly identifiable by the notes Scharf made on it);²⁷⁶
- Mr Scharf's statement containing the references to the map was made on 8 December 1998; and
- Mr Bendle's original statement made on 10 December 1998 did not contain any statement about referring to the map.

14.2.223 In these circumstances Mr Scharf's account about the map is preferred to that of Bendle. This means that at the time of the entrapment the only map of the area that the Geelong Strike team had was in Scharf's possession.

14.2.224 Mr Bendle's account in his original statement is accepted as what occurred just prior to the wind change:

“We travelled along the fire break made by the bulldozer veering to the left. The bulldozer had moved back out of the way so as we could get past. The fire break which the bulldozer had made joined up with what was recognisable as an existing track. Where the fire break joined the existing track, the existing track went off to the left and to the right. We travelled along the existing track to the right and it seemed to start to get a bit narrower. We stopped the truck and the Geelong West tanker stopped behind us about 20 to 25 feet, ‘Dutchy’ and Stewart Davidson came up and started talking to us standing beside the cabin of the truck. The fire at this stage was about 50 metres away to the right of the track. We were talking about the condition of the track when Malcolm Stepnell shouted our something like, ‘The fire's coming take cover’. ‘Dutchy’ and Stewart Davidson then ran back to their tanker.

When Malcolm Stepnell shouted out I looked across towards him, the wind was starting to pick up and I could see the trees moving and the fire was starting to crown and move towards us. All I could see was the big red flames coming towards us from the right side. The wind was making a terrific uproar, prior to that it had been dead quiet. Malcolm Stepnell told me to wind the window up which I was already doing and to get the fire blankets from behind us. Malcolm Stepnell yelled out to the crew on the back to take cover..."²⁷⁷

- 14.2.225** In cross-examination Mr Bendle described the position of Davidson and Vredevelt at the time of this conversation:

"You've given evidence about Homestead Track how you stopped and a lot of – given a deal of evidence about that and the circumstances and discussion, but the two men from the vehicle behind, from Geelong West, have approached your side of the vehicle?—Correct, sir.

That's the eastern side; they remained on the ground, or they stood on the step, or what have they done?—No, they just stood by the side of me.

So they're ...?—I'm talking to them through the window.

You're looking down talking at them and they're looking up talking to you?—Yes, sir.

Is that right?—That's correct.

They couldn't, I suggest to you, see what's happening on the other side of the truck from where they are?—No, sir.

So they wouldn't have been able to see the approach of the fire?—That's correct, sir."²⁷⁸

- 14.2.226** As the two Geelong West crew members were on the passenger side, to carry on a conversation with them in a normal way Mr Bendle and Stepnell would be looking at them. This meant that it is likely that none of four who were deciding what course the two trucks should take were observing the state of the fire.

- 14.2.227** In any event, the time between stopping and the fire engulfing the trucks was so short that no meaningful decision making process could occur. These events therefore were a background to the tragedy and not causative of it.

- 14.2.228** At the time of the Linton fire Mr Bendle was not adequately trained or experienced to be working on the east flank of the fire with an impending south-west wind change. In particular he did not have the necessary skill to adequately assess the danger posed by the fuel load and topography of the area if a wind change occurred. This deficiency was a background to, but not the cause of the deaths of the Geelong West crew.

Other members of the Geelong City Crew

- 14.2.229** As the analysis carried out so far in this section indicates, the remaining three members of the Geelong City crew, while playing an indispensable role in saving themselves and the other members of the Geelong City crew, had no part in deciding to use the track. The point was made in the DNRE's submission:

"The Geelong City and Geelong West tankers were not in the course of constructing a control line when the entrapment occurred. They were departing the control line to get water by a particular route on the advice of the strike team leader and the crew leader of the Geelong City tanker. The relative inexperience of the Geelong West crew and the other four members of the Geelong City crew was utterly irrelevant to the course they followed. They were in no position, in the short time that elapsed between the time they were directed to do as they did, to evaluate the wisdom of their superiors' direction. They were not privy to any of the information which their superiors had and which obviously led the strike team leader and the Geelong City crew leader to make the decision that they did."²⁷⁹

- 14.2.230** For this reason it is not necessary to carry out a comprehensive examination of the training and experience of these crew members. It is sufficient to observe that an examination of the available records and the evidence of Messrs Sharrock, Daly and Lowe shows that they were

not sufficiently trained and experienced to be on the east flank of the fire with an impending south west wind change. As with the other members of the strike team, the deficiency lay in the ability to determine the level of danger posed by fuel loads and topography in the event of a wind change. This did not contribute to the cause of death of the Geelong West crew members. Daly and Lowe did, however, display a good understanding of survival procedures and that saved the Geelong City tanker and its crew when they found themselves in a life-threatening situation.

Crew of The Corio Utility

- 14.2.231** Mr McPhail and Ms Lancaster were the crew members of the Corio utility which was the command vehicle for the Geelong Strike Team. Neither played a role in the decision making that led to the Geelong City and Geelong West tankers to the place of the entrapment. It is therefore not necessary to carry out a detailed examination of the training and experience of these crew members. It is sufficient to observe that an examination of their training records and experience shows they were not sufficiently trained and experienced to be on the east flank of the fire with an impending south west wind change. This did not contribute to the cause of death of the Geelong West crew members.

Mr David Rowan

- 14.2.232** Mr Rowan was the driver of the bulldozer that was being supported by the Geelong Strike Team. This occasion was his first time as a bulldozer operator at a bushfire:

*"When I was about 18 or 19 years old and living with my parents in Trawalla, I was a CFA volunteer for some 5 years. During this time I attended and fought a number of fires, particularly grass fires. Since then I have not been an active member of any CFA. As a driver of a bulldozer being utilised for the CFA this occasion was my first uncontrolled bush fire. I attended this fire due to the fact that this was the third request for a bulldozer from the NRE on this day, Wednesday 2nd December 1998. Two other drivers had already gone to other jobs but our third driver was injured and not at work. My boss asked if I would attend to the request to go to Linton and I agreed. Robert Lakey drove the low loader with the D155 bulldozer on board to Linton, while I drove the escort vehicle."*²⁸⁰

- 14.2.233** When questioned about the training he had to perform the task of constructing a control line at a wildfire in the forest, Mr Rowan said:

"Mr Gyorffy: Let's begin with the topic of training, Mr Rowan, you obviously had quite a bit of training in operating bulldozers prior to the Linton matter?—Yes.

What training did you have in putting in control lines, we are talking about prior to Linton, what training did you have in putting in control lines with a bulldozer?—I've actually had no previous training as in working on a fire front with a bulldozer.

But you were at that time a member of the CFA?—I was a past member, I wasn't an active member.

You told us you were a CFA volunteer for some five years?—That was earlier on.

In the course of being a CFA volunteer for those five years did you learn anything or have any training in relation to control lines and procedures on the construction of control lines?—No, mainly at that point in time when I was a volunteer with the CFA the area I lived in was basically in grasslands and we just mainly did grassland fires.

You have told us in your statement this was your first uncontrolled bushfire, had you been to some controlled bushfires beforehand with the bulldozer?—No, but through the course of my employment we done a fair bit of scrub clearing in the past and set fires to rather large heaps of pushed down timber, if you like, and had to heave it up and keep it controlled.

Since Linton has the situation changed, have you received training in relation to control line construction as a bulldozer operator?—Yes, we completed a fire awareness course which was actually scheduled before the Linton fires, and I think we started on 7th December was the first training night and completed it, i think, about May of June the following year.

Who organised that?—I think it was Jamie McKenzie from the DNRE from memory.

Did you find that helpful and a worthwhile course to do?—Very helpful, yes.”²⁸¹

- 14.2.234** Mr Rowan was fortunate in that he saw the fire change and he managed to withdraw to safety.²⁸² It is clear, however, that Rowan, before Linton, was not adequately trained to safely perform the task of building a control line at a forest fire.

Other evidence of training of the Geelong Strike Team

- 14.2.235** The analysis carried out to this point and the conclusions reached were achieved on the basis of an independent assessment of the evidence available to this inquest and without reference to the conclusions of fire behaviour experts or the joint CFA and DNRE report into this incident. It is comforting to note that after the evidence had been considered and reference was made to those two items of expert evidence, the same conclusions had been reached.

- 14.2.236** In the joint CFA and DNRE report a general conclusion was reached without the identification of specific people who were not adequately qualified or experienced to be on the east flank at Linton. The authors concluded:

“6.19 Training and Experience

- There are numerous and significant tactical and safety problems that emerged from this fire. They may be related to either inadequate training and/or experience in basic forest fire behaviour and forest fire suppression techniques.*
- Supervisors have additional responsibilities, including managing the flow of information up and down the chain of command. Supervisors must possess a competency in fire behaviour and fire suppression which is superior to that required of a fire fighter. Supervisors should also possess crew management skills. These competencies were not always demonstrated in the actions of some supervisors on this fire.*
- Discussion; Competencies necessary vary depending upon the tasks that each individual is asked to perform. All firefighters need fire safety and survival training and those firefighters in a managerial role need supervisory skills.*

The necessary skills are obtained through training and experience and these lead, if they are applied correctly, to competent people performing on the fire line.

There were a number of firefighters at this fire who did not demonstrate that they met a minimum standard of competency. Firefighters must be able to demonstrate appropriate minimum competencies before being permitted to operate on the fireground.

Competencies need to reflect differences in the type of fires that are being fought. For example, different competencies are needed for grass fires, structural fires and fires in forest fuels. Competencies also need to reflect the different roles being performed at a particular fire.”

- 14.2.237** Those conclusions are consistent with the conclusions reached in this section.

- 14.2.238** The expert panel called to give evidence in this case were the most qualified witnesses available in Australia to give evidence on fire behaviour. As the analysis carried out in this section indicates, the critical shortcoming identified in the training of those involved in this incident was the inability to understand fire behaviour in the fuel conditions and topography that applied at Linton, and therefore these experts were well qualified to give an opinion on this issue.

- 14.2.239** Each of the experts were provided with the training records of the Geelong Strike Team and their statements and transcript of evidence given at this inquest. The experts therefore had all the evidence available to this inquest on training.

- 14.2.240** In their initial evidence and report the panel of experts gave the opinion that the members of the Geelong Strike Team were not adequately trained to be allocated the task they were doing on that day at Linton. It was suggested by some parties that they had insufficient material on which to base such an opinion. It was then that they were provided with the

materials referred to in paragraph 14.2.240 and to consider what effect, if any, that had on their previously expressed opinion. Three of the four experts were able to provide an additional response.

14.2.241 Dr Burrows responded by saying:

"My conclusion is that most, if not all crews, have very little forest fire experiences, and these experiences have been gained infrequently over relatively long periods. The documentation is not clear about the roles of the crews on forest fires.

I would characterize the extent of forest firefighting experience of these crews as minimal, and, in my view, inadequate for the task they were given on the Linton fire. Crews with this level of training and forest fire experience should be working under the close supervision of someone with a high degree of forest firefighter competency, which was not the case.

The strike team leader, Mr Scharf, in his statement, notes that prior to the Linton fire, he had 'never been a strike team leader before'. Mr assessment of Mr Scharf's competency is that he had considerable training, but has had little forest fire experience (prior to Linton).

The training records are consistent with most of the duties performed by the crews – most of the training appears to be based around structural fires and urban emergencies – gas leaks, vehicle accidents etc. and or forest fires. However, most crews appear to have had basic firefighter safety training by way of classroom-style lectures. The records indicate that various crews attended training, but they do not indicate the level of competencies achieved.

*The additional information provided in the training documentation only supports my comments, and the comments made in the joint experts report, that the Region 7 crews did not have adequate training and most importantly, experience in forest fires, to be working on the most dangerous sector of the fire."*²⁸³

14.2.242 Dr Tolhurst, who was an expert retained by the DNRE for these Inquests and who was involved in the preparation of the joint agency report, said:

"I received your transcript passage on Monday afternoon and have read through the 1600 pages!! I am not clear on what we are expected to do with this information. What responses do you want?

I was expecting to see the training record for the various firefighters rather than the transcript. The training records and the statements of each firefighter would probably have been a much easier way of assessing their training and experience.

Having said that, I found the information in the transcripts even more disturbing than I had expected. The nature of the training and experience listed by these firefighters does not stand close scrutiny. I am afraid I am left with the impression that 'training' in the CFA is largely gained from books and videos and presentations from people with little more experience than themselves. Much of the 'training' done on a weekly basis seems to revolve around 'tanker training', ie. familiarity with the equipment, whereas I would see a solid understanding of fire behaviour being the most important facet to be addressed.

I have not changed my views expressed in the Experts Report, that the Geelong Strike team did not have the appropriate competence to be doing the work they were.

I was surprised at the number of career firefighters included in the Geelong Strike team (at least 4). This was a good thing, but the experience and competence of these firefighters was not much better than that of the volunteers. This is a matter that can be much more easily addressed by the CFA since 'training' is part of their daily routine. There must be more opportunities for career firefighters to attend prescribed fires in forest and other NRE fire operations. It may be desirable to put more responsibility on the career firefighters in forest and plantation fires.

Clearly there is a need for the CFA to keep accurate and meaningful records of training and competencies, not just attendance records. These records should be in line with the

Australian Fire Competency Standards 1994 and be based on the National Fire Curriculum. These records should be readily accessible by fire agencies so that the competencies of crews deployed to fires is known in advance.

There has to be a recognition that the expertise to do this training may not necessarily be available at local brigade or even regional level and may need to be sourced from NRE or other places. As far as forest and plantation fires are concerned, the competencies must be based on real experience not just book learning. In fact, book learning may not be appropriate for many firefighters since their level of literacy may hamper them. Literacy levels should not necessarily preclude a firefighter from accreditation.”²⁸⁴

14.2.243 Mr Packham had the advantage of considering Tolhurst’s comments and agreeing with them. Cheney unfortunately did not have the time to consider the material sent to him because of other commitments.

14.2.244 It can be seen that the opinions of the experts are consistent with the conclusions reached after an independent assessment of the relevant material before the inquest.

14.2.245 It is also instructive to examine the opinions expressed by those immediately above the Geelong Strike team leader in the chain of command at this fire. The Senior Commander, Mr Lightfoot, said:

“... In hindsight, if I had to do it again I would do lots of things different. For one, I wouldn’t have put them in there if I had known their capabilities, of their ability, I wouldn’t have put them in there if I had known of these things like that. I could have done lots of things Your Worship. I could have put DGO Byrne in there to look after this, I could have put DGO Taylor in there to look after this, I could have done a lot of things, Your Worship, but I had the expectation that they were competent in their work, and if I was in the same situation as that strike team I would not, unless I needed it, ask for assistance. I am the strike team leader, it’s my responsibility to do what I was tasked to do and that’s the way we work.”²⁸⁵

14.2.246 The Divisional Commander, Mr Phelan, said:

“Mr Dean: But you agree, don’t you, that in so far as the entrapment was concerned, the Geelong City entrapment, there were things now you say you should have done that you didn’t do?—There are probably things that I wish I have had done that I didn’t do, yes, now.

What are those things, Mr Phelan? What do you wish you had done that you didn’t do?—I suppose that, with the benefit of hindsight, I wish that, that the Geelong strike team had - if we had have been notified that we had an inexperienced leader and had an inexperienced crew, we might have been able to do, or would have done something about that.”²⁸⁶

14.2.247 Finally, Mr Graham the Forward Operations Officer said that he assumed that personnel that came to the fire line were adequately trained and experienced to do the tasks allocated to them, but if they were not:

“Is that because you work, and you did work on this day, on the basis that the people that were on the fire line were sufficiently competent to be there?—That was my understanding.

It is axiomatic, does it follow as a matter of course, Mr Graham, had you known there was a strike team that did not have sufficient competency in relation to forest firefighting, then they shouldn’t have been anywhere near the eastern flank?—I wouldn’t have expected them to be anywhere near eastern flank.

Can we take that as given?—Yes.

If there was a strike team or crew who between them in terms of mix had an insufficient level of experience, competency in fighting a forest fire, then they shouldn’t have been on a flank?—Correct.”²⁸⁷

14.2.248 Later Mr Graham reiterated the main point:

*"Mr Graham, if you had thought that there were CFA crews on the eastern flank that didn't understand those basic principles, would you have left them there, would you have allowed them to be deployed to the eastern flank ...?—No, I wouldn't."*²⁸⁸

- 14.2.249** The fact of the matter is that the Geelong Strike Team was not appropriately trained or experienced to be on the east flank, but they were there. The analysis now moves on to see how that occurred.

14.3 Lead Up

- 14.3.1** In the Safe Forest Firefighting agreement entered into between the CFA and DNRE on 1 August 2000²⁸⁹ under the heading "MANAGEMENT SYSTEMS" the following desired situations were defined:

- *"...The objective of the incident management system will be to combat fire safely, effectively and efficiently.*
- *All people operating within the incident management system will be competent to undertake their roles."*²⁹⁰

- 14.3.2** Later in that section of the document the following observation is made:

*"...The take up of AIIMS ICS within the CFA has been variable, particularly role specific training. Consequently, in some parts of the State there are CFA firefighters who do not have an adequate understanding of the system."*²⁹¹

- 14.3.3** This situation was well known to the CFA prior to Linton as is clear from Chief Officer Roche's statement:

"153. At the time AIIMS ICS was first introduced it met with some resistance for two reasons. First, it represented a major change in the overall structure of incident management and a move away from the traditional and familiar Group structure. Secondly, the introduction of AIIMS ICS relied on people being trained and accredited. At the time, there was a considerable amount of opposition within the CFA to the concept of accreditation. This was exacerbated by the fact that, to become fully accredited in AIIMS ICS, officers and volunteers were required to attend a 5 day course and a 24 hour exercise. This was seen by many volunteers as not practical and beyond what could reasonably be expected of members of a volunteer organisation like the CFA.

154. In recognition of these difficulties, while the CFA mandated that it would run all emergency incidents in accordance with AIIMS ICS, it did not take the path of breaking down the Group structure and replacing it with a structure that was more compatible with AIIMS ICS. Senior management at the time, being conscious of the level of resistance for cultural reasons (but not because of any concern about the effectiveness or validity of AIIMS ICS as a system for incident management) decided that they would prefer to let it evolve over time as the primary system for incident management. As discussed above, this is the way change is often necessarily introduced in the CFA.

*155. Thus, although acceptance of AIIMS ICS has grown over the years since its introduction, there has as yet been no complete evolutionary change. Many of our more senior and experienced volunteer personnel have lived with the system of incident management based on the Group system for so long that they have found it difficult to make the transition to full implementation of AIIMS ICS. In most cases, this is not because of any ingrained hostility to the newer system ..."*²⁹²

- 14.3.4** Section 2 of Safe Forest Firefighting agreement has the heading "OPERATIONS COMPETENCIES". Under that general heading there is a sub-heading "Desired Situation" where it is said:

- *"Minimum wildlife competencies will be agreed by the agencies.*
- *NRE and CFA will have agreed competencies for all roles in the incident management system.*

- All fire personnel will be competent to undertake their assigned role.
- The competencies of all fire personnel will be recorded and made available to the Incident Control Centre.
- There will be commonality in the training materials used to develop core competencies in forest firefighting.
- Programs to maintain competency will be actively managed.”²⁹³

14.3.5 The discussion on training in that section of the agreement provides:

“Both the CFA and NRE are aware of, and work within, the National Competency framework for fire suppression. Each emergency has established and maintained extensive training programs that are well designed and professionally delivered. While there is some overlap of training material and course delivery between the agencies, more sharing of resources and training courses, could be mutually beneficial.

NRE has an accreditation process for fire line personnel and controllers. The system incorporates graded levels of accreditation whereby personnel are assigned to undertake roles and perform tasks for which they are competent in accordance with the complexity of the fire. Only staff who are accredited and meet other departmental requirements, including currency, are appointed to roles on the fireline. Staff who are not accredited are not permitted to be deployed to the fire line.

The CFA has introduced a competency-based approach to fire fighting. CFA training has been aligned to Australian Fire Competencies for some years. Presently, considerable effort is being made to train and assess firefighters to minimum agreed standards. Competence implies that the person has demonstrated they can perform the role for which they are being assessed.”²⁹⁴

14.3.6 Contained in the same place is the following statement:

“Reviews of fires have consistently highlighted the need for good leadership. Avoidance of dangerous situations depends on leaders and crews understanding fire behaviour and safety requirements.”²⁹⁵

It is to be noted that this observation is consistent with the conclusion reached in Section 14.2 of this Report

14.3.7 Further on in that agreement there was a recognition, that:

“CFA and NRE acknowledge the potentially hazardous nature of forest fire fighting. The position described below ... reflects the desire to ensure the safety of firefighters...”²⁹⁶

14.3.8 Again these principles in the last two paragraphs were well known before the Linton fire:

- The Watchouts and Standard Fire Orders and other checklists in the Operations Guidelines indicate the sources of hazard to be careful of.²⁹⁷
- In Tactics and Administration in the Field which predates the introduction of AIIMS it was said:

“Fire fighting in forest country demands experience in forest fire behaviour. The best way brigades can attain this experience is by carrying out hazard reduction burns in mild conditions during early spring or late autumn. Even on a small scale these will give brigade members an appreciation of forest fire behaviour as well as reducing the fuel quantity in scrubby areas.”²⁹⁸

14.3.9 A moments reflection (and the application of common sense) leads to the conclusion that if specific training is necessary to ensure the safety of a forest firefighter, and it is accepted that without such training a person should not be carrying out a particular task, then there must be some means in place for the supervision of that person to determine whether he or she is competent to perform that task. If there is a practicable way of determining competence and it is not part of the system of work that is applied, then that system is not a safe system.

14.3.10 This then leads to the question: what was the system in place at the Linton fire to allow supervisors to determine that a fire fighter was competent to perform the task allocated to him or her? That is the subject of examination of this and the next section.

Background

14.3.11 A convenient summary of the system in place is found in Chief Officer Roche's statement:

"45. As stated above, since July 1992, the CFA has had in place Chief Officer's Standing Orders 3.01 and 3.02 (see above) designed to provide guidance as to the level of competency required of fireground personnel. SO 3.02: "Training requirements for Probationary Firefighters" required all probationary members (firefighters) to satisfactorily complete a training course which included the following subjects:

- Brigade management*
- Appliances and Equipment*
- Communications*
- Firefighting Theory*
- Safety and Survival*

46. Probationary members were not to attend incidents without approval of the Brigade Officer in Charge (usually the Brigade Captain) ("OIC"). Training was required to be completed to the satisfaction of the Brigade OIC. The OIC also had the power to exempt a member from this training and vary the probationary period.

47. Further, Chief Officer's Standing Order 5.01 "Safety of Fire Crews" required that "a firefighter should not be allocated tasks for which they are not equipped or competent to undertake". It further stated that "The officer in charge of a fire/incident is at all times responsible for the safety and action of all firefighters on the fireground."

48. Apart from assessment at Brigade level to ensure compliance with these Standing Orders, most of the training delivered at local levels was not assessed except as an incident of Brigade Inspection Reports carried out pursuant to s.29(b) of the CFA Act. Part of the Brigade Inspection Report deals with training. The Brigade Inspection Report format used before 1995 raised only two issues relating to training; namely:

- (a) Is there an effective training program?*
- (b) Are individual training records kept?*

There was space for comment by the Inspecting Officer and provision for each question to be given a numerical score if an efficiency competition was conducted or the region was using this method as a comparison figure to determine the general standard of the Brigade (or both)."²⁹⁹

14.3.12 In the Geelong Region, prior to the Linton fire there were concerns expressed about the training that was being given and the assessment of it. Fire Officer Barry Thomas, who developed the training course referred to in Mr Bendle's evidence,³⁰⁰ said:

"8. Training within the CFA generally occurs at brigade level. To my knowledge there is no system in place through which Fire Officers can access information as to what training is occurring in other brigades. That is if brigade "X" has a certain package of training and assessment in place there is no system in place that facilitates brigade "Z" comparing the contents and assessment of its training with that of brigade "X". In Region 7 we have now created an inter-station committee to try and address this problem. It includes the training manager and officer in charge from each station. The creation of the Committee was my initiative.

9. In November 1998 the CFA regional office determined that it would hold a strike team leaders training course. Annexed and marked "F" is a copy of the course outline. At the bottom of the document is a note that I sent to Operations Officer Foss expressing the view that any person doing the course should be able to answer the questions from our (Corio's) summer refresher courses and that there did not appear to be any assessment check as part of the course being offered. The course was to be delivered by Operations Officer Graeme Lay and I contacted him with the suggestion. I was concerned that if the region was

*going to nominate strike team leaders to whose authority volunteers from Corio might be subjected, that there should be a means of assessing the strike team leaders' competency. I have continued to have concerns about the level of training of some CFA volunteers and the apparent failure to adopt a uniform required minimum level of training. Annexed and marked "G" and "H" respectively are two memos I sent to Graeme Lay expressing these concerns."*³⁰¹

14.3.13 Chief Officers Standing Order SO 3.01 dealing with Training of brigades came into operation 22 February 1993. The important part of that Standing Order provided as follows:

"Training is now to be undertaken in accordance with a program that recognises the risks in the Brigade area, ie: a Brigade with a grassland risk will have a different program to a Brigade with a residential and industrial risk. Upon satisfactory completion of training by a member, the Officer in Charge is to certify accordingly.

- *Prepare and conduct a brigade training programme which specifies:*
 - i. *Subject Matter*
 - ii. *Timetable*
 - iii. *Category of membership to which it applies.*

An additional training programme is required in permanent brigades to meet staff needs.

- *The structure and content of the training programme must recognise the risks in the brigade area, and the level of activity of the brigade area, and the level of activity of the brigade, the level and skill and personal abilities of members.*
- *The training programme is to be approved by the Officer in Charge of the Region.*
- *The training may be undertaken within the brigade or jointly with other brigades.*
- *A record is to be maintained of the training undertaken by each officer and member.*
- *Upon satisfactory completion of training by a member, the Officer in Charge of the Group is to certify accordingly.*
- *Training received by an Officer in Charge is to be certified by an Officer of the group or the instructor delivering such training.*

Training is a pre-requisite for operational effectiveness and firefighter safety. The CFA is presently involved in a total review of its training program and support to Brigades. My Standing Orders recognise that a Brigade Captain is best placed (especially in rural situations) to make an assessment of a person's training needs in relation to his/her employment experience."

14.3.14 An examination of this standing order shows that:

- Training provided to CFA volunteers has the capacity to vary from Brigade to Brigade within a region;
- Training is to be provided by other volunteers;
- While a record is to be maintained there is no standardization of the form of that record;
- The term "satisfactory completion" is vague and not the same as "competent" to perform a task; and
- There is no provision for access to the records outside of the Brigade.

In these circumstances it is impossible to see how the competence of a person to carry out a particular fire fighting task, which is acknowledged in the standing order as being a "pre-requisite for operational effectiveness and firefighter safety" can be assessed by anyone other than the Officer in Charge of the Brigade from which the firefighter comes.

14.3.15 Indeed the evidence given at these Inquests was that the managers on the fire ground:

- Were not in a position to assess the competence of firefighters and strike team leaders who were allocated to them;³⁰²
- That they assumed that all firefighters allocated to them were competent to be on the fire ground³⁰³; and
- That they expected that an assessment of competence of firefighters would be made at the place where they came from.³⁰⁴

14.3.16 Despite the fact that the Fire Officer in charge of the fire was “*at all times responsible for the safety ... of all firefighters on the fireground*”, under SO 5.01, the decision of competence was left to be made by those deploying the firefighter, and was not seen as the responsibility of the IMT or any other fire manager. Mr Leach, who was the Incident Controller at the Linton fire, gave this evidence:

“All right. This raises another issue, does it not, that has also been raised in the evidence with some other witnesses, and that is the competency of a particular crew to carry out a particular task at a particular fire; in other words, you might have a crew that is competent to put out spot fires at residences around Linton, there is a different degree of competency required for that, than the degree of competency to follow a bulldozer down the eastern flank, do you agree or disagree with that proposition?—Well, competency can take into account a number of things. It can take into account the training an individual has received, their knowledge that they have, their skills, their ability, their experience and I think that they have to perform either of those examples that you just mentioned, because they need to be able to understand fire behaviour because a spot fire around a house can quickly develop into a dangerous situation if you don’t have base of knowledge about what may occur.

I think you have agreed with this sentence, this is the last sentence on p.28, “Competencies also need to reflect the different roles being performed at a particular fire”. What do you understand that to mean?—Well, that could be quite broad, for example, the personnel from Ballarat City Fire Brigade that were staffing the staging area on the day would need competencies in staging area management, as an example, and the same thing could apply to someone who was actually in the forest undertaking tactics in the forest.

Yes, that is what I am suggesting to you, a crew may be competent for one particular task at a fire but not competent for another particular task?—That’s correct.

It is important for managers to know what tasks particular crews are competent for?—Yes.

Safety being a very significant aspect there?—Correct.

Was there any system in place on 2 December to make, to allow you to make that sort of judgment, in other words, as to whether sufficiently competent crews were being allocated to tasks that they were competent to perform?—No, not at the incident. The competency system, I suppose, in place at the time was that the expectation was appropriate training was being conducted right across regions with brigades and groups, and that personnel dispatched to an incident were competent to undertake the sort of firefighting operation they would be expected to perform there.

I think Mr Graham adverted to that, that it was his assumption that CFA crews sent from a region would only be sent from that region if they were competent to be engaged in the fire fight that was occurring on that day, did you hear him give evidence to that effect?—Yes, and that is my experience also, when I am asked to send a strike team outside of region 15, I always ascertain what the role is they are going to perform when they get there, and then I select the brigades to participate based on their, what I know of their knowledge, skills and experience.”³⁰⁵

14.3.17 Mr Ferguson at the time of the Linton fire was the Manager of Operational Planning of the CFA and was based at CFA Headquarters in Burwood. Ferguson was a very experienced firefighter and was one of the authors of the Operations Guidelines.³⁰⁶ On the day of the Linton fire Ferguson occupied the position of deputy Planning Officer.³⁰⁷ On the issue of deployment of crews on the fire ground he said:

“By reference to your written notes, I might have the order of these events wrong, at 1625 you list the various resources at the fire and then at 1728 you list the regions from which the tankers were from?—Yes.

When you were doing that was part of your function to assess the suitability of particular strike teams or groups of tankers for particular tasks?—No.

Not at all?—No.

Is that right?—That's correct.

In the report that you prepared you made an observation, and you have given evidence about this today, you said, this is at p.6 of the report, "Individual people and crews will vary in their skills, judgment and decision making"?—Yes.

How is that taken into account in resource management at a fire to ensure the safe deployment of crews to particular tasks, how was it taken into account as at 2 December?—How was what taken into account?

The varying degree of skill, experience, training and so on within crews and strike teams. How was it taken into account in determining how they were going to be deployed?—On dispatch from – in the case of this particular fire, on dispatch from a region or a brigade the dispatching officer needs to make some assessment based on the information they have got, whether in fact the crew and the truck are appropriate, and then at each point along the way there needs to be some assessment, "Is there a problem with this particular crew? Is there a problem with this particular truck?" Ultimately it comes down to the crew leader and the individual member, that if a member or a crew member is asked to carry out a particular task that he or she feels they are not trained in or equipped to carry out, they have a responsibility to say that and to take some action so that they are not burdened with doing something they are not properly equipped to do. Now that responsibility cascades up through the chain of command. Does that answer your question, Mr Dean?

*By that do you mean the IMT has responsibility to ensure the safe deployment of crews on the fire ground?—They have a responsibility that needs to be seen in the context that the IMT is operating at a higher level, more strategic level, and there will always be the situations where a particular crew member, or a crew or strike team may be confronted with a task, or asked to do a task that they feel they haven't got the appropriate equipment ..."*³⁰⁸

14.3.18 Chief Fire Officer Roche described the system in place at the time of Linton in the following way:

"Now, an allied question to that concerns a question of deploying crews from one region into another where a wildfire is occurring. We have heard evidence that the crew itself is selected by the region that actually deploys the crews, in other words the region from which they come rather than the region to which they travel for the purposes of combating the wildfire?—That would be the normal procedure, yes.

*Questions have arisen as to the ability of the deploying region to form an appropriate judgment as to what type of fire, what type of incident will be encountered by the crew that is assembled and dispatched; what do you say about that?—The normal process would be that the deploying region is acquainted with several matters associated with the fire, its location and the types of fuels and the weather and those sort of factors that are influencing the fire and so therefore I would expect that they would make a choice at the time of dispatching individual crews and brigades that there was sufficient experience and competency on that crew to deal with the incident in which they were or with which they were likely to be confronted and it's no different to when crews are deployed into an urban type situation that the same rules apply, that you don't send anybody, you send the people who have the experience and expertise to be able to deal with the incident which you are going to be confronted with."*³⁰⁹

14.3.19 On the basis of this evidence the CFA submitted:

"13.37 The Geelong Strike Team was assembled by region 7. The members were chosen by their brigades. This was in accordance with the system of the CFA by which strike teams, travelling from one region to another, are assessed and assembled by the region from which they originated (Ferguson T.7962; Leach T.9247; Roche T.10683, 10710). It would seem that the same system applies to the DNRE (Mahoney T.7717-9, Graham T.9148).

13.38 As explained by the witnesses, it is not possible for competency to be suitably assessed by those managing the fire on the fire ground. Such persons must assume the crews sent to the fire ground are competent (Graham T.9148,

Leach T.9247, 9249, Lightfoot T.9652, Phelan T.9803-5, 9897). Further, the brigades and regions which dispatch the crew are best placed to assess the competency and suitability of the individual members, and the brigades, which are dispatched (Roche T.10708-9). They are in the best position to know the experience, background and skills of the brigades which had a grassland profile, but which he knew had significant forest fire experience (T.9418-9).

13.39 *For the same reasons the IMT, and particularly the incident controller and his deputy, could not be expected to know the details of the resources sent to the fire, their background and competency (Sanders T.8895)”³¹⁰*

14.3.20 It is accepted on the evidence that the system of work in place at the Linton fire in determining the competency of firefighters before allocation to the fire ground had the following elements:

- An officer in the IMT or his or her delegate would request a Brigade or Region to provide resources such as a strike team, bull dozer or mobile communication vehicle;
- At the time of making the request the following information should have been passed on:
 - the type of fire
 - the location of the fire
 - the types of fuel
 - the weather;
- The deploying region should have
 - implemented appropriate training programs for their members
 - assessed the competence of their members to carry out particular
 - tasks; and
 - kept records of that assessment.
- The deploying region armed with this information would then choose appropriately qualified and experienced personnel to comply with the request for resources;
- The fireline manager would act on the basis that the crews and resources allocated to the fire ground were competent to be deployed on any task likely to arise at the fire.

14.3.21 This system was attacked when Mr Roche was cross-examined:

“Yes?—If that process takes place at the brigade level, and the deployment order defines the task or the deployment, then a line commander has a right to expect that the people who he is given, that are provided, are competent to perform the task.

I don’t want to spend a great deal of time on this because we have a lot of material to cover, but unless there is in place a system whereby people’s competencies are recorded, we are really dealing with assumptions in relation to competencies?—That’s right. We have said from the very beginning our records, our systems, in terms of record keeping were deficient. We have also adduced evidence that indicates we had recognised that prior to Linton and we were advancing the technologically based recording of all people’s competencies, not only their assessed training but also linking that into the experiential component of their attendance at other training and incidents.

I’m not so concerned with the conceded position that the records were inadequate, it is more the practical result of that that I’m concerned with, and the practical outcome of that was an inability of fire managers to make any assessment as to the competency of crews accurately, that was the situation at Linton, wasn’t it?—As I repeat again, I don’t necessarily concede that’s an appropriate role for a fire manager at a fire to be into the detail of people’s individual competencies. As I indicated to you, it would be my belief that with the proper briefing and deployment orders that transfer to brigades who are being deployed at regional level, the deploying region would do that assessment before the people are sent.”³¹¹

14.3.22 Clearly the lack of appropriate records and inconsistencies in training and assessment were problems in this system. In addition, at the time of deployment from their home base it is not possible to say what function if any a strike team will perform. There are many functions to be done at a particular forest fire and what is actually to be done by a particular fire is

determined by the managers at the fire ground. It follows that only very broad judgments can be made at the time of deployment from home base which will not necessarily ensure the safety of the particular fire fighters involved.

14.3.23 Mr Roche recognised there were also difficulties with the type of briefings that were occurring when he said:

*"We, in recognition though, that perhaps that's - that is a surfacing issue, we have changed our procedures since Linton to ensure that deploying regions and brigades are more adequately briefed on what they might be confronted by way of what we call deployment orders and that deployment order really uses the SMEACCS briefing process to set out to the region who's being asked to provide the resources what the situation is, what the environment is, what the weather is, what the fire is, what fuels it's burning in, etc., before they leave so it provides them with additional information in which to make a more considered judgment about the deployment of crews."*³¹²

14.3.24 In addition it is to be noted that the Safe Firefighting Agreement referred to above has recognised these difficulties and the desired situation postulated in it seeks to overcome them.³¹³ Thus in the future the system will involve:

- Standardization of training
- Standardization of record keeping
- Access of records to the IMT
- Actively managed programs to ensure the maintenance of competency by individual firefighters.

14.3.25 In its submission on this issue the CFA contended *"It is not possible for competency to be suitably assessed by those managing the fire on the fireground"*. This submission flies in the face of the changes the CFA is now implementing under the safe firefighting agreement, and is contrary to common sense.

14.3.26 The CFA is to be commended for the initiatives it has taken in this area since the Linton fire. Those initiatives were commenced by reviews being undertaken prior to the Linton fire.³¹⁴ The new initiatives are not startling in their scope and in reality should have been considered from the time of implementation of AIIMS-ICS in 1990. The size of the program required to implement training and accreditation and the apparent resistance of volunteers to these initiatives, as referred to by Mr Roche, were double edged in their effect. First, they meant that implementation was difficult. Second, they meant that it would not be assumed that any firefighter appearing at the fire ground was adequately trained and experienced to perform any role that he or she might be called upon to do. In those areas where uptake of AIIMS and the commitment to training was patchy or incomplete some other system was required to ensure the safety of firefighters, other than the mere assumption of competency.

14.3.27 It is now necessary to turn to the facts surrounding the choice of the members that make up the Geelong Strike Team in Region 7, and determine how that occurred.

Determination of the Make Up of Geelong Strike Team

14.3.28 On December 2 1998 Mr Kevin Brown commenced duty at 8.15am at Region 15 Headquarters in Ballarat.³¹⁵ It was intended that he perform his usual duties as the Regional Risk Manager. There were a number of fires burning in the Ballarat area that day and Brown was involved in the resourcing of them.³¹⁶

14.3.29 Around 2.00pm Mr Brown received a telephone call from Brad Mahoney of the DNRE who advised him that a fire had started in the Pittong Road near the Linton area.³¹⁷ It should be noted that by this time units from Region 16 were already in attendance at the fire.³¹⁸ Shortly after Group Officer Phelan telephoned Brown to tell him that smoke was really building up in the Linton area.³¹⁹ At this time a decision was made by Brown in consultation with Group Officer Phelan to call out the whole of the Grenville Group, being the Region 15 Brigades in the area near Linton.³²⁰

14.3.30 Mr Leach was informed of the situation at Linton.³²¹

- 14.3.31** A short time later Mr Leach rang Brown and advised him that an Incident Control Centre for the Linton fire was established at the “Glasshouse” in Ballarat, that he was the incident controller and he required people to fill the positions on the Incident Management Team.³²² Arrangements were made to fill the necessary positions on the IMT and the Headquarters kit which contains the necessary stationary and so on was taken from Region 15 Headquarters to the Glasshouse.³²³
- 14.3.32** Mr Brown then arranged resources to attend the fire. He did this by responding to requests made by the IMT.³²⁴
- 14.3.33** One such request was for a strike team from Geelong. Mr Brown telephoned Geoffrey Gray, the operations officer at Region 7 Headquarters at Geelong with the request for two strike teams and the communications van. This call was made at 3.07pm.³²⁵ At 3.11pm Gray advised VICFIRE of the requirement of a Geelong Strike Team and pagers were activated.³²⁶
- 14.3.34** At 3.14pm Mr Gray telephoned the Geelong City duty officer requesting that Geelong City provide a strike team leader.³²⁷
- 14.3.35** At this stage it is important to pause and consider what information Mr Brown gave to Gray at the time of requesting these strike teams. Brown’s statement spoke in general terms of the type of information he passed on that day to those he requested to send strike teams.
- “... When I ~~was contacting them~~ contacted the appropriate person I ~~was informing~~ would inform them that we had a running fire in Linton, in the bush, and that the strike teams were required to attend the staging area at the Linton football ground. Instructions as to specific fireground locations they were then to go to ~~is were~~ given to the strike teams by the Operations person at the Linton ~~headquarters~~ operations point.”*³²⁸
- 14.3.36** When pressed to elaborate on his statement at the hearing of these Inquests Mr Brown said:
- “You mention in your statement at p.7 of the statement having called out or requesting strike teams, you said from Geelong but you have corrected that to Region 7 headquarters?—Yes.*
- Region 6 and 16?—Yes.*
- You there set out some information, or details of the sort of information you think you provided as part of requesting those strike teams. Do you recall who it was you spoke to in relation to the call out of strike teams from Region 7?—When I wrote that, no, but after the conversation with yourself, yes, it appears as though it was Ops. Officer Gray.*
- I suggest to you Mr Gray prepared a statement in which he indicates it was either yourself or Neville Britton he spoke to, do you accept it may have been you?—I certainly spoke to Region 7.*
- Are you able to assist His Worship by elaborating at all on what is in your statement about what you have said, or what you did say to Mr Gray when you called him about the strike teams?—I know the request was made for two strike teams from Region 7 at that time, and I can’t recall what other information I gave him, but it would have been information about the IMT, such as where they were to report to, whether it was for township protection or to go to the staging area or what their specific role might have been.*
- Can I ask you about that, do you recall passing on or having any information about any specific tasks that the Region 7 strike team was to undertake?—Not specifically, I can’t remember what I asked them to do.*
- Yes?—Certainly earlier in the day and mid-afternoon a lot of the requests were going to township protection on the north side of Linton, whether that was a message passed on to Region 7 I can’t recall.*
- To this extent, or at least in respect of the information that you apparently provided when you sought the strike teams’ assistance, your statement mentions, as I think you have indicated, that, “We had a running fire in Linton ... (reads) ... were required to*

attend the staging area". You have told them about the nature of the incident and where they are to report to?—That's correct.

To the extent there may have been other things said, are you able to say whether those are things you are surmising may have been said?—No, certainly the request for strike teams were for township protection, others were for the staging area. It depends on how the request came out of the IMT and I would pass that on.

*It is possible you did use an expression like that in your discussions?—Yes."*³²⁹

14.3.37 Mr Gray in his statement said: "... I cannot recall what information I received in regard to the duties that the strike teams were to perform at Linton ..." ³³⁰

14.3.38 Later in his statement Mr Gray spoke of the briefing he gave the strike team before it left Geelong and he said:

*"I cannot recall having any information regarding what duties the strike teams were to perform once they arrived at Linton or of any weather information relevant to the fire. I cannot recall briefing the strike teams regarding these issues. The purpose of this briefing was basically to get the strike team to Linton where they would be advised of this information. I don't recall what radio frequency was discussed for the strike team to travel to Linton on. This information would be on the strike team information sheets. I do recall asking Simon to notify Region 7 Headquarters of the names of the personnel that he picked up at the parking bay at Fyansford. I am sure that I would have advised Simon who the Region 15 contact was. As I was leaving Corio I recall Simon calling the crew leaders together, I assume that this was for a briefing."*³³¹

14.3.39 Mr Scharf in the statement he made shortly after the fire said:

"At about 1530 the Fire Fighter I was working with received a call upon his mobile telephone, the exact time I am not sure of but it would be recorded at the station, and it was the Acting Officer in Charge, Fire Officer Ian Beswicke, requesting that we return to the station for the strike team, at this time I was also informed that I was going to be the strike team leader.

Whilst we were returning to the station my pager activated and the message was for the strike team to assemble at the Corio Fire Station. We immediately proceeded to the Geelong City Fire Station, Code 1 (under emergency conditions) till we arrived at the fire station and assembled the tanker crew. The crew was made up of myself, Leading Fire Fighter Malcolm Stepnell, volunteer fire fighters Colin Sharrick, David Bendle and Rhett Daly. The five of us set off for Corio Fire Station, Code 1. When we arrived at Corio Fire Station we parked across the road so others could park easily.

*I then went into the fire station with Malcolm Stepnell, (Mal) to obtain more information about the fire and what was required. There was an Operations Officer Geoff Gray from Region 7 Headquarters who was providing the information I was after. Gray told me we had Lara tanker, Corio tanker, Geelong City tanker, Geelong West tanker, Highton tanker and the Corio ute attending the strike team. Gray told me that we were required to report to the Linton Fire Station for further instructions. I conversed with Mal and worked out route to Linton. The information Gray had given us was that the Linton township was threatened and the strike team sheets to be completed prior to leaving, a copy of which was given to him prior to use leaving. I then briefed all the strike team crews as a group next to all the fire trucks across the road from the Corio Fire Station. Part of the briefing of the crews was about protective equipment, pre hydration and the radio channel to be used whilst en route to Linton Fire Station. I informed them that whilst en route to Linton we were to use Channel Region 7C. I also informed them to turn off mobile phones and not to be used for the duration of the operation. We were also required to go to the Fyansford Hotel to collect five extra volunteer personnel from Geelong West Fire Brigade to complement the numbers on the other fire appliances."*³³²

14.3.40 In his later statement Mr Scharf amplified a little on the briefing he gave the crew leaders by adding:

*"I briefed the crew leaders at Corio. I advised them that we had been directed to form a strike team and we were to travel to the township of Linton. I told them that we had been advised that Linton itself was threatened by a wildfire. I said that I would attempt to obtain further information on our way to Linton."*³³³

14.3.41 In cross-examination Mr Gray said:

"Mr Gray, just going back to the time at which the strike teams were originally pulled out, you have given evidence based on the log that you had two telephone conversations with Mr Brown. What was your understanding at that time about what, if anything, had been done in relation to identifying appropriate strike teams?—I took the phone call from - there was two phone calls from Mr Brown, but my understanding was that the strike teams had already been activated or had been picked, I suppose you would say, by the duty officer of the day, which I wasn't.

Who was the duty officer of the day?—Acting Operations Officer Mick McGuiness.

You had no part in selecting which strike teams would be allocated to this request?—That's correct....

In relation to the call outs that come in, perhaps from another region, what strike teams are normally allocated for that sort of work to go into another region, is there any practice in relation to that?—Predominantly the Geelong depending on where it is, Geelong and Bellarine are probably the most two used strike teams in Region 7.

Just focusing on the Geelong Strike Team, why is that?—Because of their availability and the quickness that they assemble.

Are you aware as to whether or not a part of the practice of allocating strike teams – I understand you didn't have any part in the allocation of these particular strike teams - whether it would be normal practice to take into account any information in relation to what the strike team might be tasked to do?—No really, unless we have a specific request for a two-wheel drive or a four-wheel drive, or if we had a request for a certain type of strike team.

...

If a particular task was identified for the strike teams that were being requested, as I understand what you are saying, it is that that wouldn't normally form part of the process of determining which strike teams to send?—There would certainly be some conversation with the ops. Manager in regard to that.

Yes, I think you mentioned two-wheel drive, four-wheel drive might be an issue?—That's right.

Beyond the configuration of the vehicles, would there be any consideration given to the task in the allocation process?—I don't think so.

*Sorry?—I don't think so."*³³⁴

14.3.42 Later in his cross-examination Mr Gray, when talking about the process of allocation of people to strike teams, was asked the following questions and gave the following answers:

"Mr Pulling: Just in terms of availability, that is your crews, it is the people who roll up when the call is made who form the crews on the strike team?—Normally on a strike team, a strike team is put together during your fire danger period and they are pre-planned.

On this particular occasion it was first in best dressed, in effect?—I am led to believe it was outside the fire danger period so there would have been no pre-planned strike teams.

So you made no assessment of any of your personnel, I gather it wasn't your role, as to whether they should be going on the strike team?—That's correct, and I wouldn't have any access to their competencies or things like that.

Whose role was that, to determine their competency to go on a strike team?—That would be a brigade and group responsibility.

Who is at that group level?—That would have been the Geelong Group at that time and the brigade, the Geelong West Brigade and Corio Brigade, and whatever ...

I think on three occasions now you have said the purpose of the briefing was to get them from point A to point B, in other words, get the crew, the strike team, away and get them up to Linton?—That's correct.

You said at p.2, in the last couple of lines, "The purpose of this briefing was basically to get the strike team to Linton where they would be advised of this information". You talked about, I think, their job and the weather etc. and you had earlier discussed another feature which was to identify the personnel that went into the strike team, that was your role?—To identify the personnel?

...

Were you responsible for collecting up these details of the strike team leader's vehicle and who was on it ...?—Yes, sorry, to pick up those sheets from the strike teams, yes.

...

The only other matters that you discussed were - it was a bit of a pep talk and "good luck fellas, off you go" and there were reminders you gave them about "make sure you rehydrate and" ...?—That's correct.

It is sort of "good luck, see you when you get back" ...?—Yes, and the Geelong Group, sorry, would be basically the only group because it is fairly close to the ..." ³³⁵

14.3.43 Other people at the briefing by Mr Gray and Scharf do not add anything of significance to what was said. Handley suggested a wind change was spoken of but he was alone in that. ³³⁶

14.3.44 Finally, when Mr Scharf was asked why he was chosen as strike team leader the following exchange occurred:

"The Coroner: Why were you selected as strike team leader?—Good question, Your Worship. I don't know. I was on duty at the time, I was fire officer, we have two fire officers at Geelong City and somebody else had made that decision.

How did it occur?—Well, we were out in the area in the truck, had been to a call earlier, and the pager went off to say to set up, to respond with a strike team to Corio Fire Station, and I think just prior to that the other firefighter I was with, his mobile telephone rang and I think it was the officer from the station rang to inform I was going to be the strike team leader, so I had to get back into town to meet the crew and then head over to Corio, but as far as who made the decision for me, I couldn't answer that, Your Worship.

So there was no opportunity for you to have a discussion with the person that made the decision?—No.

M'mm. In view of what you have said to me, that wouldn't have changed things, you wouldn't have queried whether you should do it or not do it?—No." ³³⁷

14.3.45 On this state of facts the following conclusions can be reached:

- The request for the Geelong Strike Team was transmitted to the Geelong Headquarters by Mr Brown;
- The only person Mr Brown spoke to about that issue was Mr Gray;
- Mr Gray placed a request to VICFIRE to page CFA members to form a strike team;
- Mr Gray spoke to the Officer in Charge of the Geelong City fire station to appoint a strike team leader;
- The Officer in Charge at Geelong City chose Mr Scharf as the strike team leader. There was no consultation with Scharf about his appointment;
- The information given by Mr Brown to Gray was
 - that there was a bushfire near Linton; and
 - that a strike team was required to travel to the township; and
- This was the only information Mr Gray had to pass on to the Officer in Charge of Geelong City fire station.

14.3.46 It is now necessary to return to the narrative of what occurred at Geelong and the way that the crew members making up the Geelong Strike Team were selected. Mr Scharf said:

"On Wednesday 2nd December 1998 I commenced duty at 0800 hours at the Geelong City Fire Station as my normal roster. I was the Duty Fire Officer for that day, Geelong City has two fire officers rostered every shift and four full time fire fighters. We had a full crew for the shift and we were required to turn out to a job in the early afternoon. There was some tank burning on the side of the highway in Geelong and two appliances were sent to it both from Geelong City. The unit I was in was a pumper and we had two members, myself and another. After attending that job we attended to some routine station messages. At about 1530 the fire fighter I was working with received a call upon his mobile telephone, the exact time I am not sure of but it would be recorded at the station, and it was the Acting Officer in Charge, Fire Officer Ian Beswicke, requesting that we return to the station for the strike team, at this time I was also informed that I was going to be the strike team leader.

Whilst we were returning to the station my pager activated and the message was for the strike team to assemble at the Corio Fire Station. We immediately proceeded to the Geelong City Fire Station, Code 1 (under emergency conditions) till we arrived at the fire station and assembled the tanker crew. The crew was made up of myself, Leading Fire Fighter Malcolm Stepnell, volunteer Fire Fighters, Colin Sharrick, David Bendle and Rhet Daly. The five of us set off for Corio Fire Station, Code 1. When we arrived at Corio Fire Station we parked across the road so others could park easily.

*I then went into the fire station with Malcolm Stepnell, (Mal) to obtain more information about the fire and what was required. There was an Operations Officer Geoff Gray from Region 7 Headquarters who was providing the information I was after. Gray told me we had Lara tanker, Corio tanker, Geelong City tanker, Geelong West tanker, Highton tanker and the Corio ute attending the strike team. Gray told me that we were required to report to the Linton Fire Station for further instructions. I conversed with Mal and worked out route to Linton."*³³⁸

14.3.47 In his additional statement Mr Scharf added:

"I had no forewarning that I may have been called in to be a part of a strike team on 2 December. During the fire danger period, later in the season, and on code orange or code red days, we operate with pre-planned strike team rosters. None of this had been prepared immediately prior to the 2 December 1998 fire. I had never been a strike team leader before. I believe that I received the call from Beswick.

*After we received the callout, Malcolm Stepnell and I went to the Corio station in the Geelong City tanker."*³³⁹

14.3.48 Finally, in relation to Mr Scharf it has already been noted that he was not consulted at all about the decision to make him strike team leader.³⁴⁰

14.3.49 Mr Stepnell's account of being allocated to the strike team is:

"On Wednesday 2nd December 1998 I was on duty at Geelong City Fire Station. Around 1520 hours a call came through via a pager telling us that our trailer (sic) was required to form a strike team with 5 other trucks and to report to the Corio Station for further directions.

*I was driving the truck which is a 3.2 tanker which is a 3000 litre 2 wheel drive. We went directly to Corio where we waited for the rest of the strike team. The truck was full of water at this stage."*³⁴¹

14.3.50 Mr Jeffrey Lowe gave the following account:

"On Wednesday 2nd December 1998 at about 3.20pm I was paged on the brigade pager. I read the pager which requested a strike force to assemble at the Corio Fire Station. As I was at work I couldn't respond straight away. I later called the Geelong Fire Station at about 25 to 4. I was told that they already had five for the truck which was a standard crew number and that they didn't require me at that stage. I went about doing other things for a while and the pager went off again at about 4 o'clock. The pager read that I was to contact Lt Stuart Davidson on his mobile phone re further members for the strike force. I rang Stuart from the Geelong West Fire Station and he asked me if I could respond to a fire, which I agreed to and he told me to assemble at the Fryansford Hotel. I knew other members of the Geelong West brigade would

be there. I arrived at the hotel at about 10 past 4 and met with five other members at the hotel. I understood that a strike team would pick us up at this location on the way to the fire. I was picked up at about 20 past 4. The strike team consisted of the Corio 4 wheel drive which had Simon Scharf, Bev Lancaster and Steve McPhail. Simon was the strike force team leader. This was followed by five tankers, one from Lara, Highton, Geelong City, Geelong West and Corio stations. I knew the members on the Geelong West tanker as Lt Stuart Davidson, Volunteer Fire Fighters Garry Verdveldt, Jason Thomas, Matthew Armstrong and Christopher Evans. When the team arrived Simon Scharf approached me and got our names for the "T" cards. I was assigned to the Geelong City tanker. Simon told us that we were going to Linton for the bush fire. I got onto the Geelong City tanker and we all headed off. I can't recall what time we arrived but it is about a 100 kilometre trip."³⁴²

14.3.51 The selection of the crew for the Geelong West tanker was described by Mr Paul Moore, who at the time was the 2nd Lieutenant at Geelong West:

"On the 2nd of December, 1998 I was at home when at about mid afternoon I was paged on the brigade pager. This informed me that a strike team was to be formed at the Corio Fire Station. I then drove down to the Geelong West Station. I arrived there very shortly after. I can't remember who was there at the time. I began to prepare the Geelong West tanker to leave on the strike team. The tanker already filled with water and I placed drinking water and food ration packs and other items on the truck. I then attended in the meeting room of the station and I saw Matthew Armstrong and Chris Evans arrive at the station. Matthew was also quick to the station as he arrived on his pushbike. I was also preparing myself to leave which Matthew and Chris were also doing. I noticed that Garry Vrendeveldt had also arrived. At that stage I informed Garry that he was to be the driver. Chris and Matthew automatically got onto the back of the tanker. As this was happening Stuart Davidson arrived. Stuart was 3rd Lieutenant at the station. When I saw Stuart he told me that Jason Thomas was going to meet us at Corio. I asked Stuart what was his commitments for the next day and he told me that could take tomorrow off. I told Stuart I would go on this one and if we need a relief crew for later then he could go one that.

While I was speaking to Stuart, Bernard Robinson had arrived at the station but I didn't realise this at the time. Stuart and I then went into the Watch room and wrote the crew details on the white board. Stuart was telling me that the fire was at Winton. I said to Stuart that Winton was near Wangaratta and the fire is in Region 15. I could hear a bit of chatter over the radio about the fire being in Region 7. I decided that the fire was to be Garry, Matthew, Chris and myself. Stuart must have mentioned to me that Bernard was at the station and I included him on the list. My intention was to leave Jason off the truck so that there was a balanced crew as far as experience goes. Stuart left the watch room and the phone rang. I stopped to answer the phone. While I was on the phone I saw the truck leave the station. I asked him where the truck was going and he said to Corio. I walked out onto the running track next to the station. And Jason pulled up in his car. I said to him that I thought that he was going to Corio. He said that he had to get his gear. I said to him to get his gear and go as the truck had already gone. At that stage I was annoyed with the fact that Stuart had left with the truck. I wasn't to sure if he had misunderstood what I had told him about the crews.

I closed the station up and started to travel home. About twenty minutes after that the pager went off again. There was a request for further manpower and to ring Stuart. I then returned to the station. When I got there I rang Stuart on the phone and asked him what was going on. Stuart said that he was at the Corio Station and he had informed them there at Corio that Geelong West could supply more manpower. He told me that they required a further five men. I cannot recall exactly what I did or whom I contacted, but I recall arriving at the Fyansford Hotel on the Hamilton Highway with Geoff Lowe. When I arrived at the hotel other people were also arriving as well. I can recall Greg Robinson, Adeyne Ritchie and Brian Robertson arriving. They were also from the Geelong West Station.

We waited for about five minutes before the Strike Team arrived. I recall the Geelong City, Geelong West, Corio, Lara, Highton and the Corio Strike Team Ute arriving. The Strike Team Leader was Simon Scharf who I knew. He got out of his vehicle and briefed

*the personnel there at the time. He informed us that we were required at a bush fire at Linton and that we were required to protect the town. Simon placed Adeyne, Greg and myself on the back of the Lara tanker, Geoff onto the Geelong City tanker and Brian onto the Highton tanker. Mal Stepnell, Rhett Daly, David Bendle, Geoff Lowe and Colin Sharrock were on the Geelong City tanker. I then saw that the Geelong West crew comprised of Stuart, Chris, Jason, Garry and Matthew Armstrong. I saw Simon update the "T" cards and we headed off to Linton. I had no idea where Linton was. I have no idea what time of day this was, but I'm sure it was late in the afternoon."*³⁴³

14.3.52 The choice of the crew for the Corio tanker was described by Mr William Robertson, who was a leading firefighter based at Corio:

"On Wednesday 2nd December 1998 I commenced duty at the Corio Fire Station at 8.00 o'clock in the morning. The day was a fairly routine day conducting training and cleaning round the station. I don't recall going out to any calls on that day until we were paged at 1518. The page notified us that we were to be part of Region 7 strike team to travel to Region 16, the fires in the Linton area. I think it was Region 16 but it may be 15. The strike team initially assembled at the Corio Fire Station. The strike team was made up of Corio car, a 4 wheel drive vehicle, Corio tanker, Lara tanker, Geelong West tanker, Geelong City tanker and Highton tanker. Five units are used in line with the ICS training allowing for management of the units and members.

The duty officer of the day was Fire Officer French and he informed David Abbey and myself that we would be taking the Corio tanker. Volunteers attended at the Corio Fire Station and members were selected to go. Members are selected according to their experience, training and courses they have undertaken. One of the policies at Corio is that if a member hasn't undertaken Driver/Operator course, Pump Operator, Crew Leader Course or the Safety and Survival Course with "C" shift have been running over the past three years. We would do our best to make sure that they had undertaken the courses involving the tanker before they would be selected. I don't know what would happen if they hadn't and we needed the manpower. In line with this practice the Region does have a policy of cross crewing where a member from another brigade can be picked up and join your appliance.

Whilst waiting for the other appliances to attend the crew was selected. Checks were done to make sure they all had the necessary protective clothing. Protective clothing consists of overalls, gloves, leather boots, helmet and goggles. If a member didn't have the relevant piece of equipment we have spares at the station which we can top them up with. I then made sure we had adequate drinking water. As part of my duty as crew leader I took all the names of the crew and filled out a "T" card which also contains a description of the vehicle and this was passed onto the strike team leader. The strike team leader on this day was Simon Scharf from Geelong City Fire Station. Also as part of the routine vehicle check which is carried out on a daily basis all aspects of the vehicle are checked. The fuel, oil, water, portable radio batteries, all lockers are opened for a visual check to make sure no equipment is missing.

*When the other appliances of the strike team arrived we all gathered out the front of the fire station. All the paperwork was gathered and handed to Simon Scharf. We all then congregated in a group and Simon and Operations Officer Geoffrey Gray gave a briefing on what we were going to do. In that briefing we were told that there was a fire that had started earlier in the day and was threatening the city of Linton and we would be proceeding up there where we would receive further instructions upon arrival. Other issues which were raised were the normal briefing instructions about mobile phones, being seat belted in the back of the truck. We left Corio and made our way down to Fyansford Hotel where more members were collected ..."*³⁴⁴

14.3.53 While the Lara tanker was not involved in the incident leading to the deaths of Geelong West crew members, it is interesting to examine how its crew was chosen. This helps to give an indication of the general system in operation in the Geelong Region at the time. The description of the process involving Lara is to be found in Mr Edward Handley's statement. Handley at the time was the First Lieutenant at Lara and he said:

"On Wednesday 2nd December 1998 I was at home in Lara when I received a page at about 3.10pm stating that a strike team was required for Region 16 and that we

were to assemble at the Corio Fire Station. I was due to start night shift that evening and I said to my partner that I was going down to the Lara fire station to find out the availability of personnel to form the strike team because at that stage if there were enough members turning out I was going to stay and attend work.

I arrived at the Lara fire station a short time later. I then found out who was available. There was only myself and two others, Firefighter Roger Buckle and Firefighter Robert Brandwood. The three of us turned out in Lara Tanker 1 and went to the Corio Fire Station, arriving there at about 3.30pm. We assembled there waiting for further crew members and assembled 5 trucks and the strike team leader's vehicle. The Brigades that formed the strike team were Corio tanker, Geelong City tanker, Geelong West tanker, Highton tanker and our tanker, Lara tanker 1 and the strike team leader's vehicle was the Corio ute. Operations Officer Geoff Gray then briefed all the members as to our role and where we were going. Operations Officer Gray also mentioned that they were expecting a fairly strong wind change, there was no time frame mentioned only that the wind change would be significant.”³⁴⁵

- 14.3.54** The final tanker in the strike team which like the Lara tanker was not involved in the incident leading to the deaths was the Highton tanker. The crew leader on that tanker was Captain Robert Thompson who gave the following description of how the crew was made up:

“On Wednesday 2nd December 1998 I was at my home address. My pager activated at 1519 hours, the page told me that a strike team was being formed and that we were to meet at the Corio Fire Station ready for region 16. I then went to Highton fire station where I took 2 phone calls, one from Darren Carle (Lieutenant) and the other from Chris Davies. I arranged to meet both of these people at Corio. Brian Hill (Lieutenant) arrived while I was doing this. Brian was the driver of the Highton truck. The truck is a 2 wheel drive Hino which carries 2,500 litres of water and is equipped with “A” class foam. After we were prepared we left the station and headed to Corio, we were on the road at 1531 hours.

At 1542 we arrived at the Corio Fire Station where we collected Darren and Chris. We waited for the other trucks to arrive then Simon Scharf (Strike Leader) and Geoff Gray (Operation Officer) conducted a briefing. We were instructed to go to region 16 Linton and to turn off all pagers and mobile phones. We were told when we got to Linton we would be deployed into a specific area. We then left Corio and headed towards Linton, on the way there we stopped at the Fyansford Hotel where we collected Brian Robertson who is stationed at Geelong West. Brian was chosen by us because he is “A” class foam accredited. Simon had instructed us to use region (R.G) 7C on our radios and conducted a radio test on the way to Linton.”³⁴⁶

- 14.3.55** It can be seen from these accounts that with the exception of the Corio crew, the crew members in the strike team were chosen on the basis of first to respond to the pagers or calls made. In these crews (with the exception of Corio) there is no evidence of any consideration being given to the competency of those turning up to be part of a strike team to fight a forest fire. In this respect the evidence of Mr Gray set out above³⁴⁷ is particularly disturbing in that he failed to recognise that competency was a consideration.

- 14.3.56** Given the conclusion reached in Section 14.2 of this report, the failure to assess the competency of the crews did not contribute to the deaths of Geelong West crew. It must be noted, however, that the need for competency is seen as essential to ensure safety on the fire line. This is implicit in all initiatives taken by the CFA and DNRE since the Linton fire. It is therefore necessary for the agencies to ensure that appropriate systems are in place to ensure that:

- Sufficient information is sent from the IMT to those dispatching crews to understand
 - the type of fire
 - the location of the fire
 - the weather
 - other SMEACCS considerations; and
- The new initiatives contained in the Safe Forest Firefighting agreement be fully implemented.³⁴⁸

Deployment of Mr Rowan

14.3.57 Mr Rowan gave this account of his deployment at the fire:

"Two other drivers had already gone to other jobs but our third driver was injured and not at work. My boss asked if I would attend to the request to go to Linton and I agreed. Robert Lakey drove the low loader with the D155 bulldozer on board to Linton, while I drove the escort vehicle.

Approximately 5.00pm I arrived at the Linton football ground. After some 15 minutes we were eventually deployed to the back of the fire by a person involved with the Linton CFA whose name I think is Des Phelan. I was told to take the bulldozer to the north-eastern edge of the fire on Pittong Road.

*We drove the bulldozer along Linton-Snake Valley Road, because it is the only way the truck would fit. When we arrived at the corner of Pittong Road, Robert drove all the way along until the first fork of Madden Flat Road. It was at this point that we were directed to unload the bulldozer and then given further instructions as to what had to be done. Robert drove the low loader away at this time, some time before 6.00pm. I then spoke with a CFA member by the name of Peter. I think he was from Linton CFA. Peter then instructed me to clear a break or a track along the eastern edge of the fire staying about five to ten metres from the fire's edge. I inferred he wanted a track running parallel to the fire's edge to be made to allow fire trucks access to blacken out the fire."*³⁴⁹

14.3.58 At no stage was any consideration given to the competency of Mr Rowan to perform the job of constructing a firebreak on the east flank of a fire with a south-west wind change expected. As Rowan was a person outside either agency this is of great concern. The agencies must put a system in place that ensures that plant operators that are used on fire grounds are properly trained and sufficiently experienced to perform their tasks.

14.4 Deployment at Fire Ground

14.4.1 After the composition of the strike team and the allocation of individuals manning each truck was completed outside the Fyansford Hotel the Geelong Strike Team started its journey to Linton. At that time Mr Scharf contacted Mr Gray at Region 7 Headquarters to tell him about the changes to the Strike Team Crew sheets.³⁵⁰

14.4.2 As the Geelong Strike Team travelled towards Linton it attempted to make contact with the Fire Commander to be told where to report to. Mr Scharf's account of this is:

*"... We departed west along the Hamilton Highway and during this time I contacted Region 7 Headquarters on the trunk radio advising them of the amendments to the Strike Team Crew sheets. We travelled to Wingeel and then proceeded north to Warrambine, from Warrambine we travelled to Mannibadar and then proceeded north to Linton. During the travel time after passing Rokewood I contacted Region Headquarters on the trunk radio again requesting telephone numbers for Region 15 and 16 Headquarters. When I received the numbers I contacted Region 16 Headquarters asking for the name of the Fire Commander and which channel they were working on. Information was provided by Region 16 to contact Group Officer Bill Miller on Channel 15B. I then changed over to Channel 15B and numerous times unsuccessfully tried to contact Miller and it wasn't until we were about 3 kilometres from Linton that Linton Control called us and requested us to assemble at the Linton Football Ground, staging area for the operation. I communicated with all the units and had acknowledgement from all the units of the communications I was having with Headquarters and also directions I was taking. We arrived at the staging area at about 1745 hours. We drove out onto the football ground and formed up in a line. I then collected all the Tee cards, making sure they were all completed as per the Strike Team Crew sheets. I then passed them onto Senior Fire Fighter Ian Westwood from Ballarat Fire station. Tee cards are identifying cards used by the staging area manager to keep track of all the crews."*³⁵¹

- 14.4.3** In his subsequent statement Mr Scharf corrected this account by indicating that his initial attempts to contact Millar were on Channel 16A.³⁵² He also indicated it was Browning and not Westwood who initially spoke to him about the weather.³⁵³
- 14.4.4** The evidence of the deployment of the Geelong Strike Team from the staging area to the fire ground, and the instructions they were given and by whom is totally confused.
- 14.4.5** What is clear is that after arriving at the staging area the Geelong Strike Team were fed. The crews re-hydrated themselves and rested.³⁵⁴ There were also a number of “informal” conversations concerning such matters as weather forecasts.³⁵⁵
- 14.4.6** In his first statement made to police shortly after the fire Mr Scharf gave this account of leaving the staging area:
- “At about 1900 to 1910 one of the staging area managers, I’m not sure if it was Ian Westwood or another manager, came over and handed me a photocopy of a map of the Linton area and dispatched us to Snake Valley Road and Cemetery Road to meet a Deputy Group Officer, 9D.G.O.O that was located there. I don’t recall if they spoke about radio channels for the operation and I’m not sure if Mal Stepnell or any of the other crew leaders or members heard the conversation.”³⁵⁶*
- 14.4.7** In his later statement Mr Scharf amplified this account to the following:
- “At approximately 1840, Ian Westwood approached me, with a photocopied map, and said that my strike team was about to be deployed. He showed me the map, and pointed to a position where, he said, Deputy Group Officer Kavanagh was located; we were to drive up to meet Kavanagh, and Kavanagh would give us instructions. Westwood didn’t say anything further about the task we were given. He did not give me any document other than the map. He did not mention anything, or provide me with any documents, concerning any communications plan or incident action plan. He did not discuss the weather conditions or a wind change with me ...*
- The Ballarat team left with us.*
- It is possible that our strike team’s departure from the staging area is logged at a time earlier than the time at which we actually left. There was some delay in our departure, as our crews were still eating their dinner after Westwood directed us to report to Kavanagh.”³⁵⁷*
- 14.4.8** Mr Rigg who was the Ballarat Strike Team Leader said:
- “I was given a map by Senior Fire Fighter Browning and instructions from Leading Fire Fighter Westwood that the Region 7 strike Team and my strike team, now known as the Ballarat Strike Team, were to be deployed up Snake Valley Road and meet a DGO at the Cemetery turn off – I think No. 38 on the map.*
- LFF Westwood informed me that we were to undertake back burning operations as a wind change was forecast. We were not informed at what time the wind change would come through. I think it was mentioned that it would come from the south-west. The wind had previously been coming from the north.*
- As I had never met Fire Officer Scharf who led the Region 7 Strike Team, I made myself known to him and we had a discussion regarding our tasks.*
- We left the staging area at about 7.10–15pm ...”³⁵⁸*
- 14.4.9** Mr Browning, who was working in the staging area, had no specific recollection of deploying the Geelong or Ballarat Strike Teams. The best he could do was to give the following general account:
- “... Because we had no radio communication and no fax Ian and myself went back to the mobile command outside the Linton Shire Offices and organised a radio station for us to have mutual contact on. The idea was that when they received information from within the office they’d radio us and tell us which strike teams to send out and where to send them. We’d do this and then radio back what vehicles we had sent to various locations. Ian and myself only had basic maps. We gave these maps together with other basic information to the strike teams – it was basically where they were to go, who they were to see and what they were to do.*

I cannot recall whether we were given any information and whether we passed on any information as to the radio channels that the strike teams were to operate on.

At some stage I remember hearing something about a wind change but I do not remember where I heard this. I don't believe I gave this information to the strike teams because it was not my impression that the information was official.

I knew Simon Scharf and Mal Stepnell from before the Linton fires. I recall speaking to them on the day but I'm not sure whether I sent them out with their instructions, or Ian Westwood did or we both did. I think I gave them some instructions but I cannot be sure.”³⁵⁹

- 14.4.10** Mr Jenkins was also working in the staging area at the Linton football ground. He did not actually deploy the Geelong strike Team but he did play a link role in that team being dispatched to the fire ground. He described his role in these words:

“Late in the afternoon I received a radio message from training Manager John Anderson at Linton Control requesting advice of how many strike teams, vehicles and men were situated at the staging area at this time. I replied with (5) strike teams, 21 tankers and approximately 70 firefighters were available. I then received a further radio message directing that three strike teams be deployed to the Cemetery gates and to report to D.G.O. Kavanagh as a westerly wind change was expected with winds of approximately 60kph. I passed this message on to either Ian Westwood or Barry Browning to relay to the strike team leaders as to the reason for their deployment due to the expected wind change. Three strike teams being Maryborough, Ballarat and Geelong were deployed at 1835 hours ...”³⁶⁰

- 14.4.11** Mr Westwood picks up the narrative from there:

“Jenkins recorded a message from the MCV requesting that 2 strike teams were required to go to the Cemetery regarding a possible breakaway fire and to assist with back burning procedures. Jenkins also told me about an expected south-west wind change of about 40 to 50 knots which at the time he told me was currently in the Hamilton area. I can't remember if a time was mentioned for arrival at Linton. The wind at this point was minimal and I think it may have been coming from a northerly direction. We had obtained a map of the area from the Region 15 Map Book and made several copies of this map prior to leaving Ballarat. Browning and I gave each of the strike team leaders, Qualified Firefighter Wayne Rigg and Fire Officer Simon Scharf a copy of the map and gave them instructions on how to reach the Cemetery which was location 38 on the map that we gave them.

I think at about 1900 hours or thereabouts, the correct time would be logged in the Log Book in the P.E. Van, both Browning and I spoke to Rigg and issued him with the instructions about the area he was required to assemble and I told him he was to be involved in back burning operations due to the wind change. I then walked over and spoke to Scharf in front of his strike team. I gave him the map and issued the same instructions. I then told him he was going to assist in back burning operations due to a possible wind change to the south-west of about 50 to 60kph and that the wind change was currently in the Hamilton area. I can't remember if a time was mentioned or given to me as to the time the wind change was expected to hit the Linton area. I told Scharf to report to D.G.O. Cavanagh [sic] and to meet on the road and to obtain further instructions once he had arrived.”³⁶¹

- 14.4.12** Mr Anderson did not mention making the request to Jenkins for two strike teams in any of his statements or interviews.

- 14.4.13** Mr Phelan, after speaking of starting the two bulldozers along the east flank of the fire, one going south and the other going north from the cemetery, said:

“The strike teams couldn't be employed in the bush at this stage because we had very little line set up were sent around from the southern edge to the western edge of the fire to the north of the township along the track the D4 had dozed earlier. They were told to continue around there and go up the western side of the fire. I can't recall exactly but I believe that about this time there was a radio message that the wind change was to be earlier than expected.”

DGO Kavanagh who was on the Snake Valley Linton Road. I met with him north of the cemetery and I told him to go back to the oval and find out what gear was on the oval and place them up the snake Valley Linton Road to be in place in case the wind change happened so we could protect that pine plantation and state forest to the east of the road. There were a few of us around the cemetery at this time. There was an area to the west side of that road between Snake Valley and Kelly Road that had been subject to a fuel reduction around two years ago. The fuel reduction had been done by the NRE and the area was state forest. The fire had spotted to Linton but the fire front was about half way between Possum Gully Road and the township of Linton and the front would have been about a couple of kilometres wide, it was a pretty slow burning fire.”³⁶²

14.4.14 Mr Kavanagh confirmed that he had been told by Phelan to put strike teams along the Snake Valley-Linton Road to control any spot fires that might occur when the wind change came.³⁶³ At this stage, it is as well to observe that in a number of instances Kavanagh gave accounts of events that were at odds with other witnesses and the objective evidence available from such sources as logs and radio messages. There were two particularly significant areas of conflict between Kavanagh and other witnesses:

- Mr Kavanagh said he told the Geelong Strike Team Leader that he (Kavanagh) could be contacted on Channel 15A. The evidence of Scharf, which was supported by a contemporaneous note made on the map supplied to him at the staging area and by recorded communications between Kavanagh and others, was that Channel 15B was what he was told to contact Kavanagh on.³⁶⁴ On this subject Scharf’s evidence is accepted and Kavanagh’s is rejected; and
- Mr Kavanagh stated that he briefed the Geelong and Ballarat Strike Team Leaders, together with the leader of the Kyneton Strike Team, about their functions at the staging area.³⁶⁵ Scharf and Rigg indicated that Kavanagh was first met at the cemetery.³⁶⁶ Kavanagh’s evidence on this subject is rejected and the account of Scharf is accepted. It should also be noted that the evidence is clear that only the Geelong and Ballarat Strike team met with Kavanagh at the cemetery around 7.00pm. The Kyneton Strike Team had been deployed elsewhere on the fire ground.³⁶⁷ It should be observed at this time that Leigh Buckley, the leader of the Kyneton Strike Team, was both well trained and adequately experienced to have led that strike team in doing the functions which were ultimately allocated to the Geelong Strike Team.³⁶⁸ This was also borne out by his performance at this fire.³⁶⁹ Thus the Kyneton Strike Team was an alternative resource available to Graham, Phelan, Lightfoot and Kavanagh to use on the east flank of the fire to support the bulldozer going south. It might be thought that of the three, they were the most suitable strike team for that purpose.

14.4.15 Mr Kavanagh described the deployment of the strike teams:

“Upon arriving at the staging area I went into the Protective Equipment Van (P.E.) and spoke to the 3 chaps that were inside. I don’t know their names. They told me that they had a job for me to take some tankers to either D.G.O. Lightfoot or G.O. Phelan. I took what they call a Task Force which consists of 15 tankers approximately. They consisted of the Geelong Strike Team lead by Strike team Leader Scharf, Kyneton Group strike team lead by strike team Leader Scharf, Kyneton Group strike team which was lead by Strike Team Leader Lee Buckley and the Ballarat Operations Group strike Team led by strike Team Leader W. Rigg. I briefed the 3 Strike Team Leaders to go to the cemetery and go no further. In the meantime I caught up with G.O. Phelan face to face or via it may have been via the radio 15A and he suggested that because there was a wind change coming to place those tankers equally spaced out on the Linton Snake Valley Road from the cemetery and to put out any spot fires that may occur on the wind change. On arrival at the cemetery I again briefed the 3 Strike team Leaders that their task at that stage was to stay on the Linton Snake Valley Road and not to go any further than Possum Gully Road which was about 6kms away and equally space themselves out on this road. I also briefed them about the wind change which I was constantly being updated with via the command Channel 15A.

I didn’t give the Strike Team Leaders the time the wind change was expected, I never do because sure as I give them a time the time changes. The fact that I told them that

a change was expected shortly was enough because they were told at this point to remain on the Linton Snake Valley Road. I also instructed the Strike Team Leaders to go to the Fire Command Channel 15A.”³⁷⁰

14.4.16 As was pointed out above, to the extent that this account is contrary to that given by the three Strike Team Leaders it is rejected.

14.4.17 On this state of facts the conclusions to be reached are:

- The Geelong and Ballarat Strike teams were deployed from the staging area to meet Mr Kavanagh at the cemetery;
- At the staging area it was expected that the two strike teams would be positioned along the Linton-Snake Valley Road to put out any spot fires that might occur on arrival of the expected wind change;
- Nobody at the staging area made any assessment of the competence of either of these strike teams to do any task;
- Mr Kavanagh initially deployed the strike teams along the road as expected; and
- Mr Kavanagh told Scharf (who passed it on to Rigg) that they were to contact him on Channel 15B.

14.4.18 After being briefed by Mr Kavanagh the Ballarat and Geelong Strike Teams went looking for the other tankers that should already have been positioned 1 to 1.5kms up the Linton-Snake Valley Road. In Scharf’s words after arriving at the cemetery:

“I introduced myself to the D.G.O. John Kavanagh, who was standing right next to my Corio Ute. I informed John Kavanagh that I was operating on Radio Channel 15B and our appliances were operating on Channel 7C. John Kavanagh wrote my name and the radio channels down on a piece of paper. Volunteer Fire Fighter Bev Lancaster was sitting in the back of the Corio Ute and she wrote down John Kavanagh’s name as he spoke to me. John Kavanagh told me if I need anything to contact him on 15B. John Kavanagh gave us a task to go up Snake Valley Road approximately 1 to 1.5 kilometres north of his position and there should be some more tankers parked up the road and to park behind them. Ballarat Strike Team was behind us consisting of five trucks, their Strike Team Leader was Fire Fighter Wayne Rigg. I had a discussion with Wayne Rigg in the presence of John Kavanagh of our duties and told him that we were on 7C and he told me that he would change all his appliances to 7C as well. No information was given regarding the weather or fire conditions at that time and I did not make any enquiries re same.

Wayne Rigg went back to his truck and I got into the Corio Ute and proceeded north along Snake Valley Road. The Strike Team followed me and as I travelled to meet the other appliances I briefed the other crews over the radio. I had no need for any acknowledgement of what I said over the radio as they were all following me.

We proceeded up the road about two, two and a half kilometres and still had no contact with the other units. We then stopped on the side of the road, this was near the junction of Possum Gully Road and Snake Valley Road. I contacted D.G.O. John Kavanagh on 15B and advised him we were unable to find these other tankers. He requested we wait where we were and that he would come up and meet us. A short time later he arrived. Kavanagh then directed us to proceed west along Possum Gully Road and find the bulldozer putting in a trail. We turned some of the appliances around so as they could go along Possum Gully Road. We then all travelled along Possum Gully Road, I was leading at this stage, and proceeded for about a kilometre, kilometre and a half and found the bulldozer.”³⁷¹

4.4.19 At 7.05pm Mr Kavanagh received a radio call from Scharf to say they had reached Possum Gully Road and had not found the other trucks.³⁷² The reason why the trucks were not there is probably answered by Alwyn Parker:

“At approximately 6.00pm I took charge of the Leigh Group strike team with Brian Parker as the strike team leader and back burnt an area on the west side of the Linton Cemetery with the assistance of NRE and a private dozer. At the same time a strike

team from Region 16 under the leadership of DGO Welsh approached in an unorderly manner. They were not required at this location and to my knowledge were not supposed to be in this area. The area that I felt they should be looking after is in their own brigade or region area (region 16). I asked them to go back and look after their own area as it was obvious that things were under control in my area.

After that task was completed I was asked to take charge of two strike teams on the Linton-Snake Valley road. When I got there I saw the fire hadn't come out to the Linton-Snake Valley road and so there was really nothing to do there. The strike teams then returned to the Linton Recreational reserve to be deployed to a different area. I returned to the Linton Cemetery area and I set up a control point before the wind change took place. ..."³⁷³

14.4.20 It would appear that Mr Parker had sent those strike teams back to the staging area because he did not consider them to be necessary along the Snake Valley-Linton Road. It would also appear he did not inform Kavanagh that he had done so.

14.4.21 In fact there seemed to be an expectation in Messrs Phelan and Lightfoot that those two strike teams under Alwyn Parker's control would be used to relieve the Buninyong Strike Team which was supporting the bulldozer building the control line on the east flank of the fire. This conclusion arises from a radio communication occurring on Channel 15A at 6.58pm:

"V3: Grenville Group Officer Buninyong Group Officer.

V2: Go ahead Lightie

V3: Roger Des the dozer's just about at Possum Gully road now that's where we are over

V2: We've got a big one starting at Linton and working up

V3: Yeah roger Tell ya what you haven't got any food or drinks for the blokes are out here with the dozers have you

V2: Snowy Parker is about to arrive in there with the umm new strike teams and your blokes are coming out to be fed and dranked

V3: Yeah roger well if they come up Possum Gully road they'll meet the dozer if he's here, I don't know where our trucks will get behind it I'll have a talk to John

V2: Roger out to you DGO Parker Take those strike teams in there and do the swap over there

V3: (...?) a big peril in there

V4 Buninyong Group Officer DGO Taylor

V3: Go ahead John

V4: Yeah we're going to burn this aah thing Right out to the dozer track all the way through the umm dozer is well away from the fire edge in some cases so aah we'll be using (...?) to do that

V3: Yeah roger now we're at Possum Gully road now he's just about to us so how far behind the dozer are you

V4: Aah we're only about a hundred hundred and fifty metres behind behind most of them have gone out getting water so I'm going to start a couple where we came in off the road and start burning this right out

V3: Yeah roger good idea another strike team is coming in to relieve you so you can go and get something to eat and drink

V4: Roger where are they coming from do you know

V3: They're coming from Linton they're coming in from Possum Gully road so you can do your change over there when the dozer gets there

V4: Can you start them burning in from the road end there from the (...?) end

V3: Yeah when he gets there

V4: Roger"³⁷⁴

- 14.4.22** At 7.14pm Mr Lightfoot radioed Parker to find out where the replacement strike teams were:
- “DGO Parker Buninyong group officer*
Yeah it's Lightie snowy
*How far is that strike team”*³⁷⁵
- 14.4.23** There is no evidence of an answer to this enquiry, however, Mr Kavanagh talking about the Ballarat and Geelong Strike teams said:
- “The leading trucks went up to the Church of England Boys Society (C.E.B.S.) which was near Lawrence Drive which is about 2kms past the Possum Gully Road which I told them was the stop point. When those trucks got to that point one of the Strike Team leaders contacted me and informed me that they were at Lawrence Drive almost at Snake Valley. I told them they had gone too far and I instructed them to return to Possum Gully Road. I then received a call via the radio by G.O. Lightfoot as to whether these tankers that were returning to Possum Gully Road were his Strike Teams. I said initially no and that I had placed these tankers along the road as instructed. He requested if he could have them because he considered it better to go down Possum Gully Road. I instructed the tankers to follow me up Possum Gully Road. About half way along Possum Gully Road G.O. Lightfoot asked me via the radio where were the Strike Teams. Before I could answer him he told me that he could see my flashing light and that he would meet me at the Possum Gully Homestead Road corner for a briefing.”*³⁷⁶
- 14.4.24** For the sake of completeness Mr Alwyn Parker's cross-examination on the radio messages involving him should be set out:
- “Mr Gyorffy: Yes, Your Worship, I omitted to play a radio message to Mr Parker, if I might be permitted to do that now?*
- The Coroner: Yes.*
- Mr Gyorffy: It is 33607.*
- (To witness): Mr Parker, this came across on channel 15A at around about 1857. Before I play it to you can I ask you this: are you sometimes called Snowy Parker? —*
—Correct.
- I would ask you to listen to this piece of recorded radio message, there's a bit of an introduction and Mr Phelan talking. I will ask you whether you received this particular instruction from him or not, okay?—Yes.*
- Play the message, please.*
- (Radio message played to court.)*
- Stop it there. Did you hear that last part where Mr Lightfoot was asking for food and drink and Mr Phelan responded that you were bringing in new strike teams and, ‘your blokes are coming out to be fed and drunk’, it says, but that's – sorry, drink – optimistic thoughts. Then it was said, ‘Over to you ... (reads) ... the swap over there’. Now, did you receive that message?—I can't recall receiving it.*
- Do you know what's being spoken about there?—I can vaguely remember requests for drinks and some eats.*
- Well, the request there is that you take some strike teams in to the place where the bulldozer coming from the north is about to reach Possum Gully Road?—I was not aware of that area.*
- Certainly you didn't take any strike team in?—No.*
- Might you have been taking that strike team up the road that you mentioned before, one of those strike teams you mentioned before, in response to that order, or request I should say?—From what you are referring to as far as the conversation is concerned, that area that you are talking about is further north than what I progressed with the strike teams that I had.*
- Did you get any further instructions not to proceed?—Not that I can recall, no.*

But certainly you didn't take the strike teams that were with you into Possum Gully Road?—No.

I don't know if anything arises out of that for anybody else, Your Worship.

(No response)

The Coroner: It seems, Mr Parker, no one wants to ask you any questions about that, so you are free to go. Thank you very much?—Thank you, Your Worship.”³⁷⁷

14.4.25 At 7.16pm there is a record of Mr Lightfoot contacting Kavanagh by radio.³⁷⁸ Unfortunately, due to static the conversation is not recorded, but this is confirmation of Kavanagh's statement of being contacted by Lightfoot. It is to be noted that at the same time there is a recording of a message that the wind change was at Dunkeld at 7.10pm.

14.4.26 Shortly after this the Geelong and Ballarat Strike Teams were briefed by Mr Lightfoot. Lightfoot directed the Ballarat Strike Team to go south.³⁷⁹

14.4.27 At this time Messrs Scharf and Rigg reversed the roles to be performed by their respective strike teams. Scharf described those events in the following words:

“Discussion with Wayne Rigg and myself decided that the Geelong Strike Team would follow the dozer trail to the south and the Ballarat Strike Team would follow the dozer trail to the north. The group Officer was present while we were making this decision. No information was given regarding the weather or fire conditions at that time and I did not make any enquiries re same.”³⁸⁰

14.4.28 And so it was, that without any consideration having been given to the training or experience of Mr Scharf and the members of the Geelong Strike Team, and their ability or otherwise to support a bulldozer in the construction of a control line on the east flank of the fire, they headed south after the bulldozer. They had ended up by chance with the most dangerous task on the fire ground when a significant south-west wind change was known to be about 1 hour away.

14.4.29 Mr Phelan was responsible for deploying the bulldozer travelling south along the east flank. He described the process:

“I went from Linton Road back to Linton to try and find out what time the other bulldozers would arrive. When I arrived in the town the Midwest ~~float~~ float was pulling up with the D8 on the back. The times I could be an hour out on because I wasn't keeping a log of the times as I am too busy keeping track of the progress of the fire and I report to Group Headquarters.

...

Once we turned the float around with the dozer on the back I went in and spoke with Bob Graham and told him that I was going to take it to Pittong Snake Valley Road and use it to push a line down the east side of the fire starting at Pittong Snake Valley road. I then left with the dozer and went up to that point.

When I arrived at the Rowlers Road, Pittong Road intersection, Millar and Peter Smithers (“Smithers”) the Snake Valley captain and four or five tankers were on that intersection. I asked them to move so I could get the dozer and float through so I could get the dozer unloaded and start the line south.

Around this point of time I heard over the radio that the wind change may be coming earlier than anticipated and that it had reached Hamilton, there was no estimated time for the arrival of the change, Lightfoot was in the ute with me at this time. I thought in my own mind that it would be two to three hours away.

Group Officer Lightfoot's strike team had followed us up with the dozer to work as the first strike team in behind the dozer. They unloaded the dozer and I spoke with the dozer driver and told him to push the line as close to the fire as possible and that there would be no danger as the strike team following would look after him. I mindful of the earlier anticipated wind change. I also told the crews to follow the dozer and to look after the dozer driver because he didn't have a lot of experience. I told them to black out to the dozer line. The dozer then proceeded down Madden Flat Road for

about half a kilometre and then commenced clearing a line along the edge of the fire which had spotted on the eastern side of the road. This area could have been burning up to a kilometre east of Madden Flat Road. They were told that where the dozer missed the fire the strike team were to burn out to the edge of the line so that the edge of the fire was a black line all the way through because this secures the fire and makes it safe for the guys on the fire line as they have a safe area of burnt ground beside them.”³⁸¹

- 14.4.30** Of particular importance is that Mr Phelan was sufficiently concerned about the welfare of the bulldozer driver to ask the supporting strike teams to look after him. He affirmed this in his record of Interview with police where he said:

“... Concerns for the experience of members that were on the – on the fire line. When a strike team’s deployed into a notoriously dangerous area like the eastern flank, do you have any concerns or – would you have taken any procedures to make sure that they were instructed appropriately, what to do if the wind changed. Having knowledge that the wind was going to come a bit later – a bit sooner.—My – my – I wasn’t responsible for – well, I was – I was responsible for the whole thing, I accept that. But I told the guys that went in on the Pittong-Snake Valley Road what to do. Right? I – I – I said, I think John Taylor was there and Lightfoot was there and there was a couple of other people there, when they went in. And I said, ‘You gotta follow the ‘dozer, you gotta look after the ‘dozer ‘cos this guy hadn’t – didn’t have a lot of experience at fighting – at dozing on fire lines. ‘So you gotta look after him and you’ve also gotta make sure you black it all out, or burn-out.’

Yep.—So that you have got a safe working environment, right?

This is at a briefing at Possum Gully Road in the – near the ‘dozer track.—No, this was up at the – this was up on Snake Valley – on the corner of Madden Flat Road and Pittong Road.”³⁸²

- 14.4.31** He also confirmed this in his cross-examination. In that cross-examination he gave what was an explanation for why he thought that his instruction to the strike teams was sufficient to ensure the safety of the bulldozer driver:

“The Coroner: I don’t know whether somebody has asked you this, I know Mr Lightfoot was asked this question: had you known that the bulldozer operator had not worked on a fire line before, and the Geelong Strike Team had not worked with a bulldozer operator before, what would you have done?—The bulldozer operator not working on a fire line, providing he knows how to drive the dozer I believe that he will be okay. The fact that if the strike team was inexperienced, that that’s a decision that we would have either had to put someone with them or not deploy them there.

Mr Redlich: At least you will be pleased to hear, no doubt you have realised, Mr Phelan, that your intuition proved correct on that day, that the dozer driver coming south from Pittong Snake Valley Road, although he had never worked in a forest fire before, he was okay, wasn’t he?—Yeah.

Despite being put in a fairly difficult position immediately before the entrapment ...

The Coroner: I think that is a bit problematic, Mr Redlich.

Mr Redlich: Sorry, what part of that, Your Worship?

The Coroner: Well, it’s a question of the building of turnaround points.

Mr Redlich: I think Mr Phelan is talking about his safety. You were addressing the issue of whether or not—

The Coroner: As I say, I think that is a little bit problematic but we can move on.

Mr Redlich: Okay, Your Worship. But you gave both the dozer driver and the strike teams that you briefed at Pittong Snake Valley Road before they drove down Madden Flat Road and commenced to follow the fire line where it left Madden Flat Road, you gave them and the dozer driver a briefing, didn’t you?—I did.

And you specifically directed the strike teams, the strike team following the dozer to take particular care to look after the dozer, didn’t you?—Yes.

And that's set out in your police Record of Interview, is that correct?—That's correct.”³⁸³

- 14.4.32** The difficulty, however, was that at the briefing by Mr Lightfoot of the Ballarat and Geelong Strike teams no mention was made of the inexperience of the bulldozer driver and the need to look after him. Neither was it considered prudent by Lightfoot or Phelan to ensure that the strike team that continued to support the bulldozer south of Possum Gully Road was sufficiently experienced to “*look after him.*”
- 14.4.33** The issue of the safety of the bulldozer driver was in Mr Phelan’s mind at the time of deployment. At the Lightfoot briefing, had an enquiry been made of the two strike team leaders to determine their experience and ability to ensure the safety of that inexperienced bulldozer driver, such enquiry would have revealed the lack of training and experience of Scharf to support the bulldozer.
- 14.4.34** Had that inexperience been ascertained then the Geelong Strike team would not have been allowed to support the bulldozer.³⁸⁴
- 14.4.35** A consideration of these facts leads to the inescapable conclusion that allocation of resources occurs by chance and without consideration of the competence of the person or unit to perform the intended task. A moment’s reflection shows this to be inevitable in a system where:
- There is no standardized training;
 - There are no proper records kept of training and experience on which competence can be determined;
 - The responsibility to evaluate competence is placed on a person who does not know exactly what task will be allocated to a person or unit;
 - Those that know what task is to be allocated do not make appropriate enquiries but simply assume competence; and
 - There is no control on the fire ground to ensure that people or units do the job allocated.
- 14.4.36** The failure to have an adequate system of allocation of resources resulted in the Geelong Strike Team leader being asked to perform a task he was not competent to do. It also meant that the members of the strike team were not adequately trained and experienced to do the task they were allocated. The first of those matters contributed to the deaths of the crew members of the Geelong West tanker.

14.5 Communications

Introduction

- 14.5.1** The general topic of communications as it applied to the Linton fireground was dealt with in depth in Chapter 18 of this Report. In this section the focus of communications is limited to how it affected the operations of the Geelong Strike Team as it supported the bulldozer on the eastern flank south of Possum Gully Road.
- 14.5.2** As far as the Geelong Strike Team is concerned the relevant issues to do with communications are limited to:
- Was the Strike team part of the communications loop at Linton, ie where they properly informed of a communication plan for the fire?;
 - Did the Geelong Strike team receive important messages and in particular, the Wickliffe wind change message?; and
 - Was the Wickliffe message in an appropriate form to communicate the information about when the wind change would reach the fireground at Linton?
- 14.5.3** In the remainder of this section of the Report consideration will be given to these issues.

The Geelong Strike Team and the Communications Plan

14.5.4 It is clear from the analysis in Chapter 18 that no written Communications Plan was prepared and disseminated at the Linton Fire. The shortcomings that were caused by that were considered in many sections of this Report. The most significant problem was dealt with in Chapter 17, and was that Staging Area staff were not able to brief the crews that they deployed about what radio channels they should be operating on.

14.5.5 The closest anyone ever got to the dissemination of a Communications Plan on the fireground was the general broadcast of Ms Knight at 3.06pm:

*“V1: A general message for all Grenville group trucks would you please turn to Channel 15B repeat would the Grenville group trucks please turn to Channel 15B Group Officer Phelan will stay on 15A as well as aircraft.”*³⁸⁵

A short time later Ms Knight corrected this message to apply to all Region 15 vehicles and indicated that Region 16 vehicles should operate on Channel 16C.³⁸⁶

14.5.6 As can be seen from paragraph 14.3.34 this general broadcast went out at the time that the request was being made for Region 7 strike teams to attend the fire. It was thus made before the Geelong Strike Team was allocated, and by implication before they arrived at the fire ground. The Geelong Strike Team did not hear that broadcast.

14.5.7 The general broadcast was not repeated at any time after the Geelong Strike Team arrived at the Linton fire ground.

14.5.8 Mr Scharf gave the following account of receiving a briefing on communications channels (among other things) from DGO Kavanagh:

*“I introduced myself to the DGO, John Kavanagh, who was standing right next to my Corio Ute. I informed John Kavanagh that I was operating on Radio Channel 15B and our appliances were operating on Channel 7C. John Kavanagh wrote my name and the radio channels down on a piece of paper. Volunteer Firefighter Bev Lancaster was sitting in the back of the Corio Ute and she wrote down John Kavanagh's name as he spoke to me. John Kavanagh told me if I need anything to contact him on 15B. John Kavanagh gave us a task to go up Snake Valley Road approximately 1 to 1.5 kilometres north of his position and there should be some more tankers parked up the road and to park behind them. Ballarat Strike team was behind us consisting of five trucks, their Strike Team Leader was Firefighter Wayne Rigg. I had a discussion with Wayne Rigg in the presence of John Kavanagh of our duties and told him that we were on 7C and he told me that he would change all his appliances to 7C as well. No information was given regarding the weather or fire conditions at that time and I did not make any enquiries re same.”*³⁸⁷

14.5.9 The radio channel 15B was written on the map Mr Scharf had at the time of this briefing.³⁸⁸

14.5.10 Mr Kavanagh gave a different account suggesting that he told Scharf that he could be reached on Channel 15A. For the reasons set out in paragraph 14.4.14. Scharf's account is accepted and Kavanagh's is rejected.

14.5.11 The effect of the evidence can be summarised in the following way:

- At the times that Geelong Strike Team was on the fireground for crews in their sector of the fire:
 - The command channel was 15A; and
 - The fire ground channel was 15B.
- At all relevant times:
 - The Geelong Strike Team command vehicle radio was monitoring Channel 15B (ie the fire ground channel);
 - Each of the tankers in the Strike Team was operating on Channel 7C (a Region 7 go to channel, used to alleviate radio congestion); and
 - Mr Scharf's portable radio was operating on Channel 7C.
- Nobody in the Geelong Strike Team was monitoring the command channel – 15A.

14.5.12 The normal practice on a fireground was adequately considered in Chapter 18. Under that practice it is normally expected that a Strike Team Leader would monitor the command channel and the vehicles in the strike team would operate on the fireground channel. At the time of Linton, it was open to strike teams to use go to channels if they had appropriate permission to do so.

14.5.13 Mr Kavanagh gave the Geelong Strike Team permission to use Channel 7C at the fireground, but failed to inform anyone in the chain of command of that fact.

14.5.14 Another purpose served by a written communications plan under the AIIMS system is to give a hierarchy of command, setting out the channel on which each person in the hierarchy can be contacted.

14.5.15 It is now necessary to consider the implications of this communications set-up used by the Geelong Strike Team and how it may have affected what occurred when the wind change arrived. The clearest implication is that which was submitted by the DNRE:

*“When Mr Scharf put his strike team on a different channel to the main fireground channel, his command vehicle became the only link into the rest of the fire. Mr Scharf agreed that this would require very careful monitoring (T.10,284).”*³⁸⁹

14.5.16 Counsel for the families submitted that:

“The failure to provide written documentation of the communications plan contributed to the distribution of false information in respect of communications, in particular the command channel for the fire.

*In addition there was no check to ensure the communications were operating adequately (Leach T.9329).”*³⁹⁰

14.5.17 On behalf of the UFU it was submitted that:

“Scharf understood that 15B was the command channel for the fire having been told by the man who he believed was his sector commander that he could be contacted on that channel (B.799, 2nd statement, p.22). This was an error; the command channel was 15A in accordance with the only “communications plan” devised for the fire. A number of crucial pieces of information about the wind change were broadcast on 15A after the Geelong Strike Team commenced down the dozer trail:

- *That a “permanent change” had reached Dunkeld (at 1917 hrs, RT381);*
- *That the wind change was at Wickliffe (at 1959 hrs, RT405); and*
- *O’Rorke’s Skipton message (at 2028 hrs, RT425).*

14.5.18 Mr Scharf was not alone in thinking that 15B was the command channel as the following evidence reveals:

“The Incident Action Plan prepared by the IMT for the fire (annexure ‘EAF2’ to Ex. 205) describes the command channel as ‘68’ (15B);

- *Roberts in the MCV was instructed by Anderson to monitor 15B and 16A (B.762; Ex. 4U);*
- *Rigg, the Ballarat Strike Team Leader, had been told by Region 15 when he was deployed at 1705 to be on 15B and that was ‘eastern sector command’ (T.5185-6, Region 15 log attached to exhibit 135; see further 18.6 below);*
- *Billing, the Corangamite GO, monitored 15B as requested by Phelan after being deployed thus giving him ‘communications with command’ (B.4143) – his evidence was not challenged by Counsel for Phelan;*
- *Sinclair, the Maryborough STL, was instructed at the staging area to operate on 15B (B.4108, Ex. 146; T.5693); and*
- *Westwood who was briefing crews including the Geelong Strike Team at the staging area, was unclear about communications arrangements, and assumed that 15A was the ‘fireground channel’ (B.870; T.5645-6).*

*Why were so many people confused about this most basic of issues? The answer is because communications planning, as required by AIIMS/ICS, failed at Linton.”*³⁹¹

- 14.5.19** These submissions made on behalf of the families and the UFU are accepted. It is clear that they are correct when the evidence referred to by the UFU is examined and considered.
- 14.5.20** The significance of this is that, Mr Scharf showed himself by his actions on the fire ground and his demeanour in court to be a highly conscientious firefighter who was willing to act on advice and take orders. It is inconceivable that Scharf would have adopted the communications set-up used by the Geelong Strike Team if he had been given a written communications plan in accordance with AIIMS. Had a written communications plan been produced the Geelong Strike Team would most probably have been operating on Channel 15B and the command vehicle radio would have been used to monitor Channel 15A.
- 14.5.21** Whether or not that would have affected the outcome of the events of the day is deferred for consideration later.
- 14.5.22** What can be concluded at this stage, however, is that the communications set-up under which the Geelong Strike Team was operating was fraught with problems. These include:
- That any major command instructions sent out on Channel 15A would not be received;
 - The only connection to other units on the fireground was by a single channel, and if for any reason a message was not picked up on that channel, there was no opportunity of it being received on the alternate channel; and
 - The Sector Commander, Mr Lightfoot, did not know of these arrangements and had he needed to urgently contact the Geelong Strike Team he could not do so.³⁹²
- 14.5.23** It is now necessary to consider whether or not the Geelong Strike Team received the Wickliffe wind change message.

Did the Geelong Strike Team receive the Wickliffe Message?

- 14.5.24** The issue of whether or not the Geelong Strike Team received the Wickliffe message took up a considerable amount of time in these Inquests. The factual issues were complex. The solution to this conundrum lies in the evidence of:
- Ms Lancaster;
 - Mr McPhail;
 - Mr Scharf;
 - Mr Lightfoot;
 - Mr Phelan; and
 - Mr Booth.
- 14.5.25** To determine the answer it is necessary to consider where the Corio utility was along the control line at the time the Wickliffe message was broadcast, and if anybody was in a position to hear the message. The starting point is Mr Lightfoot's evidence:

"And at the time that you heard the message on 15A you were in the vicinity of the intersection of the control line and Possum Gully Road, weren't you?—I was in that area, yes.

A short walk down the control line to where the Geelong Strike Team, as far as I was concerned, was on 15A.

The Coroner: No, just listen to the question, Mr Lightfoot?—Sorry?

Just listen to the question.

Mr Dean: When you heard the 15A message, you didn't know whether or not a message had been sent on 15B, did you?—That's correct.

And at the time that you received the message on 15A you were a short walk from where the Geelong Strike Team was on the control line, weren't you?—About 200 metres.

200 metres. And you had available to you Mr Byrne's vehicle, is that right?—That's correct.

That was a four-wheel drive, he's told us?—That's correct.

And Mr Phelan was there as well, was he?—Yeah, in the vicinity, yes.

Also in a four-wheel drive vehicle?—Yes.

And none of you took any steps to ensure that that strike team had received that information, did you?—I believe they received it on 15A.

The Coroner: Just listen to the question, Mr Lightfoot. You took no steps to ensure, to check to see they got the message, did you?—No.

Why not?—Because I presumed they heard it on 15A, where we heard it.

Mr Dean: Who's 'they', who would have heard it on 15A?—Well, it come over on – Mr Phelan heard it because I heard him acknowledge it.

Yes, but what you believed was that the strike team leader was on 15A, not his tankers?—That's correct.

You had no idea whether or not the tankers had received the message, did you?—Not the tankers.

None whatsoever?—That's correct.

Why didn't you just walk down the control line just to check?—Because I already told them there was a wind change due and that I believed they would have heard the message on 15A.”³⁹³

14.5.26 Mr Phelan agreed with Lightfoot's evidence of where the two of them were when they heard the Wickliffe message on Channel 15A.³⁹⁴

14.5.27 After the briefing was completed by Mr Lightfoot at about 7.30pm, the Geelong Strike Team crew leaders were briefed by Scharf, and the team eventually headed south from Possum Gully Road along the control line. Early in their progress there was a problem in negotiating a fully. This was described by Scharf:

“The order we went in was, the bulldozer went first, it hadn't stopped working while we were there. We allow the bulldozer to work about 40 to 50 metres in front of us just in case it may knock down a tree which may fall on top of us. The bulldozer clears a trail by going backwards and forwards clearing whatever might be in the way and creates a mineral earth barrier along the fire edge. After the bulldozer there was the Corio Ute, Geelong City Tanker, Geelong West Tanker, Corio Tanker, Lara Tanker and Highton Tanker. The bulldozer was working at the bottom of a steep gully about 100 metres south of Possum Gully Road when we started our designated task.

I decided upon the order that the units were to proceed along the track. I placed the Corio Ute first to enter the area a way so as to park and then monitor the operation. The Geelong, Geelong West and Corio Tankers were next followed by Lara and Highton which are fitted with Class A foam.

As we proceeded south along the track we reached the top of the first gully, I was out of the vehicle at this stage. The bulldozer at the top of the other side of the gully and working further on. The gully is steep about a 20 metre drop over a distance of about 60 metres and the climb out the other side of the gully is much the same but goes a bit higher and further. I instructed the driver of the Corio Ute, volunteer Firefighter Steven McPhail, to drive through the fully and park up the top on the other side. I then got the crew off the Geelong City Tanker and sent the driver only down the gully and to stop on the other side of the gully, once the truck got to the top on the other side I sent the crew on by foot to meet up with the tanker. I did this with the first three tankers because of the steepness of the gully and the possibility of spillage out of the overflow could cause the track to be slippery. The crews proceeded with their tasks. The last two tankers, Lara and Highton were continuing their task and were not in a position to cross the gully at that stage. The three tankers reached the other side of the gully about 20 to 30 minutes after they had left Possum Gully Road.

Using the markers I saw whilst doing the video re-enactment I am able to say that where the Corio Ute was parked off to the side of the road on the other side of the gully was about 175 metres from Possum Gully Road. This was to allow the three tankers to continue their work in front of the Corio Ute. I was still on foot supervising

the operation. I was maintaining communication with the tankers using my hand-held radio on Region Channel 7C. I had left Steven McPhail in the Corio Ute with Bev Lancaster to monitor the radio Region Channel 15B, the command channel.” ³⁹⁵

14.5.28 It can be seen from this that Mr Scharf was describing the position of the Corio utility at about the time that the Wickliffe message was broadcast on Channel 15A, which was at 7.59pm.³⁹⁶ This is consistent with time that elapsed from the strike team starting on its journey down the control line as described by Scharf and also the observation of Lightfoot set out in para. 14.5.25.

14.5.29 Next Ms Lancaster gave an account of what she was doing while the strike team was negotiating the gully:

“So they didn’t go over the gully, as you understand it, at that time?—No, from my understanding – from what I can remember they had stayed back while the other three trucks and the ute went down the dip.

Whilst you were telling the crews to get off the tanker, what did the command vehicle do?—It was sitting on the side just near the dip where we were heading down. I don’t know if Steve was still in the ute at the time or what was happening there while I was walking back telling everyone.

Obviously you couldn’t be watching him and speaking to the crews on the tankers at the same time. Did Steve drive the command utility through the dip at some point?—He drove it through and I had walked through.

When he drove the vehicle through the dip and he stopped a short distance on the side of the dip, didn’t he?—He stopped once we got through, yes, with the vehicle.

You weren’t in the vehicle at that time?—Not when he drove it down...

No?—... I had walked down myself.

Did you stay with the tankers to ensure that the crews all got off as they drove through the dip?—No, I would walk along and tell them – the guys to hop off the back of the trucks and as I was doing that the trucks were going down one at a time through the dip and then I would walk down.

You are telling them to get off and the trucks are going down through the dip; is that so?—Yes, and the guys were all walking down...

Sorry?—And the guys were all walking down afterwards.

Yes, and you were with them, were you; were you amongst them whilst they were walking down?—There was a couple of people walking with me when I went down, yes. I don’t know who they were.

So it follows from that account, Miss Lancaster, that the command utility had already driven through the dip and was stopped on the other side whilst you were accompanying the crews walking down through the dip; is that correct?—From memory, I think, yes, the ute was the first one.

So that meant whilst you were dealing with the tankers and the crews alighting, Steve was in the command utility on the other side of the dip?—He drove it through, yes, and he was...

Sitting there waiting for you?—I don’t know if he was sitting in it or standing beside it.

But do you have a memory of what he was doing?—I don’t know what he was doing at that time because I was walking, telling the guys, and then walking back down the dip myself. I don’t know exactly what he was doing.

You see Mr McPhail is going to give evidence that about 10 metres after coming out of the steep dip, that is after he had driven his car through, he got out of the vehicle for maybe a minute or two to check a tree which was split; did you see him do that?—I don’t think that happened – I can’t recall that happening just after he drove the ute through the dip.

You didn’t see him do it?—No, we had made mention that we did hear a tree crack as we were going down the trial, but I don’t know which one that one was.

But this is a tree that was split which he got out and personally checked?—I didn't see him do that.

You didn't see him do that and if he did that when he had driven 10 metres past the dip, that would be at a time, wouldn't it, when you were back with the tankers ensuring that everyone alighted and walked through the dip; is that correct?—It probably would be.

Which means therefore that there was a period of time, doesn't it, Miss Lancaster, where there was nobody in the command vehicle?—Well, once Steve drove through I don't know what he done, because I didn't see”³⁹⁷

14.5.30 Mr McPhail indicated that he got out of the utility to check a tree. He thought that occurred about 50 metres past the dip referred to above.³⁹⁸ This would be about 200 metres south of Possum Gully Road.

14.5.31 The evidence of Ms Lancaster, McPhail and Scharf is that the Wickliffe message was not received. It should be noted, that the strike team was on Channel 15B and the message went through on that channel at 7.53pm³⁹⁹ some six minutes before it was rebroadcast on 15A and heard by Mr Lightfoot. Nonetheless, the position of the strike team was much the same at both times.

14.5.32 Mr Booth carried out tests along the control line between Possum Gully Road and the turnaround. Mr Booth was not sure which aerial the MCV had operating at Linton on 2 December 1998 and so he used both configurations that could have been used by the MCV.

14.5.33 On the first scenario Mr Booth concluded:

“6.6.6 Higher Gain Configuration

The higher antenna gain configuration reflects the best case situation where the 3 dBd antenna is mounted on the 5.2 metre pole on top of the MCV.

The test results for this configuration indicate that quite intelligible communication from the MCV to the mobile radio in the test vehicle was possible on the day of testing at all test locations between Possum Gully Road and the ‘turn-around’ point approximately 400 metres south of Possum Gully Road.

In the event that the higher gain (3 dBd) antenna was used on the day of the fire to transmit on Channel 15B, it is likely that a message from the MCV would have been received by the mobile radio in the Geelong Strike Team Leader’s vehicle. This would be the case at all points on the bulldozer trail south of Possum Gully Road up to the ‘turn-around’ point approximately 400 metres south of Possum Gully Road.

Such a message would be likely to be received also by tankers in the Geelong Strike Team had they been tuned to Channel 15B. Had all six vehicles in the Geelong Strike Team been tuned to channel 15B, the likelihood that none of the vehicles would receive an important message is extremely remote.”⁴⁰⁰

14.5.34 On the less favourable scenario Mr Booth concluded:

“6.1.2 Lower Gain Configuration

The lower antenna gain configuration reflects the worst case situation where the unity gain antenna is mounted on the safety rail directly on top of the MCV.

The test results for this configuration indicate that intelligible communication from the MCV to the mobile radio in the test vehicle was possible on the day of testing at all but two test locations between Possum Gully Road and the ‘turn-around’ point approximately 400 metres south of Possum Gully Road.

In the event that the unity gain antenna was used on the day of the fire to transmit on Channel 15B, it is likely that a message from the MCV would have been received by the mobile radio in the Geelong Strike Team Leader’s vehicle. This would be the case at all points on the bulldozer trail south of Possum Gully Road up to the ‘turn-around’ point approximately 400 metres south of Possum Gully Road.

Such a message would be likely to be received also by tankers in the Geelong Strike Team had they been tuned to channel 15B. Had all six vehicles in the Geelong Strike Team been tuned to Channel 15B, the likelihood that none of the vehicles would receive an important message is quite remote.”⁴⁰¹

14.5.35 On the less favourable scenario there were two places where communications were unsatisfactory in the sense that they could not be understood. Those places were 50 and 200 metres, respectively, south of Possum Gully Road. These places them in the area of the dip. These measurements were taken at 10 metre intervals and therefore are quite fine in detail.

14.5.36 In these circumstances, a number of reasons could be advanced why the message was not heard by Messrs McPhail and Scharf or Ms Lancaster. They are:

- At the time of the broadcast on Channel 15B the utility was in a black spot for receiving communications;
- None of these people were in the utility or sufficiently close to it to have heard the message; or
- One or other of them heard the message but it made no impression on them and so was not recorded.

14.5.37 A number of submissions were received on this topic. On behalf of Messrs Phelan and Lightfoot it was submitted that:

“It is submitted that His Worship the Coroner cannot be satisfied that at all times along the dozer trail someone was in a position to hear the messages that came over 15B. It follows that no finding can be made as to whether or not the Wickliffe message was received over 15B on the Corio utility radio. All the following are possible:

- *The message was received by no-one was in the vehicle or near enough to the vehicle to hear it;*
- *The message was received by Ms Lancaster and/or McPhail, who did not appreciate the importance of the information and therefore did not pass the message on;*
- *The message was not received.”⁴⁰²*

14.5.38 The CFA made a similar submission.⁴⁰³

14.5.39 It is to be noted that by contrast the DNRE after a careful analysis of the facts submitted:

“It is likely that on one or more occasions the command vehicle was not occupied at all. At about the time that the Wickliffe message was sent by way of general broadcast the command vehicle had crossed through the dip on the control line and was waiting whilst tankers negotiated the dip. The crews of each tanker were required to get off and walk whilst the tanker drove through the dip. Ms Lancaster requested the crews of each tanker to do so. Although the evidence is less than clear it appears that during this process and whilst the command utility was parked a short distance south of the dip, Mr McPhail got out of the vehicle to have a look at a smouldering tree which appeared likely to split. A prominent hypothesis which emerges from the evidence is that on one or more occasions the radio in the command vehicle was not being adequately monitored and the Wickliffe message was not heard.”⁴⁰⁴

14.5.40 On the evidence it is clear that it could not be found that the Geelong Strike Team received the Wickliffe message.

14.5.41 At the time that the message came through on the radio it is probable that the Corio utility was parked near the dip referred to in the evidence. It is also probable that nobody was in the vehicle at the time the message was sent. The only other viable hypothesis is that the vehicle was in a black spot identified by Mr Booth. There is simply no evidence on which it could be concluded that the message was received but not understood.

14.5.42 In these circumstances it is highly probable that the Wickliffe message was not received by the Geelong Strike Team. Given that the area where there was a black spot was very limited and dependent upon the least useful configuration being set up on the MCV, it is unlikely that message did not reach the radio of the Corio utility.

14.5.43 It follows therefore, that the most likely hypothesis is that contended for by the DNRE. It is therefore probable that the Wickliffe wind change message was transmitted on the radio of the Corio utility at a time when nobody was in a position to hear it.

14.5.44 Another issue that arises in respect of this message is that it was transmitted by way of a general broadcast. The use of general broadcasts and the problems associated with them was considered in depth in Chapter 18. At this point it is sufficient to reiterate the conclusions reached there:

- General broadcasts are an inappropriate method for disseminating important information on the fireground; and
- The use of general broadcasts is contrary to principles underpinning the AIIMS-ICS system.

Was the Wickliffe Message in an Appropriate Form?

14.5.45 The Wickliffe message sent out at 7.53pm on Channel 15B was:

*"This is Linton control with a general message to all divisional commanders weather update the weather change is at Wickliffe wind direction is south-westerly speed 35 carrying no rain could strike team leaders divisional leaders please confirm."*⁴⁰⁵

14.5.46 This message would be meaningless to anybody on the fireground unless the person knew:

- Where Wickliffe was;
- How far Wickliffe was from the fire ground;
- The nature of the terrain between Wickliffe and the fire ground; and
- The rate at which it is expected the wind change would move across that terrain.

14.5.47 In reality the only things that a person on the fire ground would want to know about the wind change is when it will arrive at the fire ground and what impact it will have on the behaviour of the fires. None of this information was contained in the Wickliffe message.

14.5.48 Given that Mr Scharf did not know where Wickliffe was,⁴⁰⁶ this information, had he received it, would have been useless to him.

14.5.49 The agencies need to ensure that protocols are developed which provide useful information to those on the fireground about important developments such as the arrival of wind changes. Those protocols should specify that:

- The earliest time of arrival at the fireground be specified; and
- The likely effect of the wind change on fire behaviour.

14.6 Weather

14.6.1 The general issues concerning information about weather were comprehensively examined in Chapter 19. It is sufficient at this point to say that in the normal course of events such information is vital and should be provided to those on the fireground in a timely and meaningful way.

14.6.2 Early in these Inquests it appeared that the failure to provide weather information, in particular information about the time of arrival of the predicted south-west wind change was critical to the causation of the deaths of the Geelong West crew. For the reasons set out in Chapter 14.2 the failure alone of providing the wind change information was not of itself determinative of the issue of contribution to the deaths. As will be seen from the analysis in Chapter 14.9 in combination with other matters it was a contributing factor. The other matters are appropriate supervision.

14.7 Water Usage

14.7.1 The issue of water usage was important in these Inquests because the crew of the Geelong City Tanker which had sufficient water to go into survival mode throughout the time the fire fronts passed over them survived, whereas those on the Geelong West Tanker, facing the same circumstances did not. The implication being that the Geelong West Tanker did not have sufficient water to survive.

14.7.2 There were various observations made by witnesses, which tended to suggest that the Geelong West Tanker may well have exhausted its water supply on the control line.⁴⁰⁷ It was because of these observations that the enquiry at the Inquests turned to the questions:

- How much time does it take to exhaust a reserve of $\frac{1}{4}$ of a tank of water; and
- When the pump stops pushing water out, how much if any water is left in the tank?

14.7.3 It was surprising that such testing had not been done before, given that the CFA had adopted a rule of keeping $\frac{1}{4}$ of a tank of water in reserve for emergencies such as burn-overs. It was even more surprising given that the capacity of tankers varied from 3000 litres (or more) to 2000 litres. A moment's pause to carry out a calculation indicates that $\frac{1}{4}$ of a 3000 litre tank is 750 litres while a $\frac{1}{4}$ of a 2000 litre tank is 500 litres.

14.7.4 The implementation of an arbitrary "quarter tank rule" is futile unless it is known what is a reasonable volume of water for safety purposes on trucks. Prior to these Inquests such testing had not been performed. This defies commonsense.

14.7.5 The issue was important at Linton because the Geelong City Tanker had a capacity of 3000L whereas Geelong West was 2000L.⁴⁰⁸ Was this the difference between surviving and not surviving?

14.7.6 There were various submissions made on this issue. The UFU submitted:

"The unchallenged evidence is that the responsibility for monitoring water levels on tankers rests with the crew leader: Rigg, B.757; Barry Thomas (B.4134, paragraph 7). In the case of the Geelong West tanker, this was the late Mr Davidson. According to Scharf, Davidson was in the cabin of the tanker. He was therefore reliant on the crew on the back of the tanker to monitor the water levels. The three crew members on the back of the tanker were three of the least experienced volunteers at Linton: Messrs Armstrong, Evans and Thomas. As Barry Thomas observes (B.4134, paragraph 7): "If [Davidson] had a fairly junior and inexperienced crew on the back of the tanker, they may not have monitored the water level". (Emphasis added)

*Another matter that must be borne in mind is the unreliability of the sight gauges on the tankers (Rigg, T.5249) and the lack of any form of low water warning device such as the one that has now been introduced (Roche, T.10,769). In addition, the GW tanker was only of 2000 litres capacity: (Ex. 167). There will always be a temptation to use more than 1500 litres in a situation that is perceived as 'mopping up' of a 'benign fire', particularly by an inexperienced crew."*⁴⁰⁹

14.7.7 On behalf of Messrs Phelan and Lightfoot it was submitted:

"14.70 The responsibility of ensuring the Geelong West Tanker reserved a quarter of its water supply for self-protection lay solely with the Geelong West crew leader, up until the time Mr Scharf saw the pressure in the hose die off. This event caused Mr Scharf to speak to Mr Davidson, because he thought they were out of water. However he did not tell Mr Davidson, who was seated in the cabin, what he had seen. It is therefore difficult to understand how Mr Scharf could have been sufficiently comfortable with Mr Davidson's explanation.

14.70 This is relevant when analysing the reasonableness of Mr Scharf's decision to send Geelong West out for water in the way he did (see paragraph 14.62).

*14.71 It is submitted that the evidence establishes that at the time of the entrapment, Geelong West had little or no water in their tank. It is not intended to explore or analyse the relevant evidence, but we refer generally to the evidence of Ms Lancaster, Mr McPhail, Mr Scharf, Mr Stepnell, Mr Coulter and the results of the tests conducted at Fiskville."*⁴¹⁰

14.7.8 On behalf of Messrs Scharf and Stepnell it was submitted:

"There is no evidence that the strike team leader or any members of the Geelong Strike Team believed that the Geelong West tanker was completely out of water when it departed to use the Homestead Road extension as access for water. The evidence

establishes that it was believed that the tanker had a reserve of water although the actual amount of that was unknown.”⁴¹¹

- 14.7.9** This issue was one of significance to the families as it was seen as reflecting on the competence of the Geelong West crew. As a result, Counsel for the families carried out an extensive review of the evidence on this issue and made comprehensive and helpful submissions.⁴¹² In the end the families urged that the appropriate conclusion was:

“... it is not possible to conclude what quantity of water the Geelong West tanker held in reserve as it proceeded down Homestead Road extension or whether a quarter of a 2000 litre tank would have been adequate in the event.”⁴¹³

- 14.7.10** What happened in those last few minutes before the fire consumed the Geelong West tanker and crew is simply not known. Many possibilities exist including:

- That the three members of the crew on the back of the truck sat there not knowing and not preparing for the fire front to go over the tanker;
- The crew on the back went into survival mode but ran out of water;
- The crew had insufficient water to go into survival mode.

- 14.7.11** On the evidence available there are factors that support each of these hypothesis. It is simply not possible to make a final decision between each of these alternatives on the available evidence, and thus in these circumstances the submission made on behalf of the families is accepted, in the sense that the first two alternatives cannot be excluded. Certainly if the second of the alternatives is the case (they ran out of water) with the possibility that they had $\frac{1}{4}$ of a tank to start with, there are further serious implications for safety when 2000 litre water tankers are being used.⁴¹⁴

14.8 Decision Making

- 14.8.1** The critical decision that was made by the Geelong Strike Team was to go out along the Homestead Track extension to refill with water. That decision was made by Mr Scharf in consultation with Stepnell.
- 14.8.2** That decision was adequately considered in Chapter 14.2 and need not be elaborated on further at this point. It is sufficient to note the conclusion reached in that part of this Report was that the decision was made because Mr Scharf had insufficient expertise to go with his trainees, to understand the dangers of the course he agreed to.
- 14.8.3** It is observed that the outcome might have been different if Mr Scharf had been properly supervised by those above him in the command structure. That is the subject of the next section of this Chapter.

14.9 Supervision

Introduction

- 14.9.1** Supervision has been considered in many Chapters of this Report. It was considered in:
- Chapters 6.2 to 6.4 dealing with the Group System, AIIMS-ICS and the Multi Agency Incident Management Agreement;
 - Chapter 15 which is a more complete examination of AIIMS as it operated at Linton;
 - Chapter 16, the examination of the workings of the Forward Operations Point at Linton; and
 - Chapter 17, the Staging Area at Linton.

Each of the Chapters forms a background to this Chapter. In this section of this Chapter, however, the issue of supervision is examined from the point of view of the deaths of the 5 members of the Geelong West Crew.

- 14.9.2** The legal issues considered in Chapter 1 and 20 also form a background to the analysis of this Chapter. The general submissions of parties, which are relevant to this section of the Report are considered in those Chapters.
- 14.9.3** At the outset of the analysis of supervision of the Geelong Strike Team it is appropriate to restate the key principles of AIIMS-ICS that are relevant. First, there is the summary in *“The Operations Systems of AIIMS Manual”*⁴¹⁵ dealing with *“Span of Control”* and its implications:
- “Span of Control – is a concept which relates to the number of groups or individual which one person can successfully supervise.*
- At emergency incidents the environment in which supervision is required can rapidly change and be dangerous. A maximum of five reporting groups or individuals is considered to be the optimum, as this maintains a superior’s ability to effectively task, monitor and evaluate performance.*
- The supervising officer needs to be able to quickly receive reports, evaluate information, communicate orders, and mobilise and redeploy crews at the same time as overseeing their safety and welfare. Responsibility for more than five teams or persons begins to jeopardise the safety of personnel and the effectiveness of the operation”*⁴¹⁶
- 14.9.4** The points to note about this are;
- The span of control is based on the *“number of groups ... which one person can successfully supervise”*;
 - By confining the number of groups reporting to the supervisor, the supervisor should have the ability *“to effectively task, monitor and evaluate performance”*; and
 - The supervisor is required to
 - quickly receive reports
 - evaluate information
 - communicate orders
 - mobilise and redeploy crews
 - oversee safety and welfare.
- 14.9.5** The issue of supervision in this section revolves around the performance of three AIIMS-ICS positions:
- Operations Officer in the Forward Operations Point at Linton, which was performed by Mr Graham, a DNRE employee;
 - Divisional Commander on the Eastern flank, performed by Mr Phelan; and
 - Sector Commander, which on the relevant part of the eastern flank was being performed by Mr Lightfoot.
- 14.9.6** The roles prescribed for each of these roles under AIIMS will now be set out. The key responsibilities of the Operations Officer are:
- *obtain briefing from Incident Controller*
 - *develop Operations portion of Incident Action Plan*
 - *brief and allocate Operations personnel in accordance with the incident Action Plan.*
 - *manage and supervise operations at the incident*
 - *establish and maintain Assembly Areas and Staging Areas*
 - *determine the need for & request additional resources*
 - *assemble Strike Teams/Task Forces from single available resources*
 - *reallocate or release Strike Teams/Task Forces allocated to Operations Section*
 - *initiate recommendation for and review suggested release of resources*
 - *report progress in achievement of Incident Action Plan objectives*
 - *report special incidents/accidents*
 - *ensure the safety and welfare of all personnel*

- *nominate a deputy when absent from incident*
- *maintain a log of all activities”*⁴¹⁷

14.9.7 For Divisional Commanders the key responsibilities are:

“Division Commanders when activated, are under the direction of the Operations Officer and are responsible for the appropriate portion of the Incident Action Plan. The responsibilities of the Division Commander are:

- *obtain briefing from Operations Officer*
- *attend planning meetings at the request of the Operations Officer*
- *review and where necessary, modify, resources allocations to the division*
- *allocate specific work tasks to Sector Commanders*
- *resolve problems as they arise*
- *report changes in situation, resources, hazardous situations and significant events to Operations Officer*
- *ensure safety and welfare of all personnel.*
- *maintain a log of activities”*⁴¹⁸

14.9.8 The position in relation to Sector Commanders is:

“Sector Commander responsibilities:

Sector Commanders report to the Operations Officer or to the Division Commander if appointed. They are responsible for implementation of their portion of the Incident Action Plan, management and command of the resources allocated to their Sector, and execution of tasks allocated to them.

The responsibilities of the Sector Commander are:

- *obtain briefing from Operations Officer/Division Commander*
- *implement Incident Action Plan for Sector*
- *brief Strike Team/Task Force leaders*
- *identify resources allocated to the sector*
- *review sector assignments with subordinates and allocate tasks*
- *advise Resources Unit of changes in status of resources allocated to Sector*
- *co-ordinate activities with adjoining Sectors*
- *determine need for assistance on allocated tasks*
- *provide situation reports to Operations Officer or Division Commander*
- *report special incidents/accidents*
- *resolve problems as they arise*
- *participate in development of operational plans for the next operational period*
- *ensure safety and welfare of personnel*
- *maintain a log of activities”*⁴¹⁹

14.9.9 What is clear from these principles is that there is a direct chain of command from Operations Officer to Divisional Commander to Sector Commander:

- The Operations Officer is responsible for Supervising the Divisional Commander in the performance of his or her duties as specified above;
- The Divisional Commander is responsible for supervising the Sector Commanders in the performance of their duties;
- The Sector Commanders in turn supervise the Strike Team or Task Force Leaders;
- Supervision in this context means active interaction and evaluation of performance of the subordinate and the work of the subordinate and the work being done; and
- Each in turn is responsible to manage the safety and welfare of those beneath them.
- This is the context within which the supervision of the Geelong Strike Team must be assessed.

Supervision by Divisional and Sector Commanders

- 14.9.10** The evidence is clear, and has been set out in depth in those parts of this report referred to in paragraph 14.9.1 and also in the earlier sections of this Chapter, that after the Geelong Strike Team was briefed by Sector Commander Lightfoot, he had no further contact with them until after the fatal incident occurred. For most of the time between the briefing and the entrapment Sector Commander Lightfoot was in the company of Divisional Commander Phelan. Phelan did nothing to ensure that Lightfoot carried out his duties of supervision towards the Geelong Strike Team.
- 14.9.11** The most critical time at which such supervision should have occurred was after the Wickliffe weather message was received by Mr Lightfoot. At that point of time:
- Mr Lightfoot should have checked with Scharf to see if he received that message;
 - Mr Lightfoot should have consulted with Phelan and Graham to determine:
 - The implications to the fire ground of that message, in particular its significance to the likely arrival of the wind change.
 - What, if any, tactical changes should be made in the method adopted by the Geelong Strike Team in suppressing the fire on the eastern flank.
 - What course should be followed by the Geelong Strike Team when the wind change arrived.
 - Warnings about necessary steps to be taken to ensure safety of the Geelong Strike Team, eg. reinforcement of the principle of “*working to the black*”, ensuring water supplies were adequate and so on.
 - The Geelong Strike Team leader should then have been re-briefed in relation to these matters.
- 14.9.12** These are matters of common sense consistent with the principles inherent in AIIMS-ICS. They are not matters of hindsight because Mr Graham did precisely that in relation to DNRE Crews working on the eastern flank that night.⁴²⁰
- 14.9.13** Had these things been done in relation to the Geelong Strike Team it is highly probable that Mr Scharf would not have allowed the Geelong City and Geelong West tankers to leave the fire line along the Homestead Track extension. The failure to properly supervise Mr Scharf in this manner as required under the AIIMS system contributed to the deaths of the Geelong West Crew.

Supervision by Operations Officer

- 14.9.14** Mr Graham as the Operations Officer at Linton should have supervised Phelan to ensure that he had adequately supervised Lightfoot and that the matters specified in para 14.9.10 occurred. This is particularly the case when Mr Graham had recognised the need to do so in relation to DNRE crews on the eastern flank.
- 14.9.15** The DNRE and the CFA had an agreement about the system of work to be employed on a fire ground where the two agencies operated jointly AIIMS-ICS was the system to be employed, with one agency being the lead agency, and appropriately qualified people from either agency filling key operational roles, sometimes assisted by a deputy from the other agency. This was a decision made in accordance with a set procedure set out in the agreement.
- 14.9.16** The purpose of this agreement is to set up a system of control for all resources on the fire ground so as to ensure the safety and welfare of all people on the fire ground. The system contemplates that not only the task, but the method of performing the task is determined by those in management positions.
- 14.9.17** Thus under this system an Incident Action Plan is to be prepared which specifies the objectives to be achieved, and the method by which such objectives are to be achieved. That method might be an attack on the lead, a direct attack on the flank or individual attack. The method chosen incorporates within it an assessment of the hazards prevailing at the particular time and the method to be adopted to avoid or minimise that hazard to the firefighters who are working in accordance with the Incident Action Plan.

- 14.9.18** This is a vastly different situation to one where workers with or with or without equipment are lent or hired to another employer. The system that operates on a fire ground is one of control of firefighters. It is control based on the assumption of an obligation to ensure their safety.
- 14.9.19** The obligation is exercised through people performing particular roles set out in the command structure under AIIMS-ICS. Those who fall within the ambit of a particular position are controlled by that position in the sense that an employer would control an employee.
- 14.9.20** It follows that an Operations Officer who can *“reallocate or release Strike Teams”, “develop operations portion of Incident Action Plan”, “manage and supervise operations at the incident”* and *“ensure the safety and welfare of all personnel”* is controlling those Strike Teams he does these actions in respect of.
- 14.9.21** DNRE sought to introduce a distinction between *“command”* and *“control”* and suggested that resources of one agency must be *“allocated”* to somebody in another agency before the other agency takes responsibility for those resources. These notions are simply inconsistent with AIIMS principles as contained in the various manuals tendered in evidence in these Inquests. The evidence led by DNRE in support of these practices simply shows that the Department acquiesces in a system on the fire ground, which is not in keeping with the principles of AIIMS.
- 14.9.22** Common sense indicates that the safety of those on the fire ground cannot depend on fine distinctions known to just a handful of personnel. An agency on a fire ground has a duty, so far as is reasonable, to protect its own firefighters against the actions of others on the fire ground who may place them at risk by their conduct. An analysis of the facts of the incidents that make up the story of Linton show just in how many ways people can be placed at risk as a result of the actions of others on the fire ground. It is therefore necessary to exercise control over all firefighters on the fire ground and that is the purpose of AIIMS and the Multi Agency Agreement.
- 14.9.23** Mr Graham when performing the role of the Operations Officer at Linton was performing the obligations of the DNRE. On the facts of this case, the manner in which resources were allocated on the eastern flank, with one Division containing both DNRE and CFA resources applying the same tactics as developed by the Operations Officer, indicates Graham had control of the Geelong Strike Team. This control was exercised through the chain of command set out above.
- 14.9.24** The Operations Officer’s failure to properly supervise Mr Phelan contributed to the cause of death of the Geelong West Crew. The DNRE is responsible for that failure.

14.10 AIIMS — a Paper System on The Fire Ground

- 14.10.1** Both Agencies jointly agreed to manage suppression activities in a wildfire fire incident, where they shared responsibilities or were both involved, under their respective legislation, in accordance with AIIMS principles.

Effectively, in the case of the Linton fire, some of the fire was managed under the AIIMS system and some under the old CFA Group system. In effect, for the purpose of the Linton fire on the eastern flank where the Geelong Strike Team were working – AIIMS was a paper system. Paper systems need to be implemented to be effective systems of work for safety. Also AIIMS was only a paper system in other important areas of the fire. By way of example, Region 16 firefighters were not even aware of the existence of the IMT at Ballarat, which had been established early in the fire under AIIMS for the purpose of managing the entire fire.

14.11 Conclusions

- 14.11.1** The deaths of:
- Stuart Davidson;
 - Gary Vredeveltdt;

- Chris Evans;
- Jason Thomas; and
- Matthew Armstrong

were caused by the effects of fire at Linton on 2 December 1998.

14.11.2 The Geelong West tanker was in a position to be engulfed by fire as a result of the decision by Mr Scharf to permit it to leave by the Homestead Track extension. To the extent of making that decision Scharf contributed to the death. Scharf made that decision because he had insufficient experience and knowledge to realise what danger he was placing the crew in by allowing them to leave by that route.

14.11.3 The CFA failed to properly train the Strike Team Leader on the effect of fuel loads and topography on fire behaviour, to enable him to recognise and appreciate the danger. It permitted an inexperienced Strike Team Leader and Strike Team to work on potentially the most dangerous area of the fire, building a control line on the eastern flank ahead of a wind change from the south west.

14.11.4 The CFA contributed to the deaths because it failed to properly supervise Mr Scharf. In the circumstances that prevailed at Linton proper supervision involved:

- Mr Phelan supervising Lightfoot in the performance of his duties as Sector Commander;
- After receiving the Wickliffe message, Messrs Graham, Phelan and Lightfoot should have met to determine:
 - the relevance of that message to the arrival of the wind change on the fire ground;
 - the need (if any) to change the existing tactics; and
 - Safety instructions that needed to be given to Mr Scharf.

After discussion had been made about these matters Mr Scharf should have been re-briefed. It is reasonable to conclude that Scharf would have taken instructions as he had earlier promptly responded to DNRE officer Scherger's advice to build a turn-around and alter the direction of the control line.

14.11.5 The DNRE contributed through the failure of the Forward Operations Officer to properly supervise the Divisional and Section Commanders, who in turn failed to supervise the Geelong Strike Team Leader.

14.11.6 Both Agencies jointly agreed to manage suppression activities in a wildfire fire incident, where they shared responsibilities or were both involved, under their respective legislation, in accordance with AIIMS principles.

Effectively, in the case of the Linton fire, some of the fire was managed under the AIIMS system and some under the old CFA Group system. In effect, for the purpose of the Linton fire on the eastern flank where the Geelong Strike Team were working – AIIMS was a paper system. Paper systems need to be implemented to be effective systems of work for safety. Also AIIMS was only a paper system in other important areas of the fire. By way of example, Region 16 firefighters were not even aware of the existence of the IMT at Ballarat, which had been established early in the fire under AIIMS for the purpose of managing the entire fire.

Operation of the IMT

15.1 Introduction – AIIMS

15.1.1 The AIIMS-ICS management system is described in detail in Chapter 6.3 and 6.4 of this Report.

A summary of the reasons behind AIIMS

15.1.2 CFA Chief Officer Trevor Roche described *“the move to AIIMS-ICS was not a case of change just for the sake of change.”*¹ Roche gave evidence that experience in incidents during the 1970's and 1980's had exposed weaknesses in the system of incident management based on CFA Brigades and Groups, particularly when faced with larger incidents that crossed Group or Regional boundaries or between private and public land.

15.1.3 Mr Roche said that a decade ago the build-up of resources at a fire was slow, and in a large fire there may be only 20 trucks operating. He stated:

*“This level of resource deployment was generally quite manageable within a group hierarchy.”*²

15.1.4 Mr Roche deposed that the response rate and speed of deployment is now much faster. He gave an example that:

*“In 1998 there was a relatively small fire in the Macedon area and there were 140 trucks in attendance within two hours. In this environment, the resources will very quickly overwhelm any single person in control. That is why a system has a span of control of no more than five at each level of the system is essential.”*³

15.1.5 Mr Roche described the role of the Incident Controller under AIIMS-ICS as determining strategies and objectives. He compared the characteristics of Group and AIIMS management systems. He stated that:

“The Group system, on the surface, looks quite similar. When a Brigade responded to an incident, that incident would be under the control of the Brigade Captain or the most senior officer from the Brigade present. As the fire grew the Group Officer would take over control and establish a Forward Group Headquarters somewhere in the field.

*However, there was no limit to the span of control and no direct recognition that each of the lower levels of the organisation had some degree of independent line management responsibility for those working under them. The Group would try to do everything themselves and responsibility for this would largely fall onto the Group Officer.”*⁴

15.1.6 Mr Roche went on to say that:

*“There was also no clear recognition of the roles or responsibilities of individuals assisting the Group Officer and these would be assigned by the Group Officer as the need arose. Among other things, this meant that, in practice, very little time (if any) was spent on developing strategies and forward planning.”*⁵

15.1.7 Mr Roche then gave evidence as to possible difficulties with persons in elected positions and holding positions of rank necessarily being the right people to fulfil a functional role during a *“difficult and stressful incident”*.⁶

15.1.8 Mr Roche also gave evidence about the compatibility of the Group System in a multi agency incident. He said:

*"The Group System has also been shown to be incompatible with inter agency operation. It is impossible effectively to coordinate the resources of two (or more) agencies during an incident, without a system of command and control that effectively supplants the different hierarchies operating within those agencies."*⁷

15.1.9 Mr Roche identified a number of other "weaknesses that have become apparent over the years" in relation to the Group System. They are:

"(a) An incident run along Group lines is more likely to be hampered by Group rivalries and other territorial issues when the fire crosses Group or Regional boundaries; and

*(b) Local Brigade and Group structures have the potential to collapse in the event of a fast-moving devastating fire due to local pressures and emotional issues ... "*⁸

15.1.10 Mr Roche went on to say that the problems he identified were not new and had in fact been identified as long ago as 1983.⁹

15.1.11 In the light of the evidence of Mr Roche describing the problems with the Group System it is now appropriate to examine how the AIIMS-ICS system seeks to address those identified problems.

The AIIMS solution and how it works

15.1.12 In his statement Mr Roche usefully summarised: *"the principles and structure of AIIMS-ICS."* That summary is consistent with the detailed examination of the AIIMS documentation in Chapters 6.3 and 6.4 herein.

15.1.13 Mr Roche stated that:

"AIIMS-ICS is a system of incident management that, when implemented, should result in a clearly defined structure that sets reporting guidelines, identifies communications arrangements, provides for in-depth planning in relation to fire behaviour and likely outcomes, and logistical support. These elements achieve more efficient command, control and coordination across and within multiple and single agencies.

*AIIMS-ICS is designed to operate effectively across control agency, Regional, Group or Brigade boundaries and for any type or size of emergency incident ... It should be employed from the time of the arrival of the first responders and has the flexibility to scale up or down to meet the needs of the incident."*¹⁰

15.1.14 AIIMS-ICS provides for a clearly defined incident specific structure to be developed and maintained by applying a number of basic practical actions. AIIMS-ICS also provides for a clearly defined structure, that can be expanded as the resources required to combat an incident expand, with specific functions attaching to occupants of specifically identified positions within the structure.

15.1.15 The AIIMS-ICS system provides for the occupants of those specific functional positions to wear a tabard identifying their functional role and for any vehicle they are utilising to also be appropriately identified. The system provides for the use of incident structure specific call signs rather than agency call signs so that occupants of functional positions can be easily identified in radio communications by those to whom they are communicating and those that are monitoring the radio.

15.1.16 The AIIMS requirement of a span of control of no more than five is achieved in practice by dividing an incident into divisions and sectors as necessary, to ensure that no one occupant of a functional position in the incident management structure is responsible for supervising more than five groups or individuals.

15.1.17 This fundamental principle of AIIMS is set out clearly in Exhibit 21U:

"Span of Control – is a concept which relates to the number of groups or individual which one person can successfully supervise.

At emergency incidents the environment in which supervision is required can rapidly change and be dangerous. A maximum of five reporting groups or individuals is considered to be the optimum, as this maintains a supervisor's ability to effectively task, monitor and evaluate performance.

The supervising officer needs to be able to quickly receive reports, evaluate information, communicate orders, and mobilise and redeploy crews at the same time as overseeing their safety and welfare. Responsibility for more than five teams or persons begins to jeopardise the safety of personnel and the effectiveness of the operation.”¹¹

- 15.1.18** It is the responsibility of the Incident Controller to have overall management of the incident. It is the responsibility of the Incident Controller to prepare:

“objectives that in turn will be the foundation upon which subsequent action planning will be based. It is the Incident Controller's responsibility to approve the Incident Action Plan, and approve all requests for the ordering and releasing of personnel and resources.”¹²

- 15.1.19** The way the system is designed to work is that the Incident Controller, having prepared objectives, will then rely on the Operations Section and Planning Section to prepare an Incident Action Plan.¹³ The Incident Controller must then approve the Incident Action Plan.

- 15.1.20** By means of effective communication of information up and down the Incident Command Structure, by accessing other relevant information such as weather information from the Bureau of Meteorology, up-to-date information from agency records such as those relating to prescribed burns and access to additional resources such as aircraft and bulldozers, the Operations and Planning Sections ought be in an optimum position to prepare an Incident Action Plan.

- 15.1.21** As can be seen from some of the “near-miss incidents” referred to in other Chapters of this Report, dangerous situations can occur when individual or groups of firefighters endeavour to determine a strategy or tactic in ignorance of any overall plan, not being aware of all relevant information that should be, through the incident command structure, in the possession of the IMT.

- 15.1.22** It is by the documentation and dissemination of an Incident Action Plan and Communications Plan that the Incident Controller and IMT effectively take “control” of the incident.

- 15.1.23** The AIIMS-ICS Manual¹⁴ provides pro-forma Incident Action Plans and communication plans for different types of incidents. An example of a large incident, Incident Action Plan, appears in the Manual.¹⁵

- 15.1.24** The AIIMS Incident Action Plan contains objectives and strategies on combating the incident and timeframes in respect of which particular activities are to occur. It is to be continually reviewed and monitored by the IMT.

“An Incident Action Plan is a strategy document developed by the Incident Management Team. It contains objectives and strategies with specific timeframes which will be reviewed at subsequent planning meetings and, when adopted, by the Incident Controller, distributed to the required level of the ICS structure and to supporting agencies. After consideration of all factors affecting the incident, an Incident Action Plan will be developed to:

- Describe the overall operational objectives and strategy;*
- Ensure continuity of control operations;*
- Provide effective use of resources; and*
- Identify total anticipated resources.*

The Incident Action Plan consists of sections which stand alone. Only appropriate parts of the Plan need to be circulated to the officers responsible for its implementation.”¹⁶

- 15.1.25** The Incident Action Plan and Communication Plan pro-forma provides for the identification of occupants of all functional positions within the Incident Command Structure along with relevant communication channels.
- 15.1.26** The idea is that the Incident Action Plan, once approved by the Incident Controller, is provided via the Operations Officer to Divisional Commanders who then provide appropriate portions to Sector Commanders who then provide appropriate portions to the crew leaders assigned to them. This is how the IMT takes control of the management of an incident and coordinates the fire suppression activities.
- 15.1.27** Under the heading “Responsibilities of the Incident Controller” the AIIMS Manual states:
“The assumption of control of an incident by the Incident Controller is of vital importance. The incident scene can be very confusing during the initial response phase and attending personnel need to know who is in control of the incident.”¹⁷
- 15.1.28** The AIIMS Manual also goes on to state that:
“Action planning is continuous and plans are constantly under review taking into account the current situation reflected in situation reports.... The Incident Action Plan should be documented for incidents that have a potential for extended involvement. During rapidly escalating incidents it can be extremely difficult for a plan to be prepared. Nevertheless, a plan needs to be prepared in case the incident increases in complexity or becomes the subject of an enquiry, at a later stage.”¹⁸
- 15.1.29** The “continuous” review of the Incident Action Plan can only properly be undertaken by regular reporting up the chain of command to the IMT, of matters occurring on the fire ground. As has been set out elsewhere in this Report, this was sadly lacking at Linton.
- 15.1.30** This emphasises why the span of control, of no more than five, is important. Any supervisor ought to be capable of being in regular contact with up to five subordinates, providing direction and supervision and receiving reports as to the behaviour of the fire and the carrying out of tasks to then be reported up through the chain of command to the IMT.
- 15.1.31** What can also be gleaned from the AIIMS-ICS system is that the discipline of preparing a written Incident Action Plan and Communication Plan would necessarily involve those in senior functional roles, such as the Incident Controller, the Operations Officer and the Planning Officer, in ensuring that they received detailed reports from the fire ground. This is because they need to know to what is occurring on the fire ground in terms of sectorisation of the fire, deployment of resources, the behaviour of the fire and the effectiveness of any strategy or tactic being employed, so that they can prepare, monitor or update the Incident Action Plan.
- 15.1.32** The aim of the AIIMS-ICS system is for the occupants of the senior functional roles, particularly in the case of a Level 3 incident such as Linton, to be in a position to consider, analyse and evaluate all relevant material so that appropriate direction by way of the Incident Action Plan can be given to those on the fire ground not possessed of all requisite information needed to make appropriate decisions, in terms of safety and operational effectiveness.
- 15.1.33** Bearing in mind this brief introduction, it is now necessary to examine the establishment and resourcing of the IMT. Some of these matters have been considered in Chapter 8 dealing with the first response.

15.2 Establishment of the IMT at ‘Glasshouse’

- 15.2.1** At the time of the Linton fire Mr Brad Mahoney, a DNRE officer, was employed as Fire Management Officer for Midlands Fire District at the State Public Offices in Ballarat. He was responsible for all fire protection and suppression activities in the Midlands District. It was also part of his function to facilitate support for the CFA in fire suppression on private land.¹⁹ He holds a Certificate of Applied Science in Conservation and Natural Resource Management and is an accredited Level 3 Operations Officer and Level 2 Fire Controller

training within the framework of the AIIMS system. He had also completed training in basic fire control, fire management techniques and fire investigations and had delivered training in areas such as fire behaviour, fire control techniques and fire safety and survival. He began employment with the DNRE in 1973 and commenced full time employment in 1981. He gave evidence that he had:

“supervised numerous fuel reduction and regeneration burns in both pine and hardwood as well as being involved in the suppression of numerous wildfires over most of Victoria in many different forest types.”²⁰

- 15.2.2** On 2 December 1998 he was on duty in the Ballarat office. Fire restrictions had not been introduced and fire look-out observers were not on duty. On that day there were a number of fires reported in and around Ballarat and Mr Mahoney coordinated the DNRE’s response to each of those fires.
- 15.2.3** Mr Mahoney gave evidence that the Ballarat D4 and Daylesford D3 first attack dozers were being repaired and were unavailable.²¹ This was an unfortunate coincidence.
- 15.2.4** Shortly after midday Mr Mahoney was concerned with deploying DNRE resources to a number of fires in and around Ballarat.
- 15.2.5** At about 1.20pm he became aware of traffic on the CFA radio discussing a fire at Snake Valley. As set out in Chapter 8, at 1.31pm Mr Mahoney directed John Searby, and at 1.45pm Murray Fullerton, to go to the Linton Fire.
- 15.2.6** Mr Mahoney said he re-checked the status of the three fires in the Ballarat area after conferring with Operations Officers at each of these fires and redirected available resources to the Snake Valley-Linton Fire.
- 15.2.7** Mr Kevin Brown was the CFA Risk Manager for the Midlands area with the Country Fire Authority. He commenced involvement with the CFA in June 1962 and became a full-time member in November 1975.
- 15.2.8** Mr Brown stated that during his time with the CFA he had attended numerous bushfires from as far back as 1965 when he attended the Gippsland fires and since being in the Ballarat area he has attended bushfires in the Barringa State Forest, Creswick, Spring Hill, Lara in the Grampians area, the Avoca fires of 1985, Ash Wednesday, Greendale and numerous other smaller fires.²²
- 15.2.9** On 2 December 1998 Mr Brown commenced duty in Ballarat at about 8.15am. He was not the Duty Officer on the day. He received reports during late morning or around midday of a fire in the Ballarat area and by the afternoon, there were three fires that he was working on providing resources to, in conjunction with the DNRE in the Ballarat area. Early in the afternoon Brown contacted Greg Leach to advise him what was happening in the region.
- 15.2.10** Mr Brown was advised by Brad Mahoney of the fire in the Snake Valley-Linton area. Shortly thereafter Des Phelan, the Grenville Group Officer, told Brown that smoke was building in the Linton area and wanted to know *“if we knew anything about it”*. It was decided to call out the whole of the Grenville Group.
- 15.2.11** At about 1.30pm Mr Brown contacted Leach on his mobile phone, advised him of the status of the three fires in Ballarat and of the building fire in the Linton area. It was decided that Brown would remain at Region Headquarters and Leach would proceed to the Ballarat State Offices (the *“Glasshouse”*) to establish an Incident Management Team with the DNRE.
- 15.2.12** Mr Brown stated that he then contacted Neville Britton and the decision was made for Britton to attend the Linton Fire *“to gather intelligence and establish an operations point”*.²³ At around the same time Ian Lightfoot, the Buninyong Group Officer, contacted Brown and requested that the vehicles from the Buninyong Group be released from the fires in Ballarat and be despatched to the Linton Fire. Brown arranged for this to occur. Brown states that as this was happening he was called by Leach from the *“Glasshouse”* and told that Leach was the Incident Controller and that he required additional personnel to run the IMT.

- 15.2.13** Mr Brown sent Michael Harris to the “Glasshouse” with the AIIMS-ICS kit. The kit contained all equipment and forms necessary for an IMT in an AIIMS fire. The “Glasshouse” was a pre-planned Incident Control Centre with appropriate communications and other resources.²⁴ By 2pm Leach was at the “Glasshouse” and met DNRE officer John Sanders who briefed him on the situation at Linton. Leach, Sanders and Mahoney commenced setting up the joint agency IMT and it was decided that the CFA would be the lead agency and Leach appointed Incident Controller.²⁵
- 15.2.14** Mr Brown received a phone call from Leach requesting that John Anderson set up a divisional headquarters at Snake Valley. Brown stated that he contacted Region 16 and was advised that Anderson had been despatched to Snake Valley.
- 15.2.15** On the day of the Linton Fire Mr Anderson was on duty in his role as Training Manager at Region 16 Headquarters in Ararat and heard radio traffic that there was a fire in the Snake Valley area. A telephone call was received by Anderson from DGO Wyllie of the Beaufort Group and a fire bomber requested. Anderson stated that he rang Brad Mahoney regarding the request who told him that no DNRE units were yet in attendance so an accurate situation report was not available.
- 15.2.16** Mr Anderson stated that he discussed the issue of the fire bomber with Operations Officer Ray Mason from Region 16 Headquarters and then rang the CFA air desk and requested aerial support to the Snake Valley fire. Anderson said that he and Mason decided that he (Anderson) would go to Beaufort Group Headquarters to assist the Group and maintain information flow back to the Region 16 Headquarters. He then left for Beaufort and whilst en route received a phone call from Mason advising that Leach from Region 15 Headquarters had directed that he not go to Beaufort and instead proceed to Linton. Nonetheless en route to Linton Anderson did call in at Beaufort and advised Deputy Group Officer Geoff Torney from the Beaufort Group to maintain information flow back to Region 16 Headquarters. Anderson recalled that whilst en route from Beaufort to Linton, Leach telephoned him and asked him to make sure that he established an information flow back to the Incident Management Team at the State Government Offices in Ballarat. Anderson stated that he arrived at the Linton Fire Station at about 2.45pm. When he arrived, Bob Graham, Neville Britton, Des Phelan and Ian Lightfoot along with other personnel were there.²⁶
- 15.2.17** On the day of the Linton Fire Mr Neville Britton was working at the CFA Region 15 Headquarters. He proceeded in the morning to a fire at Sebastopol to “liaise with the CFA Incident Controller”.²⁷ Whilst at this fire he was made aware of another fire in the Snake Valley area and at about 2pm he was requested by Brown to proceed to Linton to assess the situation. He stated that:
- “At 14.35 hours I arrived at the Linton Fire Station. Bob Graham from the Department of Natural Resources and Environment arrived at the same time.”*²⁸
- 15.2.18** DNRE officer Bob Graham gave the following evidence of his deployment to the Linton Fire:
- “On 2 December (1998) I was in the Daylesford office and around 14.00 hours I received a call from John Sanders that there was a fire at Linton and that I was to report to the Ballarat office. En route I was directed to proceed straight to Linton and to establish an Operations Point at the CFA building and that Grenville CFA Group Officer Des Phelan would be my deputy. Whilst en route I contacted the Incident Control Centre and asked them to check on the availability of large dozers. I arrived at Linton at about 15.00 hours and amongst other people John Anderson, CFA Training Manager, Midlands District and Neville Britton, CFA Region 15 Operations Officer were present. I advised them that I was to be in charge of the Operations Point and I was to report back to the Incident Control Centre at Ballarat and that Grenville CFA Group Officer Des Phelan was to be my deputy.”*²⁹
- 15.2.19** On the day of the fire Mr John Sanders was in his office in Ballarat and was made aware of a number of fires including at about 1.30pm:
- “of a fire that was developing quickly in the Snake Valley area to the north of Linton.”*³⁰

15.2.20 Mr Sanders gave evidence that Leach arrived at about 2pm and:

*"We commenced setting up a joint agency Incident Management Team. We conferred as to who would control the fire. From the information at hand we agreed that the probable path of the fire would be from private (freehold) forested land through State forest back out into freehold. We decided that Greg Leach would be Incident Controller and Brad Mahoney Deputy Incident Controller. I am familiar with the area where the fire was burning and as part of the ongoing training of fire controllers I decided that it would be good experience for Brad Mahoney to act as Greg's deputy, particularly as I would be present to act as Brad's mentor. Under the CFA/NRE Joint Agency Agreement within the framework of the Australian Inter-Agency Incident Management System, a joint planning unit was set up involving Natural Resources and Environment and Country Fire Authority personnel. A Natural Resources and Environment officer Peter Boadle was in charge of the unit with Euan Ferguson as his deputy. This group, as part of its task, tracks and reports on resources involved in the incident. The unit was housed in the case of Natural Resources and Environment office at the State Public Offices in Ballarat.... from the moment that the Incident Control Team was operational all Natural Resources and Environment and Country Fire Authority resources were controlled by Greg Leach from the Incident Control Centre in the NRE office at Ballarat."*³¹

15.2.21 Mr Sanders gave evidence that at about 2.10pm a Forward Operations Point was established at Linton to:

*"facilitate effective control of operational aspects for both agencies and a focus for the effective implementation of Incident Management Team strategies on the fire ground."*³²

15.2.22 Mr Sanders stated that:

*"Around 15.00 the fire had developed and a decision was made that I would assume the role of Deputy Controller and Brad Mahoney would become Operations Officer. The Incident Management Team had been increased in size to meet anticipated requirements with personnel from both agencies. An operations point had been established at Linton with Bob Graham, an NRE officer in charge."*³³

15.2.23 At the time of the Linton Fire, Mr Michael Harris had been a member of the CFA for about 24 years. In 1998 he was promoted to Operations Officer in charge of the Ballarat City Fire Brigade. He had completed the AIIMS Incident Management course. He had been involved in urban, rural, hazardous material and rescue incidents.

*"For many of these incidents I have been in charge. For the majority of my career I have been involved in urban structural fires."*³⁴

15.2.24 On the day of the Linton Fire Mr Harris was on a rostered day off when he was contacted by Brown who told him about the fires in the Ballarat area, including the Linton Fire. At about 2pm he was instructed to attend the Region Headquarters and en route he spoke to Brown about setting up a staging area in relation to the Linton Fire at the Linton Recreational Reserve. Harris rang the Operations Centre at Ballarat City and in due course attended at the Region 15 Headquarters:

*"collected the IMT kit together with Stone, Jenkins and McGrath ... On arrival at the IMT at approximately 3pm I directed Stone and Jenkins to proceed code one (lights and sirens) to Linton. McGrath and I went to the IMT and reported to Regional Officer in charge of Region 15, Greg Leach. Leach briefed me in relation to the Linton Fire and assigned me to carry out duties as Joint Operations Officer with Fire Management Officer Brad Mahoney from the NRE. McGrath was to assist me in these duties."*³⁵

15.2.25 Mr Peter Boadle of the DNRE arrived at the IMT at about the same time as Harris (around 3.00pm) and was appointed Planning Officer.³⁶

15.2.26 As mentioned above, the IMT kit that Mr Harris brought with him contained all ICS forms including those for communications plans, Incident Action Plans and the recording of

the Incident Management Structure along with identification vests and other necessary equipment.³⁷

- 15.2.27** Mr Sanders directed Janine Stephenson of the DNRE to assume the role of Logistics Officer with Mr Hocking as her deputy.
- 15.2.28** Mr Euan Ferguson arrived at around 17.00 hours and participated in an IMT meeting. He was directed to act as Deputy Planning Officer.³⁸ Before attending the IMT he had been at the Region headquarters and had received information about the fire at Linton. By this time the IMT consisted of at least 20 people.³⁹
- 15.2.29** It is to be noted that the FAIL process identified at least 14 roles that are required to be filled, to achieve incident objectives at a multi agency fire. These roles were all filled at Linton and in addition many functional roles had deputies and numerous other support personnel.⁴⁰ Although, when pressed regarding the failure of the IMT to carry out the key function of preparation and dissemination of Incident Action Plan and communication plan, Messrs Leach and Ferguson suggested that the IMT may not have been sufficiently resourced to carry out that function.⁴¹
- 15.2.30** In addition to the resourcing of the IMT itself, it was closely assisted by personnel at the CFA Regional Headquarters who acted on request for additional resources (such as the Staging Area) and provided resources and information to the “Glasshouse” and information including information regarding the weather, dealt with in Chapter 19, direct to the Forward Operations Point.

15.3 Plans, Supervision and Implementation of AIIMS

Introduction

- 15.3.1** The issue of supervision is integrally linked with the principle of span of control and is probably the most significant difference between the Group and AIIMS systems, as described by Mr Roche.
- 15.3.2** Starting at the top of the Incident Structure, the Incident Controller is responsible for the safety and welfare of personnel involved in combating the incident. The Incident Controller retains the overall responsibility for management of the incident and supervision of personnel comprising the IMT.⁴²
- 15.3.3** Other parts of this Report demonstrate that no attempt was made by the IMT to apply and enforce AIIMS-ICS principles through the incident chain of command at the Linton fire. This is evidenced by:
- Despite monitoring radio channels where Group call signs were universally used rather than AIIMS titles no attempt was made to enforce the use of AIIMS call signs;
 - Apart from those at the IMT at Ballarat and a small number of strike team leaders (including Mr Scharf) there was no attempt to enforce the wearing of function specific tabards and identification of vehicles to AIIMS positions;
 - There was virtually no contact by the IMT with Region 16 command operating in isolation, North of Pittong Road;
 - IMT personnel held and were operating upon different understandings as to the likely time of arrival of the south west wind change;
 - No one in the IMT had or made any attempt to find out the capabilities of the Geelong Strike Team before it was tasked to follow the dozer down the eastern flank. Indeed, its selection for that task was a matter of being *“in the wrong place at the wrong time”* ;
 - The system employed failed to provide to the Geelong Strike up to date weather information and instruction as to what to do when the weather conditions changed; and
 - No attempt was made by the IMT to ensure that the Staging Area and MCV were properly briefed and provided with appropriate information and materials to carry out their AIIMS functions.

The preparation of plans – general supervision

15.3.4

This section of the Chapter will examine the issue of the preparation and dissemination of Incident Action Plans and Communications Plans and the relationship of supervision and implementation of AIIMS on the fire ground to those issues. As Incident Controller Mr Leach was required to supervise the four units comprising the IMT: Planning, Logistics, Operations and Control, Leach was asked as to his understanding of the role:

“Could I just ask you about supervision generally. In your role as Incident Controller it was incumbent upon you to supervise the officers holding positions below you, is that right?—Yes that’s right.

And so you were required to, at least insofar as the IMT was concerned, to supervise the Operations Officer, that was at the IMT?—Yes.

And you were also required to supervise the Planning Officer and Logistics Officer?—That’s correct.

Would you agree with that?—Yes.

In relation to supervision generally, you would expect that a person holding a supervisory role would have the necessary training and experience to carry out their responsibilities as a supervisor?—Yes.

And how did you see on the night – how did you propose to supervise those who you were responsible for supervising?—Well, I was directly supervising them, ensuring that they were resourcing up their unit appropriately, that they were undertaking the major tasks that were required of that unit, just through direct supervision.

So that required you to, if necessary, give people instructions about how to carry out their particular responsibilities, is that right?—Yes that’s right.

And make an assessment as to whether or not they were carrying out their responsibilities appropriately, is that right?—Yes.

Ensure that they had sufficient information to carry out those responsibilities, would you agree with that, that is one of the things a supervisor would do?—Yes.

And in carrying out your duties as a supervisor you would assume wouldn’t you that there is always a risk that those people who you are supervising will not discharge their responsibilities according to their training?—Well, that’s right, it depends on your personal knowledge of their training, skills, abilities, experience, et cetera.

But even if you have personal knowledge of a person who you are required to supervise, you still have to assume, as a supervisor, that they will not carry out their duties in accordance with their training, don’t you?—Well, that is part of the ongoing supervision process.

That is what supervision is, effectively, isn’t it?—That’s right.”⁴³

The role of Incident Action Plans and the Communication Plan

15.3.5

The preparation and dissemination of accurate Incident Action Plans and a communications plan is arguably one of the most important functions of the IMT. The importance of such documentation is clear from matters previously referred to and was canvassed in evidence with Mr Sanders, the Deputy Incident Controller. He was asked:

“I suggest to you that the documentation of Incident Action Plans and Incident Communication Plans and dissemination of those plans to the relevant operational people are two of the most important functions of the IMT, would you agree or disagree with that?—In the early parts of the fire, the operational structure has probably been set up in advance of the paperwork, but it is important for people to understand where they fit into the command structure.

Would you like to answer the question?—In regard to the communications?

The question was, I suggest to you the documentation and dissemination of an Incident Action Plan and the documentation and dissemination of Incident Communication Plans are two of the most important functions for the IMT?—They are.

Do you agree or disagree with that?—Yes they are important functions.”⁴⁴

The Communications Plan

- 15.3.6** There was no written Communications Plan for the Linton fire.

The first IMT Incident Action Plan for Linton

- 15.3.7** An Incident Action Plan was prepared by Mr Harris at 4.10pm on 2 December 1998.⁴⁵ The plan was on one page and is almost entirely bereft of information. In the Incident Objective column it states:

- "1. Stop fire by Possum Gully Road.*
- 2. Fallback position is Linton Township."*

- 15.3.8** By this time the fire had already breached Possum Gully Road. The plan contains no information at all regarding resources deployed, resources available or required, where resources were currently engaged on the fire ground, sectorisation of the fire and relevant communication plans or the identification of anyone holding any functional position in respect of the incident. In evidence Mr Harris acknowledged that the fire had already passed the control point that he referred to in his plan at the time the plan was made which demonstrated that he was not operating on up-to-date information.⁴⁶

The second IMT Incident Action Plan for Linton

- 15.3.9** At around 5.30pm, Mr Ferguson prepared the only other Incident Action Plan produced on 2 December 1998. Ferguson prepared his plan to commence at about 5.30pm (17.30 hours) and it was signed off by Leach. It appears that this plan may well have been prepared following a request from CFA Headquarters rather than as an attempt by the IMT to carry out its function.

- 15.3.10** It is noted, in particular that the plan incorrectly records Channel 68 as the command channel, does not refer to any fire ground channels, does not refer to any sectors, let alone does it identify division or sector commanders. The plan was not disseminated through the chain of command and indeed it would have been pointless to do it because it did not contain the information required by the AIIMS-ICS Manual and pro-forma. It would have been of no use to those on the fire ground.

Mr Ferguson's evidence

- 15.3.11** Mr Ferguson recognised that the discipline of preparing the plan and the boxes required to be completed can act as a prompt to people in the Incident Management Team or command structure to obtain that information. He was asked:

*"How was a proactive process in relation to safety implemented on 2 December?— Well, Your Worship, there was planning which was going on by people who were in the Operations Section, that is proactive, but of a shorter planning horizon, right through to the Operations Officer. The IMT, when it is established, then tries to document what that plan is. The documentation is, some of the boxes and some of the sections you fill out are meant to trigger questions in whomever is writing the plan. If you haven't got enough information to fill in the box, then it prompts questions of people in the Incident Management Team or the command structure to try and elicit those responses so you do complete the picture."*⁴⁷

- 15.3.12** Although he prepared the plan, Mr Ferguson made it clear in his statement that Boadle, as the Planning Officer, was responsible for carrying out the functions of the Planning Officer and *"my role was to assist Boadle"*.⁴⁸

- 15.3.13** Mr Ferguson's understanding of what the contents of an Incident Action Plan should include was as described by him in his statement:

"An Incident Action Plan includes a consideration of the general situation (both the current situation and expected situation), a clear statement of objectives, details of how tasks required to achieve the plan will be executed, consideration of administration and logistics requirements, definition of command appointments in the IMT and communications arrangements. Incident Action Plans also pick up

resourcing and safety issues. Incident Action Plans are documented because it is difficult to verbally communicate all relevant information to the large number of people that work on a complex incident.”⁴⁹

15.3.14 Mr Ferguson was asked about his preparation of the actual Incident Action Plan. He said:

“There was concern about the lack of knowledge about CFA resources and that the Incident Action Plan hadn’t been documented, and I was asked to try and gather more information on the CFA resources and to document the Incident Action Plan.”⁵⁰

15.3.15 He said he rang Region 16 Headquarters and Region 15 Headquarters and from those two sources obtained information on what CFA resources were attending from the regions involved.

15.3.16 It was pointed out to Mr Ferguson that the form he used on the day was not the same form as that supplied in the AIIMS Manual.⁵¹ He was asked:

“Who uses this form once it is produced, who is it produced for?—Initially it is produced for the Incident Management Team to focus and coalesce what the objectives and what the strategy is to tackle the fire, so the Incident Management Team are of the same mind and have the same objective. The form is then used to assist in briefing members of the Incident Management Team in the various units, including the Operations Section, so it would then be passed through the chain of command and used to assist in briefing people in what the high level of objectives of management of the fire are.

When you say it is passed through the chain of command, are we going down now from the IMT, is that what you are talking about?—And up.

You mean Headquarters?—Yes, and across, Your Worship, to, you know, for example, in this situation, to Region 15 Headquarters.

Can I just concentrate on going down. How far down the chain of command would this document go and for what purposes would it be used at the different levels below IMT level? ... what I am asking you is if AIIMS is operating as it should, how far down the chain of command in a type three fire would that document go?—Your Worship, to coin a military phrase, it depends on the tactical situation at the time, and I am not trying to be smart in saying that, but planning is something which occurs from the moment the first vehicle or the first firefighter arrives at the fire, and that type of planning is swift, is mental, and those plans are transmitted verbally. Now, at some point in time in the escalation the number of resources at the fire and the management structure or the fire situation itself warrants that that plan, which up until then has been transmitted verbally and has been in someone’s head, that plan then needs to be documented. Now we get into a philosophical discussion, I suppose, about planning and whether planning is reactive or proactive. Planning is intended to be proactive but in the first shift, given what I would call the “fog of battle”, much planning is reactive in that it is taking those mentally developed plans, which have been transmitted verbally from a number of fireground commanders up to the Operations Officer, that plan which is alive at that time and been implemented now needs to be documented.

What do you regard as the first shift?—The first shift generally would be the first 8–12 hours of firefighting.

What you say is that the first shift is reactive in nature?—It tends to be more reactive than proactive.

In relation to operational safety of the individual crews and others on the fireground, has it ever been proactive?—Yes it has.”⁵²

15.3.17 Mr Ferguson then moved away from the issue of the arrival of “the first truck” to establishing the IMT and, specifically to its first hour. He was asked:

“How was a proactive process in relation to safety implemented on 2 December?—Well, Your Worship, there was planning which was going on by people who were in the Operations Section, that is proactive, but of a shorter planning horizon, right through to the Operations Officer. The IMT, when it is established, then tries to

*document what that plan is. The documentation is, some of the boxes and some of the sections you fill out are meant to trigger questions in whomever is writing the plan. If you haven't got enough information to fill in the box, then it prompts questions of people in the Incident Management Team or the Command Structure to try and elicit those responses so you do complete the picture.... my responsibility was documenting the plan, but the point I would like to make, Your Worship, is that the plan which was documented was actually being implemented at the time, and well before, the plan was written on that occasion...."*⁵³

15.3.18 Mr Ferguson was later asked:

"Who did you expect will get a copy of that (the plan) at the time on that day?—I expect it would have gone to the Operations Section.

Do you include the Forward Operations Point is that?—Correct.

At Linton?—Yes, other members of the Incident Management Team, and Region 15 Headquarters.

Once it got to the Forward Operations Point did you have an expectation it would go somewhere else, would it go for example to the staging area or be given to the Sector Commanders, who would you have expected this document to have gone to on this day?—It could have gone to the staging area, it could have gone to the Sector Commanders, but I need to re-emphasise that this plan is a written plan of plans which were already being implemented by the Operations Section.

It is more than isn't it Mr Ferguson, it is the audited plan that was in place on the ground, that is what it is isn't it?—Well, no, I don't agree with your word 'audited'.

It has gone through the IMT to be checked and approved?—I agree with you that it has been approved, it has been approved by the Incident Controller.

And it has been checked?—Correct?

*So when it comes back down it is really a direction to people 'look you are not complying with this. This is what you should be complying with' isn't it?—Your Worship, if what was being implemented on the fireground or elsewhere varied from what was in the plan, then that would have been drawn to the attention of the appropriate section of the Incident Management Team."*⁵⁴

15.3.19 It was then pointed out to Mr Ferguson that his Incident Action Plan contained only one communication channel and recorded Channel 68 as the command channel. Ferguson agreed on the potential for confusion to be generated if the communications channels and plan were not accurately stated.⁵⁵ In respect of his plan incorrectly stating the communications channels, he was asked:

"Unless you get the communications set up accurately. If it is not documented somewhere else, and this is the only document that sets it out, there is potential for confusion within the Management Team?—I don't dispute that, Your Worship."

And:

*"There is no point in you sending down a document that has misinformation on it is there?—No."*⁵⁶

15.3.20 Mr Ferguson was asked about the broad role of the document:

"Isn't it important that this document accurately reflects the thinking processes that have on in the IMT in terms of the state of the fire and what needs to be done, isn't that very important?—I don't understand your question, I mean

What you are trying to do in a sense with this document is communicate to the various people inside the IMT that you have indicated perhaps outside the IMT in the chain of command what the agreed plan is, is that right?—That's right.

Therefore isn't it very important that it accurately reflect what the consensus is inside the IMT?—This reflects the outcome of that consensus."

15.3.21 Mr Ferguson's attention was drawn to Recommendation 9 of the "Operations Review". He was asked whether he disputed the critical success factors listed and said:

"No, I agree, yes."

There wasn't a problem with resourcing, was there, at the IMT to achieve those goals, or was there?—Yes, there were some issues, I believe, with the IMT and resources, yes.

You say there weren't sufficient resources in the IMT to meet those three critical factors?—I would suggest, yes, we would have to increase the number of people in both documenting and photocopying of the printed material so that it could be effectively distributed.

Do you mean how many people there were working at the IMT at 5.30 in the afternoon on 2 December 1998?—No, but there would probably be in excess of 20 people.

How is that difficult then, you were actually preparing two documents, the Incident Action Plan and the Incident Communication Plan, you are preparing the two documents and you are faxing them out?—Your Worship, I think this is implying more than that, that not only are they produced but we can actually demonstrate that they are disseminated, and that would imply that a copy of the plan, or the Communications Plan and the Incident Action Plan should go to each crew via the crew leader....

If the worst comes to the worst, you prepare the document, the main Incident Action Plan, you prepare the Communications Plan and you get a number of copies – did you have a photocopier?—Yes there was.

You send somebody in the car to the Operations Point and ask them to get it distributed?—Yes, Your Worship, all I am saying is that requires some additional people to do the photocopying and collating.

With 20 people then, Mr Ferguson are you seriously suggesting to me that critical documents like these, are you seriously suggesting that there was a resource difficulty?—Your Worship, with the number of crews we had on-line, yes, that would have required some additional resources I believe."⁵⁷

Incident Controller's evidence on the Incident Action/Communications Plan

15.3.22 Mr Leach was asked about passages of the joint "Operations Review" concerning the lack of timely production of an Incident Action Plan and Communication Plan and that the lack of those plans contributed to the poor flow of information to crews on the fire ground:

"There's no doubt there was no communications plan prepared and disseminated on 2 December?—That's correct, not by the Incident Management Team.

What stopped that from occurring on 2 December 1998?—Neville and I discussed the communications plan and it was agreed that we would use the plan as we had detailed in the lead-up to the fire season which was the default pre plan for the Grenville Group and I understood that to be done. When I got to the IMT and I spoke to Brad Mahoney he informed me that they were using their default plan ... I was satisfied that the plan was working okay. At no time during the afternoon or evening did anyone bring to my attention that there were any concerns or problems with the communication.*

Why wasn't it written down once you were satisfied that that was okay?—Well I suppose, Your Worship, the people who were responsible to implement the communications plan from the Operations Point and below were the people who advised me about it, and they didn't indicate there was any difficulty with that or the fact that the plan wasn't understood. I suppose it is one of those things where with the activity that was going on ... it was just one of those issues that wasn't followed through in terms of documenting it, because there was no reason to do so or no problem.

But with a communications plan, do you need to see it, the written plan, to see it and sign it off?—As the Incident Controller, yes, that's right.

Did you see a written plan and sign it off?—No I didn't, Your Worship.

The communications channels weren't even identified properly when Mr Ferguson did get around to preparing his Incident Action Plan was it?—In what respect.

It had one channel, 68, that was it?—On one of the situation reports, yes, that's right, yes.

Did you think to tell him he hadn't got it right and what the communications plan really was?—When you say "it wasn't right" I interpreted it the way the plan was written up, that channel was allocated on the east flank. I think he had Channel 68, if that's right which was a fireground channel.

What about the west flank, what channel did you understand the west flank to be operating on?—I don't know that that document actually had it on there.

No, it didn't, that's the point. It only had one channel, 68, is that 15A or 15B?—68 is 15B." ⁵⁸

15.3.23 Mr Leach then explained his understanding of the communications channels being used on the day. He was asked:

"Did you tell Mr Ferguson those things? (Author's note: the communications channels) —No, not that I can recall.

Do you think it was important that Mr Ferguson as the person preparing the Incident Action Plan was possessed of that information so he could include it on it?—When Mr Ferguson arrived at the Incident Management Team, that was later in the afternoon, when he arrived, I saw him arrive, I had a brief discussion with him and explained what the structure was, who was involved in the Incident Management Team.... I had other issues that I was attending to at the time so I directed him, we agreed he would become a Deputy Planning Officer and I directed him over to Mr Boadle and my expectation was that Mr Boadle would brief Mr Ferguson as the Deputy Planning Officer.

Alright, when you signed off on the Incident Action Plan did you think it would be a good idea if it contained correct information?—Yes." ⁵⁹

15.3.24 Mr Leach was later asked some further questions about the Communications Plan:

"On this evening was there anything to prevent a written Communications Plan getting up and being put into documented form and sent off to the staging area, say, within a hour of the staging area being set up?—Nothing to prevent it other than the other competing demands on the personnel in the IMT.

Is that an area again where perhaps because of your commitment to all of your other responsibilities, that is something that perhaps someone, if they were generally overseeing the IMT in its minutia of operation, could well be focussing on?—Certainly, I think probably this process in itself has put a certain amount of focus on that.

You would be the first to agree, I imagine, that a written Communications Plan is quintessentially important?—As I said the other day, it certainly reduces the opportunity for confusion.

Thus it is very important?—Correct.

In terms of sectorisation and the chain of command, may I ask you, were you aware of sectorisation of the eastern and western divisions at any stage on the evening before 8.45pm?—Yes.

Was that ever reduced into some sort of plan form or Incident Action Plan or such like, or were things travelling too quickly?—I don't think it was committed to paper as part of the Incident Action Plan outside of what Mr Ferguson documented, but it was clear from the very early stages of the incident that there was going to be 5 sectors, that was very clear within the IMT and very clear within the Operations Point, certainly the people that I interacted with." ⁶⁰

15.3.25 Mr Leach was referred to another passage of the joint "Operations Review", about sector and division boundary difficulties on the day. He gave evidence that he did not understand those issues to be a problem on the day and was asked:

“For example Mr Millar certainly didn’t regard himself as the Western Divisional Commander, he regarded himself as responsible for the area north of Pittong-Snake Valley Road. You are now aware of that and the evidence of Mr Smithers about his knowledge?—That’s correct.

And that they’d basically operated as a group via, didn’t they, north of Pittong-Snake Valley Road?—Yes, and that was one of the reasons for my early contact with Mr Anderson to go to Snake Valley, to ensure that the Beaufort Group understood and were integrated into the command structure on the day.

You are now aware that didn’t happen, aren’t you?—That’s right.

What did you do on the day to sort of follow up and ensure that they were integrated into the structure?—I had a conversation with Mr Anderson, he rang me, advised he had been to Snake Valley and I can’t recall the exact words but he indicated to me that the personnel from the Beaufort Group understood the structure that was being put into place.

What problems can that cause if the Group structure is maintained in part of the fire that is supposed to be under the control of an IMT, what is the problem with that happening?—The reason it ran through my mind early was based on an experience during the Barringa fire of 1995 where the fire started in Region 15 and ran towards the border of Region 7, I’m not sure whether it actually crossed over but it was very close to it and the operational structure on the day wasn’t as integrated as it should have been and that resulted in some independent response by Brigades and Groups from Region 7, and they undertook their own logistical arrangements for catering and fuelling and the like.

Is it important for the overall firefight that the people for example, south of Pittong-Snake Valley Road know what tactics are being employed by those operating north of the road?—If it is going to impact on their ability to do their job or their safety, yes. ... certainly people need to know what is going on in adjoining sectors.

Of course it can create communications difficulties if you have effectively a group fire being fought in one area?—That’s right.

You didn’t have any communication with Mr Millar at all during the day?—No.

Did you check with the people under your control during the course of the day to get reports from them, from Mr Millar as to what was happening in his division?—No. I knew, based on one of the discussions with the Operations Point that there had been some contact between I think Mr Phelan and members of the Beaufort Group and Mr Mahoney had discussions with Mr Fullerton who was working up there with the Beaufort Group.

You are aware that certainly the NRE crews and the Region 16 people who have given evidence had vastly different views on who was a Divisional Commander and who was a Sector Commander and who was running the show and who wasn’t running the show, you are now aware of that?—I am, post the fire, yes.

Why wasn’t it that the IMT found out about that during the course of the fire, found out that that was happening?—Well I could only say that the structure, obviously the flow of information up the structural chart didn’t facilitate that.

How can you find out about it if you don’t take some more proactive role in your supervision of the people under your control.... how is it you can ensure things are going as they should be?—Well, on the day I was taking quite an active interest in operations and there was a good flow of information back from a range of sources. In hindsight the bulk of information coming back from north of Pittong Road was via Mr Fullerton, but I understood Mr Fullerton to be working with the Beaufort Group personnel, so there was nothing that really alerted me on the day to any particular issues there....”⁶¹

15.3.26 Mr Leach’s attention was then drawn to the recommendation in the joint “Operations Review” regarding the preparation of an Incident Action Plan and Communication Plan and dissemination of those plans in a timely manner as a critical success factor for the IMT. He responded as follows:

"Do you agree or disagree with that paragraph?—Well, I certainly agree, but as a practitioner I know just how difficult it is to commit that information to paper, particularly during the main run of a fire, particularly being able to put down information that is current and relevant because there is going to be a time delay in getting that information out to the people on the ground, which makes that document perhaps almost useless by the time it gets there. The time and space issues and the transfer of information is a significant issue.

What I want to suggest to you is that wasn't really the case here because the communications plan as it was, apart from an NRE channel changing later in the day, didn't really change from the initial conversation you had with the Operations Point?—That's correct.

You say in your statement that in terms of fires in the Central Highlands, that they are often, or the most common duration is 5 or 6 hours, around that time?—That's right.

If the system doesn't allow for the dissemination of this sort of information to people on the fireground during that sort of timeframe is that a fairly major deficiency in the system?—I think Mr Graham yesterday talked about fires in his experience in East Gippsland and the like, and I have experienced similar, what we call "campaign fires" in the north-west of the State. Around the Central Highlands you have fires that tend to start early afternoon and the main run of the fire will run through into evening and then you have blacking-out overnight and for the next few days. They are short sharp duration fires on the high fire danger days and they can run quite aggressively and it is very difficult to react quickly to them. The only way that you can really overcome that or minimise that reactionary time is to have as much pre-planning in place as you can."

15.3.27 Mr Leach was then directed to a comment in the joint "Operations Review" which said:

"Divisions and sectors need to be documented and communicated to people who are working within the structure. People on the fireground had different perceptions about the operations chain of command."

And was asked:

"Do you agree or disagree with that comment?—That is correct, once an Incident Action Plan is documented, falling out of that can be sector or division plans which become more specific to the sector or division, once again they are even more difficult to create in that first run, they rely on those higher level documents being developed.

Yes and that just didn't happen on 2 December?—Not until later in the afternoon when Mr Ferguson commenced and started to write up some of that documentation.

Yes, that was an Incident Action Plan but that didn't identify any sectors or sector commanders or things of that nature and we have talked about the communications channel?—No, that's right.

I gather from your evidence though, tell me if this is wrong, from quite early in the day you were possessed of sufficient information to sit down yourself with a piece of paper and write out what the Communications Plan was and what the divisions at least were. If we put sectors to one side for a minute, you were capable of doing that very early in the piece weren't you?—Yes, my understanding was that the members of the IMT and the Operations Point were across that detail from the early stages and it wouldn't have been a difficult exercise to document that plan it would probably have taken 20 minutes, I suppose, by the time someone confirmed the detail with the Operations Point, committed it to paper, copied it, disseminated it, I suppose. As I said yesterday there were a lot of competing demands within the IMT and it seemed clear that the Communications Plan was clearly understood so the priority was on a whole range of other tasks that were, seemed more urgent at the time.

*When you say it was clearly understood, you really had no way of knowing whether it was understood or not by the actual crews on the fireground?—By the crews on the ground, no."*⁶²

15.3.28 Mr Leach's attention was again drawn to Recommendation 9 of the joint "Operations Review", which reads:

"Incident Management Teams must be resourced with appropriate personnel to meet the following critical success factors:

- *Production of an Incident Communications Plan ;*
- *Production of an Incident Action Plan; and*
- *Dissemination of these plans to appropriate personnel in the command structure."*

And was asked if he agreed with that and said:

*"I would, and I would take it a step further. One of the outcomes of the FAII process was the determination of minimum numbers of personnel within an IMT based on the fire danger index. On the day of the Linton Fire we complied with those minimum numbers, we had at least 20 people in the IMT, but on reflection I think we would have benefited from a couple of additional personnel, management support type personnel. I certainly would have benefited as the Controller in having a penciller or scribe with me to log down information on my behalf, and I think we would have benefited from having someone dedicated to the production of maps in the Planning Unit, and just some general management support people to do these sorts of things. I think the Deputy Planning Officer to write up the Incident Action Plan, there are other important functions that that person needs to do, you could direct someone, a management support person to document a lot of that general information."*⁶³

15.3.29 Mr Leach was then asked:

*"I've got to suggest this to you because it would appear at least to some people, I suggest to you, that a staff of 20 odd people in the IMT ought be sufficient to carry out these fairly basic and important tasks. Why is it that it is not?—I suppose to someone who hasn't been involved in an IMT, 20 people does seem like a lot of people, but when you think that those 20 people are providing all of the infrastructure to support 300 firefighters on the fireground as well as respond to the community demands, 20 people isn't a lot of people, and an Incident Management Team is a very dynamic place, there is a lot of activity going on, there is a lot of things that need to be done and it is all about prioritising the competing demands."*⁶⁴

Evidence from other members of the Incident Management Team

15.3.30 It is now necessary to consider the evidence given by other personnel in the IMT and the management team, of the failure to prepare and disseminate, in a timely fashion, an appropriate Incident Action Plans and Communication Plans.

15.3.31 Mr Mahoney was asked:

"Bearing in mind that it is the responsibility of the Operations Officer to prepare the Operations Section of the Incident Action Plan ... if in fact it was the case that the staging area, say, at around about six o'clock in the evening was not in possession of accurate information about the chain of command on the fire ground, and was not in possession of accurate information about communications plans. Would that be an indication to you that the staging area was not functioning properly?—If they didn't have a good understanding of those, like, as to who crews should be deployed to and what channel well, well then, yeah, that would indicate a failure.

Because the staging area plays an important link between deployment orders as they are given by the Operations Officer and the actual deployment onto the fire ground doesn't it?—It does.

Just in relation to that, that information about sectorisation, if you were a person at the staging area charged with providing briefings to crews going out onto the fire ground, where would you expect to get that information from about sectorisation?—From the Operations Office at the Operations Point.

Isn't there a process under AIIMS-ICS, correct me if I am wrong, whereby that information comes in a written form as part of an Incident Action

Plan?—Yes.

And that comes from the IMT, doesn't it, not from the Forward

Operations?—It does once the Planning Unit gets ahead of the development of the incident.”⁶⁵

15.3.32 Mr Mahoney was taken to the responsibility of the Operations Officer as set out in the CFA Operations Guidelines and was asked:

“Development of an Incident Action Plan”, where did that task evolve to, you or the Operations Point?—In the initial attack phase it was more towards Bob Graham, later, once things got more organised, it came back more to me in consultation with the Planning Section.

When you say “later”, is that before or after the deaths?—The fire was still fairly dynamic up until, I think, about 7 or 8, and the Planning Section really can't catch up with the situation until after that time.

At what time did it evolve to you?—Up until the time of the incident I believe it was with Mr Graham. ...

But the concept of an Incident Action Plan actually has a formal meaning, doesn't it, in the manual?—It does.

Was that task of developing a formal Incident Action Plan ever left to the Operations Point?—No.

So an Incident Action Plan is, for a Type 3 fire, that is used for large incidents as a more substantial document which lists the intentions and actions of the various functional units of the incident control system?—Yes.

That's from page 64, Appendix 1 Definitions?—Yes.

Is that your understanding?—That is my understanding of the Incident Action Plan.”⁶⁶

15.3.33 Mr Mahoney gave evidence that he never saw a communications plan in relation to the Linton Fire. He was questioned about this:

“Did you ever go looking for a communications plan on the day of the Linton Fire?—No, we had a default plan, which is working on, fire ground traffic on a conventional channel, and command on trunking, and we operated on that.

Again this is from the NRE perspective?—That's right.”

And in relation to CFA communications, he was asked:

“Did you know whether the CFA had the one command channel for the whole fire or whether different divisions had different channels?—At the time of the incident I believed it was all on Region 15, on Channel 67, but I learnt later that there were some parts of the fire operating on a different channel.

The northern part of the fire, in particular, have you been aware of that?—Yes.

They were operating on Region 16?—Region 16 frequency.

You didn't know that at the time?—Not in the initial attack period, no.

What about fireground channels, were you told what the fireground channels were?—The fireground channels were 67 for CFA resources and 118 for NRE resources until the repeater radio was installed ...”⁶⁷

15.3.34 In relation to actual sectorisation of the fire, Mr Mahoney was asked:

“Did you actually know what divisions and sectors were in relation to the fire?—Broadly, yes.

What was your understanding as to what divisions and sectors the fire was divided into?—Well, the focus of the strategy was to concentrate efforts on the eastern flank, given the wind change, and we had other resources on the western flank, so primarily two flanks, or two divisions, and it was sectorised within each, but as equipment arrived the priority was given to the eastern flank.”⁶⁸

And:

“Did you every prepare a document setting out the divisions that the fire had been divided into and the sectors within those divisions?—I didn’t.

Did you ever see such a document?—I think later on I did, not during the initial attack period.

*When you say “later on” what do you mean by that, the next day?—Yes, well, possibly the next day, but certainly not during the initial attack.”*⁶⁹

15.3.35 Mr Mahoney was asked about his understanding of who was filling the roles of Divisional Commanders. He gave evidence that:

“There was a change in roles, the fire being very dynamic there are changing roles, and initially Des Phelan was Bob Graham’s deputy, but then later on he became Divisional Commander for the eastern flank.

Anyone else, are you aware of anyone else who was carrying out the role of Divisional Commander?—Luke Lubeek was one of the senior operations people on the western flank and Murray Fullerton, I believe, was Des Phelan’s deputy on the eastern side, but was focusing on a section not the entire division.

Do you know of any other Divisional Commanders?—No.

What about Mr Millar from CFA Region 16 ...?—Not at that time, no.

What about Sector Commanders?—I knew there were some Region 16 people up near the origin of the fire that were operating with John Searby who was an NRE person, who was working around from the origin to the first road, Pittong-Snake Valley Road.

On 2 December did you see at any time a document, one of the AIIMS type documents that has got boxes filling in the names of people, filling in Divisional Commander and Sector Commander roles?—Possibly later in the day, but it would have been very much later in the day.

Did you give any consideration to preparing such a document during the day?—Did I contribute to filling in the document?

Did you give consideration to preparing such a document?—I don’t recall.

Would not such a document be essential if you are to carry out the function of developing plans for each division and each sector of the fire?—It is once the dynamic nature of the fire slows down and once you can, yeah, put a formal plan in place.

I suggest to you that one of the other functions of the Operations Officer is to identify key personnel appointed to the incident such as division and sector commanders?—Yes that’s correct.

*Did you do that?—No.”*⁷⁰

15.3.36 Mr Boadle’s attention was also drawn to the Recommendation 9 in the joint “Operations Review” regarding the development and dissemination of an Incident Action Plan being a critical success factor for an Incident Management Team. He was asked if he agreed with that statement. He agreed, and was then asked:

“Was that a critical success factor that was met at the Linton Fire?—Yes, we produced an incident plan, yes.

What I am asking you is when you say that, what are you thinking of as the plan you produced and when was it produced?—The plan was, I guess, accepted once the Fire Controller signed it and it then became the agreed strategy for that fire.”

15.3.37 Mr Boadle was shown the Incident Action Plan prepared by Ferguson and was asked:

“Do you agree that every Incident Action Plan should include the definition of command appointments and communications arrangements?—Ideally, yes.

But this plan didn’t did it?—The incident control functions are shown on the bottom left.

But does the command structure extend to, for example, identifying divisional and sector commanders, is that information that should be included in an Incident Action Plan?—Again ideally, yes.

It is information that is crucial is it not to perform the operational roles, for example, on the fire ground, at the staging area, in a communications van, it is information they need isn't it?—At the stage of when the Incident Control Plan was being prepared, the advice on the sectorisation of the fire and the roles those people were performing was being determined by Operations staff at the Incident Control Point at Linton.”⁷¹

15.3.38 Mr Boadle was then questioned as follows:

“Are you saying, Mr Boadle, that as at 17.30 in the Incident Management Team you didn't have the information which would have enabled you to produce an accurate sectorisation chart of the fire?—We had some information on the sectors operating at that time but the nature of those sectors was being determined by people at the Operations Point.

Would your answer be the same if I asked you about the absence of a communications plan being attached to the Incident Action Plan, you didn't have that information at your disposal?—We didn't, no.

Are you sure about that?—The communications plan.

Information necessary to develop the communications plan?—It would have taken a bit of time to prepare, but yeah, it is obviously not attached to this.”⁷²

15.3.39 The evidence of Mr Harris preparing the first Incident Action Plan has already been considered. Harris gave evidence that he did not have any involvement in the preparation by Ferguson of the Incident Action Plan or in the preparation of subsequent situation reports by Ferguson. Regarding any understanding of divisions and sectors, Harris was asked:

“Just while we are on that point, you don't make any reference in your statement to being advised of any sectors within those divisions, were you made aware during the course of the day whether the fire had been or the divisions had been divided into sectors or not?—No, I wasn't, but one would assume if there are divisions there are sectors.

Why didn't you make an enquiry to ascertain whether there were any sectors within the divisions?—Again, I felt that type of information would be being handled at Linton.”⁷³

15.3.40 Mr Harris also stated that he was advised by Anderson that the Forward Operations Point expected the wind change to arrive at about 9pm and in that regard he was asked, concerning planning meetings.

“You see, Mr Ferguson's Incident Action Plan continued to refer to the change coming at the time predicted by the Bureau, the one o'clock time, are you aware of that?—Yes, I am, and that is why I am having so much trouble with times because I am certain that on the telephone we spoke to the Operations Point and we had factored in an earlier wind change time.”⁷⁴

15.3.41 In relation to the communications plan preparation Mr Britton was asked:

“Do you agree with the evidence that the Inquest heard from Mr Anderson that there are separate roles between the Operations Point and the IMT in terms of the development of the plan, certain information is provided by the Operations Point and that information, along with perhaps other information which might be available to the IMT, is then used for the development of the written plan, is that generally an appropriate description?—That's correct. At the end of the day the IMT need to be the ones who agree or sign off on all of the actions in relation to the fire fight, including the communications plan and Incident Action Plan.

If that's right, ideally the Operations Point would provide any information it has that is to be inputted into the development of the plan directly to the IMT, would you agree with that?—Yes I would agree with that.”⁷⁵

15.3.42 Mr Anderson was asked about evidence given by Roberts and Balm in the MCV to the effect that, to do their jobs to the best of their ability, they required mapping information

indicating the sectorisation of the fire and a written communications plan. These documents were not supplied to them. In that regard Anderson was asked:

“Both Mr Roberts and Mr Balm gave evidence to the Inquest that they considered that to do the jobs that they were assigned in the mobile communications van properly and to the best of their ability, they required mapping information indicating the sectorisation of the fire and a written communications plan. I take it you don’t dispute that proposition in general terms?—I don’t dispute that.

That sort of information, those sorts of documents I think you referred to an Incident Control Plan; is that right?—That’s correct.

Is that the same thing as an Incident Action Plan, which is a term referred to in the red book, the Operations Guidelines, are they the same thing?—An Incident Control Plan contains all the documentation relevant to the objectives, communications, sectorisation and mapping, whereas the action plan is the actual strategies and tactics.

That sort of information is, if I can use the expression, official AIIMS-ICS information, isn’t it, it comes from the Incident Management Team to those out there on the fireground?—That’s correct.”⁷⁶

15.3.43 In conclusion, Mr Anderson was further asked:

“... your expectation was, was it not, your understanding of the AIIMS-ICS principles, that having passed on some verbal information to Regional Headquarters, that you would in due course get back a written communication plan from the IMT?—That’s correct.”⁷⁷

The role of the Logistics Unit – preparation of the Communications Plan?

15.3.44 According to the AIIMS-ICS documentation it was the Logistics Unit that had the obligation to prepare a written Communications Plan. Ms Stephenson was head of the Logistics Unit. She was asked:

“On the day of the fire, perhaps if you can answer this, ... did you believe and understand that it was the responsibility of the Logistics Section to prepare a written Communications Plan?—No.

Did you have a belief as to who it was that was responsible for preparing a written Communications Plan?—No.”

15.3.45 Ms Stephenson was then referred to the AIIMS-ICS manual, which states that it is the responsibility of the Logistics Officer to “ensure Incident Communications Plan is prepared.” She was asked:

“Do you now realise that in fact it was one of the duties of the Logistics Section to prepare a written Communications Plan at that time?—No not at the time, no.

Were you familiar with that?—Yes, I was, but it was still an NRE decision as yet to where communications sat within the Incident Management.”⁷⁸

15.3.46 The DNRE subsequently produced a memorandum in support of the proposition that at the time of the Linton Fire there was some confusion as to where the responsibility for the preparation of a written Communications Plan lay.

The CFA’s Requirements – the Guidelines

15.3.47 There are a number of entries in the CFA “Operational Guidelines” that are relevant to the issue of the development of an Incident Action Plan. Significantly:

“It is very important that the incident objectives and relevant details of the Incident Action Plan are effectively communicated from the Controller to all personnel involved in the operation. In most situations this will involve verbal briefings, but in larger and more complex incidents this may be assisted by distributing written plans and maps to key commanders.

A fire fight changes constantly. It is reacting to decisions made by leaders. A leader cannot act without information. Information must flow up, down and across or the whole operation will die.”⁷⁹

15.3.48 The Guidelines provide that the following factors must be considered when developing an Incident Action Plan:

- *“description and extent of incident;*
- *strength of personnel, equipment, aircraft;*
- *exposures;*
- *fuels;*
- *weather;*
- *fire behaviour;*
- *lives and assets in danger;*
- *logistics;*
- *time and space;*
- *safety of firefighters.”⁸⁰*

15.3.49 The Operations Guidelines point out that:

“The incident control system includes a set of fire situation analysis forms which can be used for large and complex incidents.”⁸¹

And:

“The Incident Action Plan

The Incident Action Plan can be verbal for small and simple incidents but for larger or more complex incidents should be written.”⁸²

- *“Every Incident Action Plan whether verbal or written should include:*
- *consideration of the general situation (current/expected);*
- *a clear statement of the objectives;*
- *details of the execution of tasks required to achieve the plan;*
- *consideration of administration and logistics requirements;*
- *definition of command appointments (Incident Management Team) and communication arrangements;*

The plan should be tested to see how adequately it addresses each principle of operations.”⁸³

15.3.50 Under the heading “Operational Briefings” the Operations Guidelines state:

“The best Incident Action Plan is useless unless it is explained to the personnel who are to carry out the tasks. THE IMPORTANCE OF BRIEFING ALL PERSONNEL INVOLVED IN THE EXECUTION OF THE INCIDENT ACTION PLAN CANNOT BE OVERSTATED.”⁸⁴

15.3.51 The Operations Guidelines then explain the importance of operational briefings and the detail that should be provided in those briefings, including matters such as the incident size, status, behaviour, perimeter, intensity in areas of concern, matters concerning topography, matters concerning weather – current forecast and significant features.

15.3.52 The above matters necessarily flow from the Incident action Plan. Without such a plan, in AIIMS-ICS format and detail, briefing, tasking and decision making down the chain of command becomes problematic, carrying with it operational and safety risks.

15.3.53 The Operations Guidelines under the heading “Execution” describe how the objective will be achieved including strategies to be adopted by each sector and resources allocated. Defined key locations and timings such as:

- *“overall strategy;*
- *sector boundaries;*

- specific tasks assigned to sectors and strategies to be used;
- resources: number, composition and allocation;
- location of control points, assembly areas and staging areas;
- method of movement;
- timings: dispatch, arrival, assigned, return;
- specialist resources: method of dispatch;
- safety: personal equipment, specific hazards.” 85

15.3.54 Under the heading “Command and Communications” the plan should “describe the control structure, reporting relationships and communications procedures, for example:

- control structure: chain of command, current appointments, location of key personnel, nomination of deputy in event of absence;
- radio channels – allocation, command, go to channels;
- call signs;
- radio checks – times, detail required and frequency;
- aircraft communications;
- inter-agency communications;
- telephone/facsimile;
- location, numbers access.” 86

15.3.55 The Operational Guidelines also provide that:

“It is essential that the briefing process continue down to the level of the firefighters who are carrying out the tasks. It is the firefighters on the ground who are combating the incident. If they do not know what they are doing then they may not be able to do the task effectively, efficiently and safely.

The incident control system structure should be seen as serving the firefighters and ensuring that there is a timely flow of relevant information.” 87

The “all incidents are to be managed in accordance with the incident control system of AIIMS. The Incident Controller is responsible for the overall management of the incident.” 88

15.3.56 In Chapter 7 of the Operations Guidelines under “Incident Control” it is stated that:

“The Incident Action Plan should be documented to enable effective communication to combat resources and other agencies. In some cases, plans will be useful for justifying actions at enquiries conducted after an incident.” 89

15.3.57 The Operations Guidelines further state:

“Once an initial Incident Action Plan is approved, and personnel and geographic locations are determined, the tasks and resources required for each task are identified and placed under the command of an officer. It is essential to brief personnel of the incident on the overall plan and their particular role and resources available.

The Incident Controller normally briefs the Incident Management Team. If an IMT has not been appointed, Sector Commanders will be briefed to ensure all subordinate personnel are kept informed.” 90

15.3.58 In relation to the preparation of a communications plan, the Operations Guidelines state that it is a key responsibility of the Logistics Officer to prepare a communications plan.⁹¹ However, there seemed some doubt about this role.

15.3.59 The Operations Guidelines states under the heading “Communications Plan” the following:

“The communications plan is developed by the Logistics Section of the Incident Management Team to make effective use of communications ... an effective communications plan is essential because of the potential multi-agency use of equipment. It is especially important to determine frequencies for command and sector “go to” channels, if these are required.

... the communications plan is included with the Incident Action Plan for the information of firefighters and commanders.”⁹²

The joint ‘Operations Review of the Linton Fire/Midlands Fire’

15.3.60 The authors of the joint “Operations Review of the Linton Fire/Midlands Fire” observed:

“Documentation of Incident Action Plans and incident communication plans did not occur until about five hours after the fire started. The lack of plans contributed to the poor flow of information to crews on the fire ground.

Sector and division boundaries and sector and division commanders were not clearly understood by all personnel in the chain of command.”⁹³

15.3.61 In fact no written communication plan at all was prepared on 2 December 1998. No Incident Action Plan conforming to AIIMS-ICS requirements was prepared or disseminated on 2 December 1998.

15.3.62 Recommendation No. 9 of the Recommendations of the “Operations Review” (which Recommendations are urged upon the Coroner to endorse by the CFA)⁹⁴ states that:

“Incident Management Teams must be resourced with appropriate personnel to meet the following critical success factors:

- production of an Incident Communications Plan;*
- production of an Incident Action Plan; and*
- dissemination of these plans to appropriate personnel in the command structure.”⁹⁵*

Supervision from the IMT

15.3.63 Supervision is an important aspect of any operation, and in particular a potentially hazardous one like a wildfire. Regarding supervision from the IMT, Mr Ferguson was asked:

“What was done at the Linton Fire in relation to supervision from ... the Incident Management Team, can you tell me what was done in relation to the supervision of the people at the Operations Point?—Well from what I know, Your Worship, there was ongoing and continuous dialogue, as it were, between Brad Mahoney and Bob Graham and Mick Harris and Neville Britton. So there was some ongoing dialogue there. There was also the teleconference that I was involved in, there was an element, I suppose, of supervision there.

What you are saying is supervision can relate to conversations between the person at the Operations Point and the person at the IMT?—Yes, Your Worship.

That conversation, the process of that conversation, are there assessments made as to whether or not the person at the Operations Point is doing all the right things?—Yes, Your Worship.

And that’s what you say is an element of supervision is it?—Yes, Your Worship.

As would be visiting the Incident Controller, or driving from the IMT to the Operations Point and visiting the people at the Operations Point, that’s another element of supervision?—Yes, Your Worship.

And presumably you would also say that written instructions directed from the IMT to the Operations Point would be an element of supervision?—Yes, Your Worship, and again without wanting to labour the point, certainly in the second shift there is, in essence the Incident Action Plan becomes the written work order, or deployment order that the people who are on the fireground really have an obligation to follow, or if they don’t follow it they then communicate up some change in the tactical strategy as to why they can’t and get approval for that variation. The difficulty in that first work period is trying to develop that proactive Action Plan for a plan is really already happening on the fireground at the time.”⁹⁶

15.3.64 Mr Roche was also asked about supervision:

“So even as a result of the Linton matter you won’t be upgrading your supervision roles, independent supervision roles, quite outside the people that are actually doing the operational work, like the crews, like the Strike Team Leader, like the Sector Commander, like the Divisional Commander, like the Operations Point, the Incident Controller, there’s going to be no sort of overlying supervision role?—Yes, there will be and there is, in terms of, if you like, more rigorous pursuit, particularly in the early stages of a fire, to make sure that people have done things and implemented processes in accordance with what should occur. If I can use an example, one of the things that we now chase or the State Coordinator at CFA Headquarters is required to chase in the early stages of a fire is the Incident Action Plan and a Communications Plan and a command structure, so that there is an increasing, if you like, invasiveness of supervision at all levels, I would expect the same to be occurring, whilst we would be chasing through a Region Headquarters I expect a Region Headquarters would be putting on the same sort of, or pursuing the same information at a regional level. So there is an increased level of supervision to that extent and I am sure that that will increase as we move into a more complex environment of improving the specifications and the actual standards for the way in which we do work and we expect an operation to be conducted.”⁹⁷

15.4 Submissions on Information Gathering

15.4.1 The Volunteer Associations made a number of submissions.

“It seemed to have been assumed that each of the Planning, Operations and Logistics Sections were operating efficiently in all respects. It also seems to have been assumed that information-gathering by these three sections was being shared so that information critical to effective fire management was known to everyone at the IMT. Neither of these assumptions were tested by way of supervision, review or audit.”⁹⁸

15.4.2 They also observed that:

“An authorised Communications Plan which is available to the Forward Operations Point is basic and central to the issue of safety. The identification and authorisation of this Communications Plan should have been one of the early priorities of the IMT.”⁹⁹

And commented:

“The information contained in the documentation (Ferguson’s Incident Action Plan) shows that the system of work at the IMT was not fully acquainting Mr Ferguson with the situation and that Mr Ferguson was either working on an assumption or on information which was not accurate. Exhibit 205, page 498 records at 2100 hours the radio channel for the fireground as Channel 68 (15B). No reference is made to Channel 67 (15A). No reference is made to the NRE channel.”¹⁰⁰

15.4.3 The Volunteers also remarked (on one of the three Situation Reports that Mr Ferguson prepared at 8pm and shortly thereafter for distribution to CFA Headquarters in Melbourne) that:

“The situation report at 2000 hours records information which is incorrect and most relevantly, that the south-westerly wind change was still anticipated to be at 0130 hours (Exhibit 205, page 499). The fact is that 2 hours before the time recorded on this document and at 1800 hours Mr Leach was working on the assumption that the wind change would arrive in Linton at 2045 hours.”¹⁰¹

15.4.4 The Volunteer Associations further submitted that:

“The IMT would best operate by formulating the Incident Action Plan for the control of the eastern flank and formulating or at least overseeing a plan for warning the fireground of the impending wind change.”

15.5 The Role of ‘Decision Making’ in Managing the Fire

- 15.5.1** The evidence set out in Chapters 8, 9 and 10 graphically illustrates the problem of self-deployment particularly at the early stages of the fire and decision making as to strategies and tactics being undertaken at individual tanker level.
- 15.5.2** As the firefight continued during the course of the day the Region 16 Group structure north of Pittong Road and the Region 15 Group structure south of Pittong Road exerted greater influence on the decision-making processes. The IMT had no impact upon the firefight north of Pittong Road where decision making during the course of the firefight was carried out under the old Group regime.
- 15.5.3** The decision making by the Region 16 Group hierarchy north of Pittong Road was largely in ignorance of and certainly in isolation of the Forward Operations Point at Linton and the IMT at Ballarat. Apart from the brief meeting between Messrs Millar, Smithers and Phelan at around the time the ambulance arrived for Hollingworth and another brief meeting shortly thereafter involving Anderson and Millar, there was virtually no contact between the respective CFA Groups or those at the Forward Operations Point or IMT with the Region 16 hierarchy.
- 15.5.4** No attempt was made by the IMT to coordinate the activities of Region 16 resources into an overall fire suppression strategy.
- 15.5.5** In respect of decision making of Region 15 personnel south of the Pittong-Snake Valley Road, the significant decisions of Messrs Hadler and Lightfoot to light their back-burns have been dealt with in Chapters 11 and 13 respectively. The shortcomings in the management of the fire resulting in those decisions being made, have been considered in those Chapters.
- 15.5.6** Although the activity of forest firefighting has been described as “*dynamic*”, the basic principles of fire suppression in such a situation are quite simple. The determination of the appropriate strategies in relation to the Linton Fire was not a difficult exercise. It was the strategy immediately put in place by DNRE resources that arrived at the scene as described in Chapters 8 and 9. That is building a mineral earth break around the perimeter of the fire from as close as possible to the point of origin.
- 15.5.7** In the case of the Linton Fire as with the many similar fires in South-Eastern Australia, the main issue was always going to be the potential of the fire to escape on the eastern flank upon the arrival of a south-westerly wind change.
- 15.5.8** It appears that the decisions of Messrs Hadler and Lightfoot were probably made because at that time there were insufficient bulldozers available to commence tracking the eastern perimeter of the fire to allow CFA tankers to follow the bulldozer and black-out and secure the flank. There were many tankers and willing hands and not much for them to do. They felt obliged to try and do something.
- 15.5.9** The evidence demonstrates that the decision making in the southern part of the fire, in relation to CFA resources, was carried out by Group Officer Phelan who reported to Graham at the Forward Operations Point. Some communications occurred between Graham and the IMT in Ballarat where, in general terms, the decision was made to endeavour to secure the eastern flank of the fire by the use of a bulldozer creating a mineral earth break backed up by resources to black-out and secure the flank as the bulldozer moved down the track.
- 15.5.10** The divergence of opinion within the IMT as to the likely arrival of the critical wind change and the three Situation Reports produced by Mr Ferguson¹⁰² between 8.00 and 8.30pm, dealt with in detail in Chapter 19, has not been satisfactorily explained.
- 15.5.11** Had the discipline of a proper and timely Incident Action Plan preparation occurred with the participation of all relevant IMT personnel a common understanding would have occurred as to the likely time of arrival of the wind change and detailed strategies including

relevant safety considerations would have been determined, documented and disseminated through the chain of command to the fire ground.

15.5.12 On the eastern flank the DNRE and CFA crews were operating entirely independently. Although evidence was given that Mr Phelan was regarded as the Eastern Division Commander, the DNRE crew leaders did not report to or through him as required under AIIMS-ICS principles, but rather communicated through their own DNRE command structure.

15.5.13 The summary provided in the submissions made on behalf of the United Firefighters Union accurately describe the situation:

*“Effective decision making in the IMT was also hampered by the failure to ensure a properly integrated system of command and control between the two agencies. On the ground, DNRE and CFA crews in south-eastern sector were operating under separate sector commanders, and those sector commanders were not communicating with each other. Forward Operations personnel disseminated critical wind change information to personnel based on their agency affiliation rather than their position in the ICS. This approach combined with the absence of a Communications Plan and a system of acknowledgement was a recipe for disaster and exactly what AIIMS-ICS is designed to overcome.”*¹⁰³

15.6 Communication to/from Regional Headquarters

15.6.1 The assistance provided to the IMT by CFA Regional Headquarters has been mentioned earlier in this Chapter and in Chapter 19 concerning the dissemination of weather information.

15.6.2 There is no doubt that this support assisted those at the Forward Operations Point but it should not have been necessary and is not desirable under the AIIMS-ICS system. The use of such agency contacts by Mr Anderson in particular was important and useful to him on the day in obtaining information and endeavouring to relay information through to the IMT when encountering communications difficulty, but the tendency to operate through the structure of the agency rather than within the integrated ICS structure fragments lines of communication, decision making and supervision and was characteristic of operations on the fireground at Linton on the day.

15.7 Communication to/from Forward Operations Point

15.7.1 Evidence was given that no formal documentation of the functional roles to be performed by those at a Forward Operations Point was in existence at the time of Linton. This created some confusion and uncertainty within the IMT regarding the roles of those personnel at the Forward Operations Point. Messrs Anderson and Britton were not tasked to attend the fire for the purposes of occupying functional AIIMS-ICS roles and did not regard themselves as fulfilling formal AIIMS-ICS positions.

There was no formal discussion between those at the IMT and those at the Forward Operations Point regarding the roles to be carried out at the respective locations and the divergence of views and understandings as to sectorisation and those occupying particular functional roles has already been considered.

15.7.2 The evidence presented to the Inquests that Mr Graham had access to only the radio in his car which was parked out in the main street of Linton until the early evening when Keppell arrived and provided him with his radio is of concern. One would have expected virtually continuous and open communication lines through the ICS structure to be maintained throughout the course of the fire. Phelan adopted the practice of returning to the Forward Operations Point from the fireground to discuss matters with Graham but the difficulties encountered by those DNRE officers on the fireground and those at the IMT endeavouring to contact Graham by radio are readily apparent.

15.8 Communication to/from Agency Headquarters

- 15.8.1** It appears that the IMT provided a significant amount of information to CFA State Headquarters during the running of the incident. This is evidenced by a number of documents and logs.¹⁰⁴
- 15.8.2** Curiously, Mr Leach did not appear concerned that the three Situation Reports prepared by Ferguson between 8.00 and 8.30pm were incomplete and inaccurate because:
- “it wasn’t a document that was going down in the chain of command ... there was some pressure being put on the IMT to give an updated report to State Headquarters.”*¹⁰⁵
- 15.8.3** The necessity of supplying accurate and timely information through to Agency Headquarters is recognised as important. Rather than hasty preparation of incomplete, inaccurate Situation Reports for dissemination from incident command to headquarters, there is perhaps, a better way of utilising resources. This would have been to complete detailed, comprehensive, accurate Incident Action and Communication Plans (with sectorisation details suitable for communication), not only down the incident chain of command to those on the fireground as required by AIIMS-ICS, but also to Agency Headquarters.

15.9 Conclusions

- 15.9.1** The above analysis demonstrates that the IMT established at Linton was adequately resourced to carry out the functions required by it under the AIIMS-ICS system. The failures of the IMT in respect of the preparation and dissemination of Incident Action Plans and Communications Plan was fundamental to its failure to take control and manage the incident in accordance with AIIMS-ICS principles. The evidence demonstrates that no Incident Action Plan and Communication Plan was documented and disseminated in accordance with AIIMS-ICS principles on the day of the Linton Fire. No effort was made by Mr Leach, the Incident Controller, to ensure that those officers he was responsible for supervising, namely the Planning Officer, Logistics Officer and Operations Officer, carried out the tasks assigned to them under the AIIMS-ICS Manual, namely the preparation of those plans in a timely manner.
- 15.9.2** Mr Leach signed off the Incident Action Plan prepared by Ferguson (as well as later Situation Reports) notwithstanding that it was inaccurate and incomplete.
- 15.9.3** There was little or no attempt by the IMT during the course of the day to ensure that AIIMS-ICS principles were being implemented on the fire ground. The operation of the IMT was characterised by a virtually complete lack of supervision, which filtered down through the whole incident chain of command.
- 15.9.4** The failure to prepare and disseminate accurate and timely Incident Action Plan and Communication Plan not only denied those on the fire ground, including those at the Staging Area and at the MCV, important information necessary to enable them to properly carry out their tasks. The lack of the documented plans also failed to provide the necessary “prompt” to the Planning and Operations Sections in particular, to ensure that the command structure communications were providing them with the very necessary complete and timely information for the production of Incident Action Plans and Communications Plan in accordance with the AIIMS-ICS system.
- 15.9.5** The suggestion by Mr Ferguson that the failure to document and disseminate timely and accurate Communications Plan and Incident Action Plan was resource-related in the IMT is rejected. As to must be the response from Leach to the effect that those in the IMT were engaged in other important duties. It is difficult to imagine a more important function for those in the IMT than the production of Incident Communications and Incident Action

Plans in accordance with the AIIMS-ICS guidelines and dissemination of those plans to appropriate personnel in the command structure. The priority to be accorded to these tasks is clearly reflected in the AIIMS Manual, and clearly reflected in the joint “*Operations Review*” at Recommendation 9.

- 15.9.6** The explanation that it is difficult to create such plans at an early stage of a running fire and that in effect they can not be created until the second shift is not accepted. This is particularly the case where Mr Leach indicated in his evidence that the most common duration of fires in the Central Highlands of Victoria is around 6 hours. In this case the IMT was swiftly created, adequately resourced and should have been capable of carrying out these basic tasks speedily. Indeed Leach in his evidence referred to above, estimated that it would have taken one person about 20 minutes.
- 15.9.7** In Chapter 19 of this Report the diversity of views regarding the expected arrival of the wind change is described. In addition to those in the IMT holding diverging views on that topic, the failure to document an accurate and complete Incident Action Plan (including sectorisation of the fire) contributed to considerable confusion and differences of opinion within the IMT regarding the sectorisation of the fire and roles and functions being fulfilled by particular personnel on the fire ground.
- 15.9.8** The Operations Section did not develop the Operations portion of the Incident Action Plan for the eastern flank strategy and/or have it formalised. As well, a plan was not developed for the sectorisation of the fire ground. The AIIMS-ICS Manual requires of the Operations Unit to identify divisions and sectors. The evidence suggests that no one apparently took on responsibility for formalising a sectorisation plan and having it approved, and there was no clear understanding to who was responsible for sectorising the fire ground.

Operation of the Forward Operations Point

16.1 Introduction – AIIMS-ICS

- 16.1.1** This section should be read with Chapters 6.3, 6.4, 14.9, 14.10 and Chapter 15, which deal in detail with the principles of AIIMS and its application at Linton.
- 16.1.2** The principles of AIIMS-ICS are set out in the manual titled *“Incident Control System – The Operating System of AIIMS”*.¹ Chapter 3 of the manual provides for the development of an Operations Section. Indeed it assumes that the Operations Section will be co-located with the rest of the Incident Management Team. The manual provides for the Operation Officer’s strategies and tactics to be developed from incident objectives, which are included in the Incident Action Plan developed by the IMT. The failure of the IMT to prepare and disseminate an Incident Action Plan in conformity with the AIIMS manual is dealt with in Chapter 15.
- 16.1.3** The Operations Officer’s duties set out in the AIIMS manual are extensive, particularly in relation to a Type 3 fire such as that at Linton.
- 16.1.4** It is submitted by a number of the parties that the AIIMS-ICS manual did not cater for or provide instruction or direction as to the functions of a Forward Operations Point (as established at Linton), or the manner and means by which its relationship to an IMT located elsewhere would be managed.
- 16.1.5** The following evidence of Mr Graham is relevant in this regard:

“We have heard from Mr Mahoney that he understood that his role at the IMT and your role at the Operations Point jointly filled the position of Operations Officer in the AIIMS/ICS structure...?—That is correct.

You agree with Mr Mahoney’s assessment, is that what you understood your position to be on the day?—That’s correct.

You being at the Operations Point, if I suggest to you that that necessarily ended up with you fulfilling the major operational functions of the Operations Officer, what would you say to that?—We shared the functions of Operations Officer, some which could be better performed in the Incident Management Team for instance, Mr Mahoney definitely did, and I did the ones strategy-wise and other things on the fireground.

Did you have any training for running an Operations Point?—No, it was a new concept. This was the first time I had run an Operations Point ... close to a fire.

There were no guidelines?—No guidelines.

It was very much you and Mr Mahoney getting your heads together and working out who does what?—We did it instinctively, Your Worship, because we had done this thing at the Berringa Fire, we shared the role at the Berringa Fire.

The same positions?—Yes.

So he would have been at the Incident Control Centre and you were at the Operations Point on the fireground?—I was on the fireline, in a vehicle or a helicopter.”²

- 16.1.6** Under the Fire Agencies Improvement Initiatives (“FAII”), the practice of the establishment of Forward Operations Points was formalised.
- 16.1.7** What was proposed in a Forward Operations Point was the establishment of a field location where the focus for communications and management of operations could occur.
- 16.1.8** According to FAII³, Forward Operations Points are to operate in the following manner:
- “These points are the field location (and facilities) where the focus for communications and management of operations for the particular level of command occur. The point could be a vehicle, a mobile communications van, or any other place nominated by the Operations Officer. It will be the point where communication to and from the Operations Officer will generally occur and a location for the operations ‘deputies’/support staff to work from. Operational management activities such as resource monitoring and field situation reporting should be conducted from this point.”*
- 16.1.9** It can be gleaned from the above that one of the changes associated with the establishment of Forward Operations Points proposed by the FAII working party was the splitting of the role of the Operations Officer. This was predicated on a recognition that the Operations Officer had to be simultaneously:
- Part of the IMT;
 - Present at the Forward Operations Point; and
 - On the fireline in a supervisory capacity.⁴
- 16.1.10** Mr Britton of the CFA, who was sent to Linton to act in a mentoring role, ended up for practical purposes being regarded as Mr Graham’s deputy. He was asked:
- “We have heard from Mr Anderson that at the time of the Linton Fire there was no formalised AIIMS procedures in relation to the Forward Operations Point was there?—That’s correct.*
- We have the working party’s recommendations which the agencies had agreed to implement?—That’s correct.*
- Indeed, I won’t go through them in any detail, but those recommendations contemplate that at the Forward Operations Point you would have somebody in charge and you would have another person working alongside or under that person who was from the other agency to the person who was in charge?—That’s correct.”⁵*
- 16.1.11** The position of Messrs Anderson and Britton vis a vis AIIMS-ICS was not entirely clear. Mr Anderson was asked:
- “What about Mr Britton, what role was he occupying at the fire on your understanding?—I believe Mr Britton was the Senior CFA Officer at the fire at the time, representing the CFA at Operations Point.*
- Was he carrying out any function, any designated function under the AIIMS/ICS system?—The AIIMS/ICS system did not allow in that particular time for the Operations Point to be established. It was the, only a new innovation since the FAII agreement. Mr Britton assisted in the Forward Operations Point in any way he could.*
- So is the answer to that, your understanding was Mr Britton was not occupying any formal position within the AIIMS/ICS structure?—That’s my understanding.*
- Who was he reporting to on your understanding?—The Incident Management Team by Mr Graham*
- Was he reporting to Mr Graham, to your understanding, or to someone at the Incident Management Team?—I believe at the time Mr Britton was reporting directly as well to the IMT.”⁶*
- 16.1.12** Although meagrely staffed by comparison to the IMT at Ballarat, those at the Forward Operations Point carried the responsibility for the bulk of the key functions of the Operations Officer as outlined in the AIIMS manual.⁷

16.2 Establishment

- 16.2.1** The establishment of the Forward Operations Point is dealt with in detail in the previous Chapter, dealing with the establishment of the IMT.
- 16.2.2** In summary, at or around 2.30pm Messrs Graham and Britton arrived at the Linton Fire Station as set out in the previous Chapter. At 2.36pm Alice Knight radioed Des Phelan on the fire ground, to come to Linton to meet Bob Graham at the fire station.
- 16.2.3** Messrs Britton and Anderson were not sent to the fire for the purposes of occupying operational positions, and as pointed out by the Volunteer Associations:
- "The development of command at the Forward Operations Point really occurred more by circumstance rather than by the formal the appointment of either Messrs Britton or Anderson to specific roles."*⁸
- 16.2.4** It was initially thought that the Forward Operations Point could be established at the Linton Fire Station. However a decision was made to set it up at the Linton Shire Offices, which were diagonally opposite the Fire Station. Initially there were no radio communication facilities at the Shire Office and Mr Graham had to use his mobile radio in his vehicle parked in the street.
- 16.2.5** This unsatisfactory circumstance continued until late in the afternoon when Mr Keppell arrived at the Forward Operations Point at around 5.30pm.
- 16.2.6** In the early stages of the establishment of the Forward Operations Point the telephone system was unable to cope and it was not until about 4.52pm that Telstra had installed additional phone lines. The initial move to the Shire Offices from the Fire Station occurred at about 3.30pm.
- 16.2.7** The Forward Operations Point staffing consisted of Messrs Graham, Britton and Anderson. Mr Phelan adopted the practice of returning from the fire ground to the Forward Operations Point to communicate with Graham rather than endeavouring to use radio communications.
- 16.2.8** Mr Wyllie also spent time during the afternoon in the Shire Offices on the instruction of Mr Anderson. Later in the afternoon Marcia Johns, a DNRE officer who had been tasked by the IMT in Ballarat as a fireground observer, obtained permission to attend and also to assist.
- 16.2.9** As indicated Mr Britton had been sent to Linton *"to mentor the group and ensure that the incident response is coordinated."* According to Britton he discussed *"reporting arrangements"* with Phelan who was already present and they agreed that:
- "Phelan would manage the fire as Operations Officer and would travel between the fire and the Operations Point. Phelan would liaise with me and I would liaise with the IMT."*⁹
- 16.2.10** Mr Britton explained that *"it was agreed that Phelan would perform the duties of the CFA Operations Officer with Graham being the DNRE representative"*¹⁰ but was unclear about who was the Operations Officer and who was the deputy.¹¹ Britton confirmed that Anderson had no formal AIIMS role.¹²
- 16.2.11** It is clear that as between Messrs Graham and Phelan, Graham regarded himself as the Operations Officer at the Forward Operations Point and although originally as Graham's deputy, Phelan then regarded himself as the Eastern Division Commander of the fire. Graham stated that sometime after 3.15pm:
- "it was decided that Phelan would be the Commander for the Eastern Division of the fire and that the role of Deputy Operations Officer would be filled by Neville Britton."*¹³
- 16.2.12** Mr Phelan regarded himself to be a Divisional Commander reporting to Graham. He was asked:

"You have said that throughout the day you were reporting to Mr Graham?—Yes.

He was your chain of command reporting line; is that right?—Yes.

What was the role of Mr Britton and Mr Anderson within the chain of command position?—Well, I believe that Mr Britton was there to assist Mr Graham, and that Mr Anderson was like sort of a gofer, he was doing the running around, if that was required...." ¹⁴

- 16.2.13** Mr Anderson gave the following evidence of how Wyllie came to arrive at the Forward Operations Point. This occurred after Mr Anderson made contact with Messrs Millar and Smithers of Region 16 at around 4.00pm.

"Why did you bring him (Wyllie) back from the northern sector to the Operations Point at Linton?—Did I bring him back.

Did you direct him to come back with you to the Operations Point?—I did not.

What is your understanding of why Mr Wyllie came?—Your Worship, can I please address the Bench.... "

Mr Kaye: "My recollection of Mr Wyllie's evidence is he was not brought back by Mr Anderson, he arrived back for a particular purpose. I may be wrong about that. Then Mr Anderson requested Mr Wyllie, he said forcefully, that he remain there and assist."

Do you agree with that Mr Anderson?—Your Worship, Mr Wyllie met me in the main street of Linton demanding I land a helicopter and put him on it and throw the NRE people out ... so he could go air attack supervising, that's why he took me to the Operations Point....

So there is no doubt that the reason Mr Wyllie spent the better part of the afternoon in the Control Centre at Linton was because he was under your direction, there is no doubt about that, is there?—That's correct.

What was he doing during the course of the afternoon, did you utilise his skills at all?—Mr Wyllie answered the phone calls and took some notes for us.

Under whose direction was he doing that?—Mr Graham or Mr Britton or myself.

Do you think that you could have utilised him to write up the operational structure on a whiteboard?—Not at the time I didn't.

I suggest to you one of the important reasons for having that formal structure and making a record of it is so that you can slot the communications plan in with it, do you agree with that or not?—The communications plan was part of it, I agree.

Do you think it would be a good idea during the course of the afternoon to formalise the communications plan so that you could have a document, be it a whiteboard or another document, that had the operational structure on it along with the communications channels that the various people were working on?—That's correct.

And there are specific forms within the AIIMS/ICS guidelines for that to occur on, aren't there?—There are.

Why wasn't that done at the Linton Fire?—I wasn't part of the Incident Management Team to do it.

So that's the job of the Incident Management Team?—That's correct.

Did you do anything to ensure the Incident Management Team was doing its job in getting that done?—It was not my role to do that" ¹⁵

16.3 Supervision

- 16.3.1** This matter is dealt with in detail in Chapters 14.9 and 15.

- 16.3.2** As pointed out in submissions by the Volunteer Associations:

"There was effectively no supervision of the Forward Operations Point functions by the IMT.... this situation left it open for the IMT and the Forward Operations Point to each assume that the other was supervising and overseeing the operation of the staging area and the MCV...." ¹⁶

- 16.3.3** As with the IMT those at the Forward Operations Point made no attempt to enforce AIIMS-ICS principles on the fireline. The lack of supervision and inadequate communication is demonstrated by the evidence that Mr Graham as the Operations Officer at the Forward Operations Point did not at any time during the course of 2 December 1998 speak to Millar, who Graham believed was the Western Divisional Commander. Under AIIMS-ICS principles of course, Mr Millar would report directly to Mr Graham who would be responsible for his supervision. In fact the only communications between Millar and anyone at the Forward Operations Point was the brief meeting with Anderson at around 4.00pm, followed by a short radio communication upon Anderson returning to the Forward Operations Point. As referred to elsewhere in this Report, Millar considered himself to be responsible for the management of the fire north of the Pittong Road, that is, the entire part of the fire north of Pittong Road. Others, including Graham and Phelan, were of the belief that Phelan was responsible for the eastern flank of the fire north and south of Pittong Road, and Millar responsible for the western division of the fire north and south of Pittong Road.
- 16.3.4** The above evidence sits uncomfortably with the content of the AIIMS manual, which provides under the heading “Principles of the Incident Control System – Span of Control”:
- “is a concept which relates to the number of groups or individuals which one person can successfully supervise. At emergency incidents, the environment in which supervision is required can rapidly change and be dangerous. A maximum of five reporting groups or individuals is considered to be the optimum, as this maintains a supervisor’s ability to effectively task, monitor and evaluate performance.*
- The supervising officer needs to be able to quickly receive reports, evaluate information, communicate orders, and mobilise and redeploy crews at the same time as overseeing their safety and welfare. Responsibility for more than five teams or persons begins to jeopardise the safety of personnel and the effectiveness of the operation.”¹⁷*
- 16.3.5** Likewise the DNRE training and accreditation document for Operations Officers explains:
- “Personnel at an incident ... need to have their progress monitored and where necessary changes to the allocation of activities need to be made....proper supervision as part of leadership includes knowing the capabilities of personnel and giving them tasks with which they can cope, considering also their training and equipment.”¹⁸*
- 16.3.6** The training and competence of the Geelong Strike Team is dealt with in detail in Chapter 14 of this Report. Suffice to say no one at the IMT or Forward Operations Point had any idea as to the relative competency of the Geelong Strike Team prior to it being tasked to deploy behind the dozer along the eastern flank of the fire.
- 16.3.7** Indeed, as set out earlier the tasking of the Geelong Strike Team occurred not on the basis that they were selected as being appropriate for the task to be carried out, but rather the team happened to be in the wrong place at the wrong time. This was when Mr Lightfoot decided that his strike team needed to be relieved.
- 16.3.8** The lack of appropriate communications and supervision of the MCV and Staging Area respectively is considered in later Chapters of this Report. It must be observed however that issues of communication, tasking, supervision and direction in virtually all respects would have been quite simple had the fundamental task of the preparation of an accurate and comprehensive Incident Action Plan and Communications Plan been undertaken by the IMT and disseminated through the chain of command to those on the fire ground, including those at the MCV and Staging Area.
- 16.3.9** Personnel at the Forward Operations Point, in particular Messrs Graham and Anderson were of the view, from at least the time of the Wickliffe wind change message, but in the case of Anderson somewhat earlier, that the wind change was anticipated to arrive on the fire ground at about 9.00pm. Those at the Forward Operations Point failed to ensure that that vital information along with appropriate instruction and direction was provided to the Geelong Strike Team, working in the most dangerous and vulnerable part of the fire ground. The evidence relating to that failure is dealt with in detail in Chapters 14 and 19.

16.3.10 In the end as described in submissions by the Volunteer Associations:

“It was Forwards Operations Officer Mr Graham and his group at the Forward Operations Point who had the primary operation or control with respect to the fire. All relevant personnel at the Forward Operations Point were without instructions, training or a real working basis as to who and in what manner the operations function at IMT was to interact with the operations function at the Forward Operations Point. There was an absence of any instruction, training or guidance as to who (if anyone) had the responsibility to establish and maintain the assembly/staging areas, to ensure that the MCV was appropriately briefed and functioning effectively, to ensure that a communications plan had been agreed upon, approved in writing by the IMT and available generally, that the incident command structure had been identified and reduced to some written form so that it could be generally understood and to ensure that the fireground had been sectorised, approved and reduced in written form so as to be available generally.”¹⁹

16.4 Communications to/from IMT

16.4.1 Once the initial communications difficulties were overcome it appears that with the extra phone lines installed in the Forward Operations Point it had adequate means of contact with the IMT by telephone and facsimile. However, principally because of the failure to implement and enforce AIIMS-ICS principles and the appropriate chain of command, much significant information did not find its way from the Forward Operations Point to the IMT. This matter has been dealt with elsewhere in the Report where the numerous “near-miss incidents” that occurred on the day are detailed. Communications is also considered in further detail in Chapter 18 to this Report.

16.5 Communications to/from the Fireground

16.5.1 In respect of the Region 16 resources, the Volunteer Associations submissions state:

“For Region 16, the idea was for Mr Millar and Mrs Foy at Snake Valley radio sub-base, to be fully apprised of the communications plan, the existence of the Forward Operations Point and of the IMT at Ballarat. Either through misunderstanding or want of full briefing, neither Mrs Foy nor Mr Millar learnt very much. The fact is that the fire to the north of Pittong-Snake Valley Road was essentially fought by Region 16 and NRE and there is scant record of radio communication or other contact by Region 16 with Forward Operations Point. Mr Millar maintained that he did not really have an appreciation of the existence of the Forward Operations Point at Linton and neither was he aware of the IMT at Ballarat. Similarly Mrs Foy seemed to have a limited understanding concerning the presence of the Forward Operations Point at Linton and no real understanding concerning the IMT at Ballarat.”²⁰

16.5.2 It is to be noted that the proposed fire ground channel for Region 16, namely Channel 16C, was not being monitored at all by the Forward Operations Point or the MCV.

16.5.3 The following passage of evidence is relevant to the state of knowledge of the MCV, which was only a short distance away from the Forward Operations Point at the Shire Offices. Mr Anderson was asked:

“The MCV wasn’t that far away from the Shire Offices was it?—Your Worship, the MCV was about 50 metres away from the Shire Offices.

Why didn’t you have a walk over and have a look and talk to them about what was going on?—Unfortunately a fire is a very busy, dynamic thing, sometimes you forget what you should do rather than what you do do.

Do you think you should have done that?—Your Worship, the answer in hindsight is yes. ... however Your Worship, I am sure if anything significant had occurred we would have been told by the MCV.

Do they know what is significant necessarily?—Your Worship, I am sure Mr Millar would have told me if it was something significant.

We are talking about the whole of the operations, do people in the MCV necessarily know what is significant?—Your Worship, I believe they do.

What makes you believe that?—Under the chain of command, Your Worship, they would have been told to pass a message on.

What if they didn't know what the chain of command was precisely?—Then the message would not be passed on.

Did you know that they were having difficulty in getting acknowledgements on wind change information?—Your Worship, I was unaware of the difficulty of having acknowledgements....

Did you give Mr Millar any information at any time that would enable him to know who the other divisional commanders and sector commanders were within the fire?—I believe Mr Millar was already aware Mr Phelan was at the fire and managing....

You believe he was aware of that?—I believe he was.

What did you actually do during the day from the time you returned back from Snake Valley, what did you actually do?—I assisted the Operations Point."

16.5.4 The assumption by those in positions of command that others working either beneath or above them in the command structure were aware or would be aware of various facts and circumstances characterised the dysfunctional communication and chain of command system in place at the Linton Fire.

16.5.5 The following passage of the submissions made on behalf of United Firefighters Union is supported by a wealth of evidence referred to in other parts of this Report. It states:

"The command structure below the FOP at Linton has been the subject of a vast body of evidence. It is clear that the confusion about roles at the FOP extended out onto the fireground. For example, there was confusion about the identity and authority of Graham's divisional commanders:

- Millar was unaware that he was the Divisional Commander for the Western Division (T.2337), despite Graham thinking he was (T.8998);*
- Anderson was not, according to him, the Northern Divisional Commander at any time (T.6516), despite having been instructed by Brown to assume that role;²¹*
- Phelan was the Eastern Division Commander but certain (DNRE) sector commanders in that division did not report to him because 'Phelan only had one radio in his vehicle' (Graham T.9002, Phelan T.9742);*
- Instead Sector Commanders Fullerton and Keppell reported directly to Graham, who conceded that it is 'not really the way it is supposed to work' (T.9003).*

If anything, the confusion about the identity of the sector commanders, particularly in Phelan's division, was greater:

- Phelan identified four sector commanders in his division: Kavanagh, Pohl, Lightfoot and Taylor (ROI*, A100-1);*
- He agreed that they derived any authority they had from him (T.9847);*
- However, of those four, only one (Lightfoot) told the Inquest that he understood himself to be a sector commander at Linton;*
- Similarly, Leach identified four sector commanders: Lightfoot, Kavanagh, Millar and Fullerton (B.619), all of who, he agreed, had given evidence about being unclear or confused about their role (re Kavanagh see T.6301, Millar T.2335, Fullerton T.2828, Pohl T.5975).*
- Confusion about the identity of the holders of key management roles such as divisional and sector commanders, was widespread at Linton. Leach agreed that only is there potential for confusion in such a situation, but it is also a 'recipe for disaster' (T.9404)." ²²*

16.6 Conclusions

16.6.1 The United Firefighters accurately submitted:

“The Forward Operations Point inadequately supervised the operation of the staging area and the mobile communications van. It failed to ensure that there was a clear chain of command in operation on the fireground. It failed (in respect of the Geelong Strike Team) to ensure the deployment of competent crews to perform particularly hazardous tasks on the fireground.

Part of the explanation of these failures by the FOP is the lack of support it received from the IMT, and in particular, the failure by the IMT to prepare and disseminate a written communications plan and a sectorisation chart for the fire. The FOP was also limited in its ability to ensure the proper deployment of competent crews by the lack of any system within the CFA to provide it with information about the competence of particular crews.”²³

16.6.2 Along similar lines the Volunteer Associations submitted:

“The evidence with respect to the Forward Operations Point shows that:

- (a) The pressure of events, communication difficulties and the problems in trying to marshal and deploy resources was hectic and, at least initially, there were some equipment and technical difficulties;*
- (b) The persons in charge of Forward Operations Point had for all practical purposes, no prior instruction, training or experience in the management and conduct of a Forward Operations Point;*
- (c) No particular person was identified with the responsibility for ensuring that a formalised and written communications plan, hierarchy of command structure and/or sectorisation of the fire were prepared and forwarded on to the IMT for approval and return;*
- (d) There was no clear line of responsibility for ensuring that the MCV and the staging area was fully instructed and operating effectively. In this respect it was assumed that the MCV and staging area were appropriately instructed and properly integrated with either the Forward Operations Point or the Operations Unit in the IMT;*
- (e) Communications from the Forward Operations Point, and relevant to the IMT, were sometimes made to Region 16 Headquarters on the assumption that information would be passed on to IMT;*
- (f) The BOM and RAWs information was sent to the Forward Operations Point without any advice or supporting assessment as to what this information might mean in terms of the timing of the arrival of the wind change at Linton. The Forward Operations Point personnel were left essentially to work things out for themselves;*
- (g) Despite confusion about the full import of the weather information, personnel at the Forward Operations Point did manage to work out that the wind change was coming much earlier than forecast by the BOM and it caused appropriate planning strategies to be developed;*
- (h) The broadcasting of the Wickliffe wind change message was not thought through. The message might have meant something to people who knew where Wickliffe was. It would have been more appropriate for the message to at least give an indication as to how far to the west of Linton Wickliffe was situated and perhaps give a general idea as to the possible range of times within which the wind change could arrive at Linton.*
- (i) There was a separation of communication with NRE and CFA which, as it turned out, seemed to work effectively.*
- (j) Personnel in charge of the Forward Operations Point were not designated by, nor did they refer to themselves by the AIIMS/ICS titles and failure to do so would not assist those in the fireground to recognise that an AIIMS/ICS structure was in place.*

(k) *Whilst the deployment of the southerly bound and northerly bound dozers with supporting equipment had the sanction of the IMT and was to an extent coordinated from the Forward Operations Point, the system of coordination could have been better.”*²⁴

16.6.3 Apart from paragraph (i) of the Volunteer Associations Submissions set out above, and the submissions on behalf of the Union and the Volunteers, give a fair appraisal of the performance and difficulties faced by those working at the Forward Operations Point at Linton. As far as (i) of the Volunteer Associations Submissions is concerned, it is clear that there was a separation of the communications systems between CFA and DNRE. Neither worked effectively or efficiently in accordance with AIIMS-ICS principles.

16.6.4 The chain of command should have followed an integrated AIIMS-ICS structure.

Operation of Staging Area

17.1 Introduction – AIIMS

17.1.1 A Staging Area is defined in the Incident Control System manual as follows:

“A location close to the incident where personnel and equipment are available.”¹

17.1.2 The Incident Controller during the Linton fire, Mr Greg Leach, provided a brief outline of the purpose of establishing a staging area:

“The purpose of staging area is a preplanned location where resources are held and briefed prior to deployment onto the fire ground. Another critical role of the staging area is to track vehicles using the T card system.”²

17.1.3 As inferred by Mr Leach, the collection and collation of T-cards is a particularly important function of the staging area. T cards provide a record of resources ie: names of individual firefighters, their strike team and tanker.

17.1.4 Within the CFA there are operational procedures in place requiring crews to attend staging areas on arrival at the fireground and hand in their T cards.³

17.1.5 Staging areas also provide services and supplies such as:

- Fuel
- Water
- Food
- Sanitation requirements
- Mechanics

17.1.6 Under AIIMS-ICS principles, the Operations Officer within the Operations Section is responsible for establishing and maintaining staging areas. The main responsibilities in this regard are identified in the ICS manual:

“Establish and maintain assembly/staging areas

- *Identify:*
required location/s;
expected number of resources to be assembled in each area, and
anticipated duration for use.
- *Determine need for temporary allocation of logistical support*
(e.g. fuel, food, sanitation)
- *Make arrangements with Logistics Section*
- *Allocate managers to each area as appropriate.”⁴*

17.1.7 The necessity to have staging areas is acknowledged in the Multi Agency Incident Agreement existing at the time of Linton. That indicates that both fire agencies *“are to ensure that the first responders immediately liaise and establish, among other factors, staging areas in accordance with new procedures.”⁵*

- 17.1.8** Evidence heard during the inquest suggests that staging areas will generally be established in Type 2 and Type 3 fires. They are not commonly required at Type fires.⁶
- 17.1.9** There was a suggestion during the Inquests that the concept of a 'staging area' was developed through the 1997 FAII process. For example, Mr Leach gave this account of his understanding of staging areas:
- "You have mentioned the staging area, and I think Mr Mahoney in fact has said in his evidence that both you and he considered it important to get a staging area established, and that in that region it was a relatively new – I think you said this was the second time this had been used in the Region 15 area?—Staging areas were a new concept. Prior to the Dandenong fires, or the fires of 21 January '97, we used what was known then as assembly areas, but through the FAII process that was refined and we came up with the concept of staging areas, and whilst we used them once at the Spring Hill/Trentham fire, Linton was only the second time we used them operationally."*⁷
- 17.1.10** Other evidence shows that staging areas were not "a new concept" in the CFA at the time of Linton. It is clear within the ICS manual and CFA Operations Guidelines that the concept of Staging Areas has been in existence since the agencies introduced AIIMS-ICS.⁸ These publications were produced in 1992 and 1995 respectively.
- 17.1.11** The references made to staging areas in the FAII Report are in fact emphasising that staging grounds should be utilised appropriately at joint agency wildfire operations. The following statement is a brief summary contained in the report that recognises the change in practice required within the agencies after the 1997 study:
- "Increased emphasis on setting up of staging areas and the concept of "checking in" to the fireground to aid all aspects of resource management."*⁹
- 17.1.12** However, Mr Leach's evidence in regards to the use of the term assembly areas appears accurate. There was recognition in the FAII Report that terminology should be altered to emphasise staging areas. A proposal for Phase 1 of the recommendations was:
- "4. Rename reference to "assembly areas" in ICS terminology and confirm use of "staging areas."*¹⁰
- 17.1.13** Despite this fact, it has to be reiterated that a "staging area" was not a new idea or concept as of 1997. If standard AIIMS-ICS principles were being taught and adhered to by the fire agencies the use of staging areas should have been a well-established policy and practice within Region 15 and other Regions at the time of Linton.

17.2 Establishment

- 17.2.1** The Staging Area at Linton was established at the Linton Recreation Reserve. This is situated just off the Glenelg Highway several hundred metres east of the Linton shire offices.
- 17.2.2** CFA employees Messrs Wallace Jenkins and Russell Stone originally established the Staging Area.¹¹ This occurred at approximately 3.35pm.¹²
- 17.2.3** Further setting up and resourcing occurred around 4.00pm when a Protective Equipment (PE) Van arrived at the area. CFA employees Messrs Ian Westwood and Barry Browning manned this van.
- 17.2.4** The Staging Area was set up following a request from forward operations point Operation Officer John Anderson. Anderson believed he organised this before leaving Linton on his trip to Snake Valley in the northern region of the fire.¹³
- 17.2.5** Mr. Anderson believed he rang through the request for the Staging Area to CFA Region 15 Headquarters.¹⁴ The evidence is unclear whether Anderson directed this request to Region 15 HQ. Britton considered Anderson made a decision that a Staging Area was necessary and discussed this with Leach.¹⁵

- 17.2.6** However, the evidence demonstrates that steps were being taken shortly after 2.00pm to establish the Staging Area. Mr. Anderson only arrived at Linton at around 2.00pm.¹⁶ The evidence of the following witnesses indicates they were involved in discussion about establishing the Staging Area:
- Mahoney (Operations Officer)¹⁷
 - Leach (Incident Controller)¹⁸
 - Brown (Region 15 HQ)¹⁹
 - Harris (IMT Operations Officer)²⁰
- 17.2.7** There is an indication that Mr Leach was involved in organising the Staging Area at around 2.00pm. DNRE Operations Officer Brad Mahoney believes he had a conversation with Leach shortly after 2.00pm and decided a staging area was required at Linton. Mahoney's statement described what happened following this meeting with Leach:
- "Around 1415 hours I advised Bob Graham, an NRE employee, that he was to travel to the Linton CFA building to establish and be in charge of an Operations Point at that location. Des Phelan from the CFA was to be his Deputy. He was also advised that all additional resources would be reporting to a Staging Area, which was to be set up – at the Linton Recreational Reserve."*²¹
- 17.2.8** Mr Mahoney also indicated during his evidence that he had such discussions about establishing a staging area with Leach at an early stage in the fire.²²
- 17.2.9** Mr Leach indicated in his evidence that he played a role in establishing the Staging Area:
- "Bearing in mind what you have said about it being a new concept and bearing in mind its importance, again I have to ask you why didn't you take some pro-active action on the day to ensure that the staging area was operating as it should have been?—Once again the management of the staging area falls within the operations unit and for the incident controller to sort of delve down into that level of tactical area would be unusual. I certainly inquired, or I was one of the instigators of getting the staging area in place, and I certainly inquired later with the operations unit as to whether it was up and functional and the reply was that it was. I didn't do any more than that."*²³
- 17.2.10** However, there is some conflict regarding the time at which Mr Leach began organising the Staging Area. His statement indicates this did not occur until approximately 3.45pm. The evidence indicates this time is most likely incorrect and that Leach was involved in staging area planning at an earlier stage, as identified by Mahoney.
- 17.2.11** There is substantial evidence to indicate that the decision was made before 2.28pm and passed on to several points.
- 17.2.12** A notation in one of the Region 15 Headquarters logbooks indicates a call came in from Mr Leach at "1428" hours. Part of the entry within that logbook contains the following note:
- "Staging Area Linton Rec Reserve"*²⁴
- 17.2.13** Mr Brown indicated he did not recognise the handwriting in which that entry was made.²⁵ Leach did not give evidence concerning this entry.
- 17.2.14** There is also further evidence in the form of Mr. Mahoney's log to reinforce his view that the decision was made shortly after 2.00pm. Part of the "1428" entry in his log indicates:
- "Bob Graham will be setting up operations out of Linton, staging area will be Linton Recreation Reserve."*²⁶
- 17.2.15** Mr Mahoney explained this entry related to him informing Murray Fullerton where the Staging Area would be.²⁷
- 17.2.16** It is also evident that Messrs Brown and Harris had a conversation relating to the Staging Area not long after 2.00pm.²⁸ In fact, the evidence demonstrates that after this conversation Harris played a lead role in establishing the Staging Area, as set out in his statement:

*"After receiving this information I was instructed to attend the Region H.Q.'s and en route I spoke to BROWN and discussed the setting up of a Staging Area in relation to the Linton Fire at the Linton Recreational Reserve. I informed him that I would implement that strategy."*²⁹

17.2.17 Mr Harris explained what occurred:

*"The next point relates to assembly areas and staging areas and you have made reference in your statement to Officers Stone and Jenkins, did you have any role in the establishment of the staging area at Linton?—Only that I, on my way from home into Ballarat, I was on the telephone calling the people that I thought would be able to fulfil that role, calling them to duty and on the way from the fire station to the ICC I gave them a brief of setting up the staging area, and despatched them directly."*³⁰

17.2.18 Despite the clear evidence that steps were taken shortly after 1400 hours to establish the staging area, Messrs Stone and Jenkins were not despatched to establish the Staging Area until shortly after 3.00pm. Harris despatched them from the IMT in Ballarat.³¹

17.2.19 As indicated earlier in this section, the initial setting up of the Staging Area then occurred at approximately 3.35pm.

17.3 Staffing

17.3.1 The following four CFA employees were staffing the staging area at Linton:

- Wallace Jenkins
- Russell Stone
- Ian Westwood
- Barry Browning

Mr Wallace Jenkins

17.3.2 At the time of Linton, Mr Jenkins had been a member of the CFA for 32 years, 28 years of which he had been a professional firefighter. He was stationed at Ballarat. He had undergone ICS training.³²

17.3.3 Mr Jenkins had no experience or specific training in relation to operating staging areas:

"Mr Jenkins, can I just take you back to the early part of your statement. You say in it that you hadn't previously had, or this was your first experience at setting up a staging area?—Yes.

I understand Mr Jenkins, not long before the 2nd of December 1998 you had done a course in relation to the operation of a staging area?—No, I had never done a course on staging areas.

*Mr Harris in his statement indicates that at that stage it was his belief that you had done a course in staging areas, but that is wrong?—That's wrong."*³³

17.3.4 However, Mr Jenkins indicated he did not feel that his lack of training was a significant problem at the time:

"Did you feel at any stage at a disadvantage because you hadn't received any training or ...?—No, not really. I understood what the system, how the system worked, I had a good understanding of how the system worked and found it okay to operate.

*How did you know how the system worked if you hadn't received any training?—We have equipment available in the watch room at the fire station, I have seen them, I have filled the cards in in previous – on the day before a total fire ban the strike teams have to check in with T cards and I had filled them in previously."*³⁴

17.3.5 A further question from the Coroner indicated this opinion was perhaps misconceived:

"But the management of a staging area is a bit more than filling out the T cards, isn't it?—Yes.

*What else does it involve?—It involves the deployment, reception, deployment of vehicles, manpower, motor mechanics, any requirements that any people attending that scene that need, probably, for example, whether they need a doctor or an ambulance or a Red Cross person should they suffer an illness, just various functions.”*³⁵

Mr Russell Stone

17.3.6 Mr Stone did not make a statement or give evidence regarding his involvement in the Linton fire.

17.3.7 Mr Jenkins indicated that he was aware that Stone had worked at staging area established at the Trentham football ground during the Spring Hill Fire.³⁶ However, Jenkins was not aware of what training Stone may have undertaken since being a member of the CFA.³⁷

Mr Ian Westwood

17.3.8 At the time of Linton, Mr Westwood had been a member of the CFA for approximately 30 years. He had been a permanent employee for 20 years and was stationed at Ballarat.³⁸

17.3.9 He had completed AIIMS training and undertaken a Staging Area Manager course.³⁹ During his evidence Mr Westwood could not recall if the Staging Area course was undertaken before or after Linton, but counsel for the CFA indicated he completed this training in September 1998.⁴⁰

17.3.10 Mr Westwood had not had any experience in operating staging areas before Linton:

“Previous to Linton had you had any experience in staging area management or assisting with the staging area at a fire?—No.

*This was the first time you were involved in that?—This was the first time.”*⁴¹

Mr Barry Browning

17.3.11 Mr Browning had been employed as a firefighter with the CFA for 13 years as of November 1999. He was stationed at Ballarat.⁴²

17.3.12 Mr Browning had undertaken basic training in regard to staging areas. He had not been trained in relation to wildfire.⁴³

17.3.13 Mr Browning briefly described what this staging area training involved;

“How long did it last?—My recollection was that it lasted probably half a day, or may have taken up a morning and an afternoon.

Was it theory and practice or just theory or just practice?—Mainly theory, but how can I describe the practical part of it? If you can describe one room being a staging area and another room being a fire and people walking around with a card and giving it to you, that’s the practical part of it.

*Who conducted the training, do you remember?—I forget his first name, McKenzie, I think.”*⁴⁴

17.3.14 The CFA submitted that the four CFA personnel who manned the staging area had substantial experience and relied on Mr Leach’s evidence that the Ballarat City CFA personnel were probably the best available staff for operating the staging area at Linton. This was due to the training that had been undertaken in Region 15 on staging areas.⁴⁵

17.3.15 The submission made on behalf of the Firefighters Union contradicts the CFA submission by stating the staging area personnel were not as experienced and well trained as was assumed by command personnel on the day. The submission highlights that none of the personnel, except for Mr Stone, had experience in managing a staging area. The fact that Jenkins had not undertaken staging area training and that Westwood and Browning had limited experience at wildfires was also discussed.⁴⁶

- 17.3.16** The CFA's reply to the submission of the Firefighters Union reiterated their original submission as outlined above in paragraph 7.3.14.⁴⁷
- 17.3.17** While the observations of the UFU are correct, it is accepted as was submitted by the CFA, that on the day the staff at the staging ground was the best that was available to the IMT.

17.4 Supervision

- 17.4.1** The evidence before these Inquests, as outlined below, establishes that there was virtually no supervision of the staging area by those fulfilling command roles under AIIMS-ICS principles. Furthermore, there was general confusion among the staging area personnel as to which one of them was responsible for managing the staging area.

- 17.4.2** It is clear within AIIMS-ICS principles, as discussed in section 17.1 of this Chapter, that the Operations Officer is responsible for establishing and maintaining staging areas. It is also clear, under these same principles, that the Incident Controller maintains the overall management of the incident.⁴⁸ Consequently, the Incident Controller oversees the functions and decision-making of the Operations Section.

- 17.4.3** Furthermore, the responsibilities of the Operations Officer are clearly identified in the CFA's Operations Guidelines:

*"The Operations Officer is responsible for the management of all operations directly involved with achieving the Incident Action Plan objectives."*⁴⁹

- 17.4.4** Those personnel performing key Operation Officer roles during the Linton fire, Messrs Mahoney, Harris, Graham, Anderson and Britton, had very limited interaction with the staging area. In part this was contributed to by poor communications links between the staging ground and the Shire Offices as discussed in Chapter 18.

- 17.4.5** Mr Mahoney, apart from playing a role in establishing the staging area, did not supervise or contact the staging area throughout the fire. Mahoney gave the following account of the responsibilities of the forward operations point and IMT in regards to managing the staging area;

"Just coming to the question of the staging area, you have been shown it was the responsibility of the operations section to establish and maintain the staging area, do you agree with that?—Yes, I have been shown that.

That is not something you were doing on this day, is it?—No.

But you agree it should have been done by either you, Mr Harris, Mr Britton or Mr Graham, shouldn't it?—Yes.

*Because that was the two people at the forward operations point and the two people in the IMT?—Yes."*⁵⁰

- 17.4.6** Mr Harris also stated that he had little to do with the staging area apart from despatching Jenkins and Stone to establish it;

"Did you have any role in supervising the activities of the people at the staging area?—No, I didn't.

*Did you have any understanding as to who, if anyone, was doing that?—As far as the supervision of the staging area, I believe that Russell Stone would have been maintaining a supervisory role of the staging area personnel and they would be reporting to the operations point."*⁵¹

- 17.4.7** Mr Graham agreed that the Operations Section has a key role to play in managing the Staging Area:

"Would you agree with the proposition that the operations point and the staging area, forward operations point I should say, and the staging area, are closely related in relation to the effective management of the fire?—Yes.

Particularly where the incident management team is situated some distance away from the fire, such as in this case; is that right?—Yes, that's correct.

The operations point is really responsible for ensuring that the staging area is operating properly, isn't it?—That's correct.”⁵²

17.4.8 Mr Graham indicated he went to the Staging Area once during the fire. This was to gain information from a pilot who had observed the fire and not to check on the operation of the Staging Area. Graham believed Britton was supervising the Staging Area and doing so adequately.⁵³

17.4.9 Mr Britton's evidence indicated that he visited the Staging Area on only one occasion, and despite the fact that Britton inquired how the Staging Area personnel were coping, this visit had little to do with managing and maintaining the Staging Area:

“Did you have any contact yourself with the staging area during that day?—I went down to the staging area only once during the day, they were busy, I just said, “Hello”. It was just a matter of a flag waving exercise to let them know we were there, see how they were doing, they were extremely busy, I said, “How are things going?” “Okay.”, and I walked away and left it and that was it.”⁵⁴

17.4.10 Mr Britton's answers were not clear when questioned about who should brief and manage the Staging Area. There were indications from Britton that the Staging Area personnel should manage themselves and that personnel such as Phelan had some role to play in keeping the staging area ‘up to date.’ For example, Britton gave the following evidence:

“I want to break it into two. In those days, that is about December 1998, did this forward operations point have any system for overseeing, if you like, and/or ensuring that the staging area was set up appropriately, or was that something done as a separate cell or unit from the forward operations point?—There had been quite extensive training provided to particularly our career staff at the Ballarat City Fire Station to set up, manage and operate a staging area. Now at the time of Linton they were basically left to do that.”⁵⁵

17.4.11 Mr Britton also indicated that the Staging Area should seek any information it does not have, but needs to carry out its function.⁵⁶

17.4.12 Mr Britton's evidence raises two possibilities. Either Britton did not have an appropriate understanding of some of the responsibilities of AIIMS-ICS defined positions or he was attempting to disassociate the Operations Officer role as involving staging area management.

17.4.13 There is some evidence that Mr Britton may not have fully understood the management roles associated with the Operations Section at the time of Linton. This was demonstrated when he was asked about recommendation SF39 in the FAII Report:

“That the role and requirements of various fireground incident management functions such as staging areas, forward control units, and others, be clarified and documented.”⁵⁷

17.4.14 When questioned in December 2000 as to what progress had been made regarding this recommendation, Mr Britton indicated that progress had only been made in recent times:

“We then go on to SF39, can you read that?—(Witness complies.)

Has that clarification and documentation process occurred in relation to operations, sorry, incident management functions, such as staging areas?—Yes, it has. That's been addressed. I'm just intrigued by the forward control units, I guess that means mobile control units. Certainly in relation to expectations for staging areas, incident control points, operations points, et cetera, they are now quite clearly documented in the Chief Officer's Standing Orders and Standard Operating Procedures that were released about six months ago, there is quite clear documentation about when these particular facilities should be established and then some operating procedures in relation to, I suppose, the nuts and bolts part of how you actually – there is a number of those standing orders that have been produced, I'm just guessing at the date, but it was within the last six months.”⁵⁸

- 17.4.15** However, Mr Britton's lack of knowledge in this area would appear inadequate when it is considered he was a key player in delivering the FAIL Report outcomes in Region 15 and 16 throughout 1998.⁵⁹ Consequently, it would be reasonable to expect Britton to have a thorough understanding of the management structure and importance of staging areas at the time of Linton. Furthermore, several other witnesses, such as Graham, Mahoney and Leach, recognised the Operations Section has a significant role to play in managing the staging area. This is a training problem.
- 17.4.16** Mr Anderson indicated he did not go to the Staging Area at any time and did not know who was in charge of the staging area.⁶⁰ In fact, it appears Anderson knew little or nothing about who was maintaining the staging area or what role, if any, the Operations Section played in doing so:
- "What about the provision of accurate maps at the staging area, was anything done by the operations point to ensure that incoming strike teams would be given accurate maps, or detailed maps?—I cannot answer that question, I do not know.*
- What about briefings in relation to incidents that had occurred during the course of the day on the fire ground, was anything done at the operations point that you are aware of to ensure that strike teams at the staging area were given proper briefings?—Not that I am aware of."*⁶¹
- 17.4.17** Incident Controller Mr Leach indicated during his evidence that the responsibility for managing and supervising the staging area was to be shared by the staging area manager and the Operations Section through the Operations Officer at the forward operations point.⁶² Leach also agreed the Incident Controller has responsibility for the overall management of the incident.⁶³
- 17.4.18** Mr Leach stated that during the Linton fire he had no contact with the Staging Area, but was under the impression it was operating effectively due to feedback he received.⁶⁴ Furthermore, Leach had confidence in the personnel operating at the Forward Operations Point, particularly Britton:
- "Did you tell him to go down and check the staging area was providing the necessary information and briefings to the crews that were being deployed from the staging area? —No, because Mr Britton had been a party to the FAIL processes and sat on the operations working party, he was across the details of the operation of a staging area as well as I was.*
- So you assumed that Mr Britton would ensure that the staging area was operating properly, did you?—We had a team of people involved at the operations point at the IMT who were very experienced firefighters, many had been in the FAIL. They were as experienced or more experienced than me. I would expect them to perform those roles accordingly."*⁶⁵
- 17.4.19** Apart from the lack of supervision occurring at management level, it was apparent there was substantial confusion among the Staging Area personnel about who was supervising them and who among them was managing the Staging Area.
- 17.4.20** Mr Jenkins indicated that the Staging Area was receiving instructions via Linton Control (the MCV) and were reporting back to Linton Control, but was unaware exactly who was in charge of the operation and exactly where Linton Control or the operations point were located.⁶⁶ Jenkins had contact with the IMT on at least two occasions.⁶⁷
- 17.4.21** It was apparent that much of Mr Jenkins' evidence was quite vague and he had trouble recalling much of what occurred at Linton.
- 17.4.22** Mr Westwood indicated in his statement that he had no information regarding the operation and command structure in place at Linton:
- "At no point during my attendance at Linton was I informed as to who was in charge of Operations on the Fire Ground. I later assumed G.O. Des PHELAN was in charge because he came in and asked for a team to go to a breakout, but it could have been BRITTON, ANDERSON or PHELAN who was in charge."*⁶⁸

- 17.4.23** While Mr Westwood indicated during his evidence that this did not cause him any particular concerns, he also believed having someone to directly report to would have assisted them by providing them with a source to gather information from when required.⁶⁹
- 17.4.24** Mr Browning was not aware of who the key IMT personnel at Linton were.⁷⁰ He was also quite vague in his evidence and hinted that he had forgotten much about what had occurred at Linton.⁷¹
- 17.4.25** Apart from a lack of knowledge as to the command structure at Linton and the exact details of who was managing the Staging Area, there was general confusion amongst the staging area personnel about who was performing the important role of Staging Area Manager.
- 17.4.26** Mr Jenkins believed that Russell Stone was in charge of the staging role and he was assisting.⁷²
- 17.4.27** Mr Westwood described what he believed the Staging Area roles to be, indicating the opposite to what Jenkins thought:
- “Mr Westwood, what was your understanding of who was in charge of the staging area on that afternoon of 2 December 1998?—My understanding is that Wallace Jenkins was.*
- What role did you believe Mr Stone was playing?—He was assisting.*
- What role was it that you were to play on that day in the staging area?—We were the runners or the collectors, deliverers of information out to the vehicles on the oval.”⁷³*
- 17.4.28** Mr Browning had little knowledge or memory of who was in charge of the Staging Area, but guessed Stone was fulfilling this role:
- “With respect to your role on this day, I have lost track of who said what, who did you think was the staging area manager?—As I say nobody had a tabard on, when Ian and myself arrived in the PE van, Russell Stone and Wally Jenkins were conducting the staging area from the bonnet of a car. They had been sent previous to myself and Ian. I thought one of those two, but probably Russell, because Wally was the penciller, I suppose.*
- It is not something that was ever discussed between the four of you on the day?—No, more or less a team work thing on the day.”⁷⁴*
- 17.4.29** Furthermore, it appears that none of the Staging Area staff were wearing tabards to identify the role they were playing.⁷⁵
- 17.4.30** The general confusion in this respect extended to other areas of the fire. An Incident Structural and Communications Chart prepared by Ms Meyer at Region 15 HQ lists Browning as the Staging Area Manager.⁷⁶ This was prepared at 2.30pm. Browning was surprised by this and gave the following evidence when questioned:
- “We have been provided with a record, an incident structural and communications chart by the CFA prepared by a W Myer, or Mayer, where it is recorded that Greg Leach and Brad Mahoney are the incident controller and deputy incident controller respectively, Bob Graham and Des Phelan were in the operations point, and then it has got, “Grenville Group HQ forward ops. point”, and various other people are noted down as performing some functions. At the foot of the operations chart you are recorded as being the staging area manager. Now, was that a position that you ever believed that you occupied?—No. Perhaps if I could tender that document, Your Worship. Mine has highlighter and holes punched in it. It has been provided by the CFA. Perhaps I will tender it and get a better copy.*
- THE CORONER: Thank you.*
- (To witness): When did you first find out about that, Mr Browning?—About?*
- What was just put to you and that document?—Just then”⁷⁷*
- 17.4.31** The evidence in this section highlights the problems apparent when AIIMS-ICS roles are either not fully understood or implemented by those filling them. There was general confusion or neglect among those in key command roles as to who should supervise and maintain the Staging Area.

- 17.4.32** The knowledge of the Staging Area personnel on the day of the Linton fire also indicates that the agencies should pay more attention to identifying who is filling what role on the fireground and within the IMT. This information should then be passed on to those performing important roles, such as Sector Commanders, staging area personnel or communications officers. This is one of the reasons the Incident Action Plan exists under AIIMS-ICS principles. As is demonstrated in other areas of this report, the failure of the IMT to produce appropriately detailed Incident Action Plans added to the general confusion or lack of knowledge of many of the personnel at the fireground.
- 17.4.33** The submissions made on behalf of the Volunteer Associations and Firefighters Union recognised that supervision of the Staging Area at Linton was inadequate.⁷⁸
- 17.4.34** The DNRE Reply indicated that Mr Graham was not responsible for briefing and managing the staging area because:
- There is no indication in the ICS manual that the forward operations point are responsible for briefing the staging area.⁷⁹
 - The staging area was being utilised by CFA personnel only, consequently Britton and/or Anderson were responsible for staging area operations
- 17.4.35** The evidence does not support this submission. Mr Graham was responsible for both CFA and DNRE resources at Linton as this was a jointly run fire conducted under AIIMS-ICS principles. Graham himself recognised that the forward operations point has responsibility for ensuring the Staging Area is operating effectively.⁸⁰ Furthermore, Graham was fulfilling the functions of the Operations Section, irrespective of where he was located. It is clear under ICS principles that the Operations Section is responsible for establishing and maintaining the Staging Area.⁸¹ It would also seem strange that it can be argued Graham had no responsibility for ensuring the Staging Area was operating effectively when he was involved in decision making concerning the deployment of CFA crews.⁸² This included discussion regarding deployment with members of the IMT.⁸³
- 17.4.36** On the issue that only CFA resources used the Staging Area, while the evidence does establish it was mainly CFA crews using the Staging Area, this is inconsistent with AIIMS-ICS principles and it has been recognised that the Staging Area should have been jointly run.⁸⁴ Consequently, Mr Graham could have been expected to have had knowledge that in AIIMS-ICS run fires he, as an Operations Officer, would have a role to play in supervising the Staging Area. Graham in fact acknowledged that if the Staging Area had been operating within FAII principles all resources would have been deployed through that area.⁸⁵
- 17.4.37** There is also evidence that suggests that one or two DNRE crews passed through the staging area.⁸⁶
- 17.4.38** The CFA submission did not directly address the issue of supervision, but indicates that the Staging Area personnel performed adequately in managing the area. The submission also highlights the fact that the Staging Area had adequate interaction with the Forward Operations Point through their contact with the MCV.⁸⁷ As will be discussed in section 17.6, the evidence does not support the submission that the close working relationship of the Staging Area and Operations Point was maintained through *“regular contact with the MCV”* at Linton.⁸⁸

17.5 Decision Making

- 17.5.1** The Staging Area was receiving general instructions on crew deployment from the Forward Operations Point, generally via the MCV under the call sign *‘Linton Control’*.
- 17.5.2** However, the evidence demonstrates that much of the decision making at the Staging Area was left in the hands of the four CFA personnel performing staging area roles. This occurred because of the general lack of guidance and supervision the Staging Area received from personnel fulfilling AIIMS-ICS command roles.
- 17.5.3** Mr Westwood highlighted the value a clearly identified staging area supervisor within the AIIMS-ICS command structure could have offered at Linton:

“MR LANGMEAD: Mr Westwood, you were asked a moment ago if you knew who the incident controller was, whether you knew it was Mr Leach or not, but is it your view you needed to know that on the night given that you were at the operations point, so you knew where your directions and orders were coming from?—Yes, yes, that would have been nice to know, yes.

How would that have affected how you operated given you were receiving orders and directions from the ...?—It would have assisted us greatly, we would have had, any questions, queries, information we needed, it could have been actually directed to that particular person.”⁸⁹

17.5.4 This lack of guidance was added to by the general confusion at the Staging Area as to who was managing the area.

17.5.5 It appears that at times decisions about who would do what at the Staging Area was made jointly or in a somewhat ‘*ad hoc*’, disorganised manner. An example of this was offered in the evidence of Mr Jenkins:

“So it wasn’t jointly, it was Mr Stone as the manager?—Sorry?

It wasn’t jointly between you?—At times, yes, at times, as I said, he stepped out of the vehicle, at times there was the four of us made decisions, but overall I believed he was the staging area manager.”⁹⁰

17.5.6 In fact the evidence indicated a general decision was made between Messrs Jenkins, Stone, Westwood and Browning as to what roles they would perform on the day.⁹¹ It was decided that Jenkins and Stone would perform general administrative tasks in the PE van. Westwood and Browning would brief strike teams and incoming crews.⁹²

17.5.7 This involved Messrs Jenkins and Stone performing duties such as monitoring PE van radios, communicating with the forward operations point or IMT, and maintaining a logbook of resources arriving and leaving the Staging Area.⁹³

17.5.8 The logbook maintained by Messrs Jenkins and Stone was exhibited during the inquest. All entries in the book up until 2152 hours were made by Jenkins, apart from one entry at “1716” made by Stone.⁹⁴

17.5.9 Evidence from Mr Westwood indicates that the PE van had its fixed radio on channel 20A and a portable radio on the command channel 15A.⁹⁵ Jenkins was unclear about what channels were being used by them.⁹⁶

17.5.10 As will be discussed in Chapter 17.6, the evidence is unclear as to exactly what channel, other than 20A, that the Staging Area was using.

17.5.11 The decision to use Channel 20A was not made by those in command at Linton. This came about when Mr Westwood approached Roberts in the MCV and they decided to set up a staging area channel to allow for effective communications between the two areas.⁹⁷

17.5.12 As has been discussed about the lack of detail supplied to staging area personnel regarding the command structure, the same occurred in relation to communications. Mr Westwood indicated in his statement and again in his evidence that he knew very little about the communications plan in place at Linton:

“The portable, sorry. Did you understand that day that there was a command channel and a fire ground channel?—No, I did not.

So no one ever gave you that information on the day?—No.”⁹⁸

17.5.13 Mr Browning indicated he could not recall if the Staging Area was provided with any radio channel information.⁹⁹ Whatever the case, he was also unaware of the command and fireground channels in use.¹⁰⁰

17.5.14 As will be discussed in detail in Chapter 17.9, this lack of information affected the quality of the briefings given to crews arriving and deploying from the Staging Area.

17.5.15 Messrs Browning and Westwood were performing duties that involved collecting T-Cards from incoming crews and providing maps and general instructions to crews.¹⁰¹ Browning gave a brief explanation of what their role involved:

“What was your role on that day at the oval?—More or less just hands and legs, being a runner.

And as a runner what were you doing?—My job was to give a map with information on it to the strike team leaders and tell them who they were to meet. I would write on the map, or either I would write it or it was written for me in the staging area van, who they were to meet, what they would be doing, and send them on their way.”¹⁰²

17.5.16 It appears that generally what occurred after these roles were determined is the people in the PE van would receive instructions from ‘Linton Control’ via radio about where resources were required and should be deployed. This information was passed on from Messrs Jenkins or Stone to Westwood and Browning. Westwood and Browning would then brief the relevant crews and deploy them.

17.5.17 Mr Jenkins was under the impression that no vehicle left the Staging Area unless directed by Linton Control and then deployed by Staging Area staff.

17.5.18 While it is apparent the Staging Area personnel were reasonably well guided in relation to making decisions regarding crew deployment, there were a number of problems encountered in this area.

17.5.19 One of these problems was raised during the evidence of Mr Jenkins. Jenkins was questioned about an incident in which a strike team led by John Taylor self-deployed despite instructions to the contrary from Browning. Jenkins indicated he was unaware of such an incident occurring.¹⁰³

17.5.20 It was indicated during Mr Browning’s evidence that this incident occurred when Browning was given instructions to deploy Taylor’s strike team to the western flank. Taylor received other instructions to attend the eastern flank, informed Browning of this, and then deployed to that flank. This appears to have been around the time of the wind change.¹⁰⁴

17.5.21 Mr Taylor indicated during his evidence that he deployed to the eastern flank at this time because there was a breakaway and this flank was viewed by him as a priority. Furthermore, Taylor received some instructions from Mr Lightfoot to attend to this region of the fire.¹⁰⁵

17.5.22 It is apparent that there were other wide-ranging management problems created at Linton in the area of self-deployment. These issues were recognised in a Staging Area debrief held in Region 15 in January 1999. This debrief was chaired by Messrs Leach and Harris and according to the document was attended by the majority of the personnel who performed staging area roles at Linton.¹⁰⁶

17.5.23 Despite being identified as attendees, Messrs Jenkins and Browning indicated they had no memory of attending the debrief.¹⁰⁷ Westwood stated he did attend.¹⁰⁸

17.5.24 Issues relating to self-deployment and the difficulties then created for managing resources were raised on several occasions throughout the debrief:

– Staging Area experienced problems in obtaining ‘T’ Cards for resources that responded to the incident prior to the S/A being established.

– Staging Area were receiving deployment orders from Ops Point, but some fireground personnel (Sector Commanders) were attending S/A and deploying Strike Teams without Ops Point sanction.

– Personnel not adhering to deployment orders issued by Staging Area.

– Some early, arriving DNRE resources reported to S/A, then nothing until late afternoon. DNRE established own resource management person at entry to Recreation Reserve. One dozer came through the S/A.”¹⁰⁹

- 17.5.25** In relation to the final issue, it is evident that the Staging Area at Linton practically operated as a single agency staging area. The evidence suggests that very few DNRE resources passed through the staging area in the manner in which most CFA personnel were doing.
- 17.5.26** This problem was reflected in the Joint *“Operations Review of the Linton Fire/Midlands Fire”*, with the following recommendation made:
- “Staging Areas must be established for use by both agencies.”*¹¹⁰
- 17.5.27** Details relating to the frequency and subject matter of communications between the Staging Area and forward operations point and IMT will be covered in detail in the following three sections of this Chapter.
- 17.5.28** It is clear that decision making and management relating to staging area operations at Linton would have been improved by the following factors:
- The provision of written information to staging area personnel regarding the command structure, communications, and operational strategy (eg – Incident Action Plan).
 - The assignment of the role of Staging Area Manager to one of the four staging area personnel.
 - A more active role in supervising and maintaining the staging area by those personnel performing Operations Section roles.
 - All personnel attending the Linton fire being aware of the existence of a staging area and then informing the staging area of their attendance if they had not originally been deployed from there.

17.6 Communications to/from Forward Operations Point

- 17.6.1** As was indicated in the previous section, the forward operations point, generally via the MCV under the call sign *“Linton Control”*, was the major point of contact for the Staging Area.
- 17.6.2** The evidence indicates that Messrs Jenkins and Stone did not attend the Forward Operations Point upon arrival at Linton or at any later stage in the fire. However, as previously mentioned they played a key role in communicating with the Operations Point while monitoring the PE van radios.
- 17.6.3** In fact, Mr Jenkins did not know exactly where the Operations Point was located. He gave this account when answering a question from the Coroner;
- “THE CORONER: Is this the first time you have become aware of the fact that a part of the management was being run out of the Shire Offices?—When we arrived we were aware that the fire was being run from Linton, but we weren’t sure whether it was run from the fire station, the Shire Offices or the MCV. I am not sure still to this day where Linton Control was being operated from.*
- Even now?—Even now, yes.”*¹¹¹
- 17.6.4** Mr Jenkins was receiving instructions via radio from Linton Control and he was relaying information back to them regarding resources arriving at the Staging Area.¹¹² He generally had difficulty recalling the detail of the communications between himself and Linton Control. However, he was able to recall several specific conversations.
- 17.6.5** One of these was a request from Mr Anderson late in the afternoon for details of the resources located at the Staging Area.¹¹³
- 17.6.6** Some time after this message Mr Jenkins received a request from Anderson for three strike teams to be deployed to meet Kavanagh at the cemetery. This message included some detail relating to the impending wind change:
- “You received further radio messages directing the three strike teams be deployed to the cemetery gates and report to DGO Kavanagh?—Yes, I did.*

You had some information about an expected wind change?—Yes, I did.

What was that information?—The reason that the strike teams were to be deployed to the cemetery gates was an expected wind change from the west with winds up to 60 kilometres per hour.

Where did you get that information from?—John Anderson.

When did you get that information from Mr Anderson?—The exact time?

Yes?—I don't recall the exact time but it was previous to them being deployed.”¹¹⁴

17.6.7 Mr Jenkins believes he passed this information onto Westwood or Browning and the following three strike teams were then deployed:

- Maryborough
- Geelong
- Ballarat¹¹⁵

17.6.8 The Staging Area logbook indicates these teams were deployed at 1835 hours.¹¹⁶

17.6.9 However, the evidence in the Inquests is somewhat unclear as to whether these strike teams deployed together. There was evidence to indicate that the Maryborough strike team deployed by itself, leaving the Staging Area before the Geelong and Ballarat teams.¹¹⁷

17.6.10 Mr Anderson could not recall making the request to the Staging Area for resource details or for deployment of the three strike teams.¹¹⁸ However, he indicated it is possible he was providing general information to Jenkins.¹¹⁹

17.6.11 There is some reference to this deployment in the MCV's Channel 15B logbook.¹²⁰ This reflects the “1835” message in the Staging Area log, but indicates the Maryborough, Ballarat and Geelong Strike Teams were deployed to the cemetery at 1838.

17.6.12 When examined regarding this entry, MCV radio operator Mr Balm could not recall what occurred with this message and was uncertain if it was a transmission to or from the Staging Area.¹²¹

17.6.13 Mr Jenkins also indicated he spoke to Britton on the radio, but could not recall any details of this conversation.¹²²

17.6.14 A review of Mr Britton's evidence relating to his contact with the Staging Area only reveals that he had two face to face meetings with Staging Area personnel.¹²³ There is no mention of radio contact.

17.6.15 Mr Jenkins recalled very little about the radio channels they were using and how they came to be operating on those channels.¹²⁴

17.6.16 Mr Jenkins indicated that he had good radio communications with Linton Control.¹²⁵ However, he encountered other difficulties in that the fax facilities in the PE van were inoperable for a significant part of the fire;

*“In terms of the fax, did that have an effect on your capacity to do your job properly?
—Yes.*

What were the problems without it?—We had no contact with the NRE headquarters a Ballarat, Linton Control and the Ballarat City Fire Station watch room and the Region 15 headquarters, we could have use utilised it with maps and ...

The Coroner: Did you think of providing a runner to ...?—No. I can recall at one stage Ian Westwood and Barry Browning going up to Linton Control, but I am not sure what information they obtained now, I just can't recall.”¹²⁶

17.6.17 Unlike Messrs Jenkins and Stone, Westwood and Browning did attend the Forward Operations Point. They arrived at the Linton Recreation Reserve at around 1600 hours, assisted Jenkins and Stone for some 30 to 40 minutes, then proceeded to the Forward Operations Point on foot.¹²⁷

- 17.6.18** Messrs Westwood and Browning met with Britton on this trip. After a short discussion with Britton, then the personnel in the MCV, they returned to assist at the Staging Area. Westwood gave the following account of the meeting:
- "If you have a look at the last paragraph on that page, you say you went to the Linton Shire Office, "I spoke to Britton and informed him of ... (reads) ... staging area to assist". What was that conversation about?—Basically that we would set up the communications – sorry, correction, we would set up the PE van as some sort of communications, as in specific communications it wasn't discussed.*
- But nonetheless you were advised, weren't you, "Don't do that, go back and help at the staging area"?—We were told to go back to the staging area.*
- That was because the mobile communications van was going to be there?—It was going to be there."*¹²⁸
- 17.6.19** Mr Westwood was also told by Britton that the Forward Operations Point was operating from the Shire Office in Linton.¹²⁹
- 17.6.20** Mr Britton recalled the meeting, but could not remember the details of what was said:
- "He says, "Britton informed me that the shire offices were ... (reads) ... return to the staging area to assist." Do you recall having that discussion with Mr Westwood, it seems, some time between 4.30 and five o'clock?—I can't recall the specifics of that particular conversation, but certainly there was contact with those people."*¹³⁰
- 17.6.21** Mr Britton was unsure if he passed on radio channel information to Westwood and Browning during this conversation.¹³¹ As discussed earlier in this chapter, Westwood and Browning don't appear to have been supplied with such information during the Linton fire.
- 17.6.22** Mr Westwood was generally out of the PE van and consequently could not recall hearing any distinct messages, although he did hear some general chatter.¹³² He was usually receiving information from Jenkins.¹³³
- 17.6.23** Mr Westwood did learn of the impending wind change. This information was passed on to him from Jenkins. The information was described in his statement;
- "JENKINS recorded a message from the M.C.V. requesting that 2 Strike Teams were required to go to the Cemetery regarding a possible breakaway fire and to assist with back burning procedures. JENKINS also told me about an expected south-west wind change of about 40 to 50 knots which at the time he told me was currently in the Hamilton area I can't remember if a time was mentioned for arrival at Linton."*¹³⁴
- 17.6.24** During his evidence, Mr Westwood indicated that the request may have been for three strike teams and that he was unsure if the reference to wind speed was made in knots or kilometres.¹³⁵
- 17.6.25** It would appear that this information was in fact derived from the message that Mr Jenkins received from Linton Control or Anderson. This was the message discussed earlier in this chapter that led to the 6.35pm deployment of the Maryborough, Geelong and Ballarat strike teams.
- 17.6.26** In relation to radio communications, Mr Browning could not recall any specific communications he may have heard at Linton. He was also generally working out of the PE van and did not have a portable radio.¹³⁶
- 17.6.27** Mr Browning did receive some information about a wind change at Wickliffe, but has no recollection of where he heard this or the details of the information.¹³⁷
- 17.6.28** Mr Westwood, like Jenkins, indicated he experienced some difficulties with mobile phones and fax facilities at the staging area. However, while Westwood felt this affected their ability to receive and send documentation, he believed they used the MCV to maintain effective contact with the operations point and other areas:
- "How did you get around the problem of the fax dropping out when you were at Linton?—As in wanting additional resources, food, et cetera, we worked through the control vehicle.*

In the same way with the portable phone dropping out, did you link up direct radio communication through channel 20, I think it was with the MCV?—That is correct.

Were there any other practical problems that you were confronted by on the ... ?—Not that I can recall, not that comes to mind straight away.”¹³⁸

- 17.6.29** As discussed earlier in this Chapter, the only operational officer from the Forward Operations Point to visit the Staging Area personnel was Mr Britton, although Graham went there to talk to a pilot.
- 17.6.30** Mr Britton indicated he inquired how the personnel were going on this visit.¹³⁹ Jenkins, Westwood and Browning did not make mention of this visit in their statements and were not examined about it as Britton gave this evidence after they had testified.
- 17.6.31** The Channel 20A log maintained in the MCV shows that there were very few communications between the MCV and Staging Area from the time the Staging Area was established and the time at which the Geelong City and Geelong West tankers were entrapped.¹⁴⁰
- 17.6.32** However, MCV Communications Officer, Mr Balm did state that not all messages were logged and that the MCV had limited contact with the Staging Area in the initial stages.¹⁴¹
- 17.6.33** It is also possible there was contact between the Staging Area and MCV on other channels. The MCV logs for channels 15A, 15B, and 16A all have references to the staging area. This is somewhat confusing, as the Staging Area personnel believed they were operating on channels 15A and 20A. There are several explanations of this:
- They are messages from fireground personnel regarding the Staging Area that were heard by the MCV
 - They are messages transmitted directly to or from the MCV from and to fireground personnel
 - The Staging Area was in fact using various radio channels at different stages
 - The messages were logged in the incorrect book
- 17.6.34** This last point is a possibility that was recognised by MCV radio operator Balm;
- “I am just working off your photocopy, but that’s a communication on 15B to the staging area, is it?—I believe it to be. That was in the very early parts of what was going and it may have been that that was the only log book laying on the table at the time before we had everything set up and it in fact could have been something off another channel at the time whilst we were in that set-up procedure.”¹⁴²*

17.7 Communications to/from IMT

- 17.7.1** As discussed in Section 17.4, most members of the IMT had little or no interaction with the Staging Area at Linton.
- 17.7.2** The statements of Messrs Jenkins, Westwood and Browning also make very limited reference to interaction and communications with the IMT.¹⁴³ In fact, there is no reference in the statements to any specific communications between the Staging Area and IMT.
- 17.7.3** However, the examination of witnesses during the Inquests did reveal some brief details relating to communication between these two points.
- 17.7.4** Mr Jenkins indicated he had one or two phone conversations with the IMT. He believes the person he spoke with was Mr McGrath.¹⁴⁴ He did know what role McGrath was fulfilling within the IMT.¹⁴⁵
- 17.7.5** The Staging Area log contains two references to contact with the IMT between the times of 3.35 and 8.50pm. The following notations appear:

*“1644 – IMT rang on 53326622 Re Fuel & Refreshments
1730 – IMT notified of Strike Teams at Oval.”¹⁴⁶*

- 17.7.6** Mr McGrath was assisting Harris in the IMT.¹⁴⁷ McGrath did not provide a statement regarding his role at Linton and was not called to give evidence.
- 17.7.7** A log kept by Messrs Harris and McGrath does indicate that contact occurred between the IMT and Staging Area on at least three occasions between 3.19pm hours and the time of the Geelong Strike Team entrapment.¹⁴⁸ These notes appear to relate to enquires about food and fuel and a query about the number of CFA units on the fire ground. One of these notes reflects the “1644” entry in the staging area log. This indicates a message came from Stone at the staging area at “1645” hours re fuel and food for the staging area.¹⁴⁹
- 17.7.8** Once again, Messrs Jenkins and Westwood indicated that the failure or poor performance of equipment within the PE van affected the inability to communicate with the IMT. Apart from the problems discussed earlier in this chapter with the fax machine and mobile telephone, Jenkins also stated that radio contact with the IMT was a problem:
- “I found that we had good radio communications with Linton Control but that we had very poor radio communication with the Incident Management Team at N.R.E. Head Quarters in Ballarat.”*¹⁵⁰
- 17.7.9** There is no other evidence to indicate that there was any regular or significant communication and contact between the Staging Area and IMT.

17.8 Communications to/from Fireground

- 17.8.1** As a general rule, staging areas will have no requirement to communicate with fire ground personnel once they have been briefed and deployed from the staging area. The normal process would involve communication and instruction to and from operations points and command personnel.
- 17.8.2** While the evidence demonstrates that the Staging Area had limited communication with the fire ground, there were some communications made that generally by-passed those fulfilling operational positions.
- 17.8.3** This excludes the obvious face to face communication they had with incoming personnel arriving at the fireground. Information relating to this interaction is considered in the sections 17.9 and 17.10 of this Chapter.
- 17.8.4** The following factors account for the Staging Area’s limited communication to the fire ground;
- They generally received and sent instructions and information through command positions, such as the forward operations point, CFA Region 15 headquarters, or the IMT.
 - It appears they operated on radio channels 15A and 20A. 15A only allowed contact with limited command personnel on the fireground and 20A only provided a link to the MCV in Linton’s main street. It also appears the Staging Area was generally unaware of the other fireground channels and who was using those channels.
 - Fax and mobile facilities at the Staging Area were generally ineffective. Furthermore, there would be limited requirement or need for the Staging Area to use such facilities to communicate with fireground personnel. Fireground personnel at Linton did not have the capacity to receive faxes and most crews did not have mobile telephone facilities.
- 17.8.5** There was evidence that the Staging Area had some interaction with Mr Phelan.
- 17.8.6** An entry in the log indicates Mr Phelan was at the staging ground at “1625” hours.¹⁵¹ Jenkins explained that he simply made a note of the fact that Phelan was on the oval.¹⁵²
- 17.8.7** However, some time after this it is apparent the Staging Area tried to make contact with Mr Phelan on the fireground. The following entry appears in the log:
- “1738 – Unable to contact DGO Phelan re deployment of strike teams. Fuel Tanker on oval.”*¹⁵³
- 17.8.8** While Jenkins indicated he had no contact with Mr Phelan at any stage, it is apparent an attempt was made by someone at the staging area to contact Phelan.¹⁵⁴

- 17.8.9** The recordings of radio transmissions reveal that aircraft pilot Peter O'Rourke tried to contact Phelan on behalf of the staging area at 5.39pm. The message reads as follows;
- “VI: Group officer group officer Des aah Region 15 aircraft
V2: Go ahead Peter
VI: Yes they are trying to call you from control with a message
V2: will you be able to relay it
VI: aah control Region 15 aircraft will relay for group officer Phelan
V3: Roger aircraft we have a strike team here at the staging area and awaiting deployment group officer Phelan as to where he'd like them to go please
VI: ok how many tankers in the strike team
V3: I don't have that information but it should be a strike team of 5
V1: OK group officer Des Region 15 aircraft
V2: Go ahead
VI: They've got a strike team at the control there if you want them to go somewhere where do you think
V2: Tell them to come up the Snake Valley Road to the head of the fire and just wait there over
VI: OK the head of the fire on the Snake Valley Road
VI: Affirmative
V2: Correct
VI: Aah headquarters control Region 15 aircraft
V3: Region 15 aircraft received to send crew to Snake Valley road up to the head of the fire and await there
VI: affirmative thank you
V3: thank you
V4: Group officer Phelan DGO Taylor.”*¹⁵⁵
- 17.8.10** This transmission indicates that either Linton Control may have heard the 5.38pm attempt of the Staging Area to contact Mr Phelan or that the 5.38pm message may have in fact been passed onto Linton Control directly. Linton Control has then tried to contact Phelan, and having no success, O'Rourke then made contact with Phelan to inform him there was a strike team ready to be deployed.
- 17.8.11** It then appeared that Mr Phelan's instructions to deploy the strike team to Snake Valley Road reached the Staging Area. A note at “1742” hours stated that the Leigh Strike Team was deployed to Snake Valley Road.¹⁵⁶
- 17.8.12** There is no direct notation of this conversation in the MCV (Linton Control) Channel 15A logbook.¹⁵⁷ However, there is a note with no time entry that may relate to this transmission. This appears to be a note of a transmission shortly before 1743 hours that came from the Region 15 aircraft (Mr O'Rourke) and related to Snake Valley Road. The note only contains the following details:
- “R15 AC S.Valley Rd.”*¹⁵⁸
- 17.8.13** There is also no note relating to this in the MCV's Channel 20A log.¹⁵⁹
- 17.8.14** The MCV Channel 16A logbook has what appears to be a reference to this transmission. A note at “1735” hours is marked in the log as being transmitted and received from the Staging Area. The note appears to be instructions to the Staging Area that incoming crews should contact Mr Phelan for deployment instructions:
- “1735T/R S/AREA Crew to contact GO Phelan on R15A, he will deploy.”*¹⁶⁰
- 17.8.15** As noted earlier in this Chapter, this adds to the confusion about what channels the Staging Area were utilising.

- 17.8.16** There is also evidence that Mr Phelan was sent further information by the MCV on behalf of the Staging Area at “1743” and “1756” hours. These were messages to let Phelan know there were four more Strike Teams available and fuel and water at the Staging Area.¹⁶¹
- 17.8.17** MCV communications officer Mr Roberts expressed some concern at this interaction between the Staging Area and Phelan. He believed this was involving personnel in operational decisions that should have been dealt with in the Operations Point:
- “Could you expand on that? Why did you see that as a concern?—The MCV’s role and the operator’s role is to pass on information. Now, the information was going from the fire ground to the staging area. Now, as a part of not so much as monitoring, but hearing that information go through and requests for dozers and so forth, that’s when I went down and spoke to Mr Anderson again and requested that one of his people come up to the vehicle, take control as an operations point or a deputy to the operations officer so they knew what was going on, what was irrelevant and what wasn’t.*
- What was the response to that request?—He didn’t have anybody available.”¹⁶²*
- 17.8.18** Problems in this respect were also recognised in the Staging Area Debrief held by the CFA in January 1999. Point 11 of the Minutes of the Debrief highlights:
- “Staging Area were receiving deployment orders from Ops Point, but some fire ground personnel (Sector Commanders) were attending S/A and deploying Strike Teams without Ops Point sanction.*
- Action: Sector Commanders to liaise with Ops Point regarding the provision of resources for Sectors.”¹⁶³*

17.9 Briefing of Crews

- 17.9.1** As has been demonstrated throughout this Chapter, the Staging Area personnel did not receive any formal written instructions or Incident Action Plan at Linton. Therefore, they did not have formal written information relating to the ICS structure or fireground communication channels, strategies, or weather conditions.
- 17.9.2** Furthermore, there is no evidence that any of the Staging Area personnel received face to face briefings or instructions from command personnel as to what information they should supply to incoming crews.
- 17.9.3** Consequently, as will be discussed below, this led to significant problems in the way in which briefings occurred at the Staging Area. The content of staging area briefings was generally being determined by staging area personnel and was reliant on them receiving, understanding, and passing on information transmitted to them via the radio.
- 17.9.4** As discussed earlier in this Chapter, it would appear that the briefing of crews was generally conducted by Messrs Browning and Westwood after they received instructions from Jenkins or Stone. The process followed at the staging area was briefly outlined during the evidence of Jenkins:
- “It is Mr Westwood and Mr Browning actually briefing the strike teams on this day; is that right?—Yes.*
- Apart from the couple of trips you told us about, you were in the PE van all the time?—Yes.*
- Did you instruct Mr Westwood and Mr Browning as to what the content of that briefing should be to each strike team, or did you leave it up to them?—I just passed on the message exactly what I received from John Anderson.”¹⁶⁴*
- 17.9.5** Messrs Westwood and Browning were in general agreement with the proposition that they were responsible for briefing crews at the Staging Area.¹⁶⁵
- 17.9.6** It is apparent that Mr Jenkins determined the information he would pass on to Westwood and Browning from the content of the radio messages being received in the PE van. In his statement, Jenkins indicates:

*"I was receiving messages from Linton Control regarding the deployment of Strike Teams to designated areas of the fire ground as directed by Linton Control. These messages were then relayed to the Strike Team Leaders by Ian WESTWOOD and Barry BROWNING."*¹⁶⁶

17.9.7 Mr Jenkins also gave evidence in this that:

"Prior to that, in general terms, did you discuss with them what information they could include in every briefing, or is that something you left up to them?—I left that up to them. I just relayed the message as I received it to them without adding anything further.

Did Mr Westwood or Mr Browning ever come to you with any complaints or requests for information with respect to how they were briefing the strike teams?—No.

*So from your understanding you thought everything was going smoothly?—Yes."*¹⁶⁷

17.9.8 Mr Westwood believed it would have been unusual for a strike team at Linton to have left the Staging Area without receiving a briefing.¹⁶⁸

17.9.9 Mr Westwood indicated he briefed the Geelong and Ballarat strike team leaders, Scharf and Rigg.¹⁶⁹ He could not recall briefing the Kyneton or Maryborough strike teams.¹⁷⁰

17.9.10 Mr Browning could recall very little about who he briefed at the Staging Area, but indicated that he had 'casual' conversations with most people at the Staging Area that day. He had no specific memory of briefing the Geelong or Ballarat strike teams.¹⁷¹

17.9.11 The evidence suggests that the strike teams received limited information during their Staging Area briefings.

17.9.12 Mr Westwood indicated that his briefing of Scharf and Rigg involved the following:

*"I think at about 1900 hrs or thereabouts, the correct time would be logged in the Log Book in the P.E. Van both BROWNING and I spoke to RIGG and issued him with the instructions about the area he was required to assemble and I told him he was to be involved in back burning operations due to a possible wind change. I then walked over and spoke to SCHARF in front of his Strike Team. I gave him the map and issued the same instructions. I then told him he was going to assist in back burning operations due to a possible wind change to the south west of about 50 to 60 kmh and that the wind change was currently in the Hamilton area."*¹⁷²

17.9.13 Mr Westwood confirmed during his evidence that he believes he passed on the wind change message regarding Hamilton to Scharf and Rigg.¹⁷³

17.9.14 Mr Westwood believes he received this wind change information from Jenkins.¹⁷⁴ As discussed in section 17.6 of this chapter, Jenkins did receive a message regarding a wind change at Hamilton and the need to deploy three strike teams to the cemetery. However, the details of the message differed in the statements of Jenkins and Westwood.

17.9.15 Mr Jenkins described the details of the message as follows:

*"I then received a further radio message directing that three Strike Teams be deployed to the Cemetery gates and to report to D.G.O. KAVANAGH as a westerly wind change was expected with winds of approximately 60 kmh."*¹⁷⁵

17.9.16 Mr Westwood indicated he believed the message relayed to him by Jenkins was that two strike teams were required and the wind change was an "expected south-west wind change of about 40 to 50 knots".¹⁷⁶

17.9.17 However, as discussed in Section 17.6, Mr Westwood believed he may have been mistaken regarding the number of strike teams and that he may have meant 40 to 50 kilometres rather than knots.¹⁷⁷

17.9.18 The general uncertainty as to the details of the wind change information and the actual briefings given regarding this information is reinforced by the evidence of Messrs Scharf and Rigg.

- 17.9.19** Mr Scharf believed he was not given an official briefing concerning the expected wind change by Westwood, but was informed by Browning at approximately 6.15pm that there was a wind change due about 6.30pm.¹⁷⁸ Browning stated that he may have informed Scharf of this, but has no recollection of doing so.¹⁷⁹
- 17.9.20** Mr Rigg believed he was informed of an expected wind change during his briefing from Westwood. There was no expected arrival time provided.¹⁸⁰ Rigg also does not recall being provided with any information indicating the wind change was at Hamilton.¹⁸¹
- 17.9.21** The confusion in this respect demonstrates the problems inherent when briefings are conducted verbally through instructions that have been passed from person to person. It is evident that the final message that reaches the strike team may be conveyed in a different format and with different information to that which it originally contained.
- 17.9.22** Such problems are further highlighted in the evidence of Mr Browning. This is particularly relevant when considering the evidence of Scharf outlined above regarding the wind change information he received at the Staging Area.
- 17.9.23** The following paragraph appears in the statement of Mr Browning:
- “At some stage I remember hearing something about a wind change but I do not remember where I heard this. I don’t believe I gave this information to the strike teams because it was not my impression that the information was official.”*¹⁸²
- 17.9.24** Mr Browning explained during his evidence that this meant that it was likely he was mentioning the wind change to crews but believes he did not give them specific instructions or briefings regarding the change;
- “You say in that paragraph five, “I don’t believe I gave this information to the strike teams because it was not my impression that the information was official”. What exactly do you mean by that?—During the course of the day I would have been walking around talking to, involved in strike teams waiting to be deployed and probably mentioned to them about the wind change, but so far as giving them instruction on the wind change, I did not.”*¹⁸³
- 17.9.25** Mr Browning indicated that he would have viewed wind change information as ‘official’ if he was given direct instructions by Jenkins, Westwood, or Stone to inform the strike teams of such information.¹⁸⁴
- 17.9.26** Throughout his evidence Mr Browning could recall very little about what he knew of the wind change and exactly whom he may have mentioned such information to.
- 17.9.27** His evidence suggests the wind change information he knew of had something to do with Wickliffe. He does not know from what source he learnt this information.¹⁸⁵ It appears Mr Browning may have overheard the wind change message regarding Wickliffe that was broadcast between 1950 and 2000 hours by the MCV.
- 17.9.28** While Mr Browning believes he would have spoken with Scharf at the Staging Area¹⁸⁶, he has no recollection of the conversation Scharf said he had with Browning concerning a wind change due to arrive around 6.30pm.¹⁸⁷
- 17.9.29** This confusion could have been reduced if clear, formal, written instructions were produced for distribution to crews being deployed from the Staging Area.
- 17.9.30** As Mr Browning had no memory of briefing the Geelong and Ballarat strike teams, it is likely that the Geelong and Ballarat strike teams only received the information as set out by Westwood. This becomes even more evident when consideration is given to the fact that the Staging Area personnel had limited or no specific information or knowledge regarding fireground strategies, radio channels, and the command structure.
- 17.9.31** This proposition is reinforced by the evidence of Messrs Rigg and Scharf. For example, Scharf indicated the following about the Staging Area briefing in his second statement:
- “At approximately 1840, Ian WESTWOOD approached me, with a photocopied map, and said that my strike team was about to be deployed. He showed me the map, and*

*pointed to a position where, he said, Deputy Group Officer KAVANAGH was located; we were to drive up to meet KAVANAGH, and KAVANAGH would give us instructions. WESTWOOD didn't say anything further about the task we were given. He did not give me any document other than the map. He did not mention anything, or provide me with any documents, concerning any communications plan or incident action plan."*¹⁸⁸

- 17.9.32** Mr Rigg indicated that at the time of their arrival at the cemetery he was not aware of the management structure at the fire or that fire had been sectorised.¹⁸⁹ Nor was he supplied with a written communications plan whilst at the Staging Area.¹⁹⁰
- 17.9.33** Furthermore, the evidence even indicates that Messrs Scharf and Rigg probably did not receive any basic radio channel information during their Staging Area briefing.
- 17.9.34** Messrs Scharf and Rigg believed that they were not provided with radio channel information.¹⁹¹
- 17.9.35** Both Messrs Scharf and Rigg were handed maps at the Staging Area.¹⁹² These maps had no markings concerning radio channels on them when they received them.¹⁹³
- 17.9.36** While there are radio channels written on the maps, these were done by Messrs Scharf and Rigg. Rigg wrote 15B after remembering at the staging area that he had been told on his deployment to Linton that this was the channel to use.¹⁹⁴ Scharf wrote 15B on his map after his cemetery briefing with Kavanagh.¹⁹⁵
- 17.9.37** As has been highlighted throughout this Chapter, the evidence of Messrs Browning and Westwood demonstrates that they knew very little about the communication plan being utilised at Linton. Therefore, the evidence of Scharf and Rigg regarding the lack of information they were provided regarding radio channels at the Staging Area is the preferred version of events.
- 17.9.38** There is further evidence that the strike teams such as Geelong and Ballarat were only provided with very brief instructions upon deployment. This lies in Mr Westwood's expectation that the strike teams would receive more detailed briefings upon arrival at their deployment location:
- "If you had briefed a strike team, did you have any view as to whether or not they would receive any further briefing after they had been deployed?—Yes.*
- You did?—Yes.*
- What was that belief?—That in relation to the strike team I sent out to the cemetery, that they would be given further information, directions, when they arrived at that location.*
- So at the time that you say that you spoke to the Geelong strike team leader or briefed the strike team leader, you were also of the belief that he would receive further information from the DGO who you had sent him to?—That's correct."*¹⁹⁶
- 17.9.39** A number of submissions recognised that there were problems with the briefings given to crews passing through the Staging Area.
- 17.9.40** The Volunteer Associations Submission highlighted the fact that the Staging Area personnel were not provided with information on sectorisation, command structure and communications. Given this scenario, the submission concluded:
- "Briefing at the staging area was therefore necessarily very limited and certainly inadequate for deployment purposes on the day."*¹⁹⁷
- 17.9.41** At the same time, the Submission indicates that Scharf could have done more to obtain relevant information. In this respect they rely on principles found in the Operations Guidelines that require strike team leaders to obtain certain information upon arrival at the Staging Area.¹⁹⁸
- 17.9.42** This submission concerning Mr Scharf was a proposition supported in the written and final oral submission made on behalf of Lightfoot and Phelan.¹⁹⁹ The CFA also recognised that it was the responsibility of the strike team leader to obtain communications details.²⁰⁰

- 17.9.43** The United Firefighters Union made submissions that once again highlighted the fact that the Staging Area was not supplied with important information such as *“the incident communications plan, incident control structure and accurate weather information to strike teams.”*²⁰¹
- 17.9.44** In particular, Counsel for the United Firefighters Union stated the following in final oral submissions:
- “Your Worship, it is my submission that the evidence indicates that there is no good reason why the strike team should have left the staging area at about 6.30 on 2 December without those two pieces of information, that is the communications plan and the expectation that the wind change was going to arrive at the fire ground considerably earlier than had originally been forecast and quite possibly as early as between 8.30 and nine o’clock as in fact was the case. The plain fact is that those at the staging area did not have that information with which to brief the Geelong strike team.”*²⁰²
- 17.9.45** There was further recognition that inadequate information was provided in Staging Area briefings in the Submission lodged on behalf of the families of the deceased firefighters.²⁰³
- 17.9.46** The Submission made on behalf of Messrs Scharf and Stepnell discussed the inconsistent details regarding the details of the wind change that were emanating from the Staging Area. There was also discussion of the generally inadequate maps that were supplied to crews and the lack of information supplied about communications. This led to the following conclusions in the submission:
- “The evidence supports Scharf’s account that the only operational information he received at the staging area was to report to a DGO at the cemetery.*
- The evidence clearly establishes that the Geelong strike team did not receive adequate briefings at the staging area. This was a critical omission in the safe deployment of the Geelong strike team.”*²⁰⁴
- 17.9.47** The Submission of Messrs Scharf and Stepnell is indeed supported by the evidence heard during the Inquests, as is outlined throughout this Chapter.
- 17.9.48** The CFA Submission appears to concede there was a problem with briefings at Linton in that the staging area did not have the appropriate details of the communications plan. This led to the following conclusion within the submission:
- “It is in this context that the question concerning the knowledge by the staging area of the communications plan does add to the need to introduce an audit system to ensure that all of the relevant structures are appropriately briefed, properly resourced, and are appropriately discharging their functions at a wild fire.”*²⁰⁵

17.10 Availability of Maps, Plans, Local Guides

- 17.10.1** Strike Team leaders were generally supplied with A3 maps before deployment from the staging area. These were photocopies from the CFA Region 15 map book.
- 17.10.2** The maps had been copied by Messrs Westwood and Browning before they left Ballarat to assist at Linton.²⁰⁶
- 17.10.3** Mr Browning indicated the information that was contained on the maps they were handing out:
- “That’s not something you were giving the strike teams before they left the staging area?—I think I stated earlier, that may have been on the maps I was giving out. I’m not sure on the radio channel. I know the task, location and what they were to be doing, you know, was on that map though.”*²⁰⁷

- 17.10.4** Despite these beliefs of Mr Browning, there is limited evidence to suggest that the maps contained this much detail. For example, the maps provided to Scharf and Rigg at the staging area appear to have only contained a notation of where they were to meet Kavanagh. The other notes on the maps were added by Messrs Scharf and Rigg.²⁰⁸
- 17.10.5** The evidence demonstrates that the Staging Area was not supplied with or receiving maps from the forward operations point or IMT during the fire.
- 17.10.6** In fact, Mr Jenkins recognised that it could have been useful to receive maps indicating the location of the fire. Jenkins stated that these could possibly then be passed onto strike teams.²⁰⁹
- 17.10.7** As has been well documented throughout this Chapter, the Staging Area personnel were not supplied with written plans at Linton. In particular, they did not receive an Incident Action Plan or Communications Plan. In fact, other evidence discussed throughout this report will demonstrate that they were not in a position to receive such documentation as these plans were not produced in an effective format until late in the fire.
- 17.10.8** There is no evidence to suggest that local guides were used at Linton. Although the Staging Area personnel were Region 15 firefighters, it does not appear their local knowledge was utilised in any significant capacity. The instructions and guidance provided by the staging area to crews was based on orders they were receiving from the operations point and was not delivered in conjunction with any personal knowledge the personnel may have had of the Linton area.
- 17.10.9** There was a recognition during the Inquests that the use of aids such as maps and local guides can be of value to the Staging Area and consequently fire crews.
- 17.10.10** This issue arose from examination of the September 1998 statement provided to the Dandenong's fire inquest by Mr Leach. The following paragraph of the statement was of particular relevance:
- "The statement of Alan POTTS (among others) criticises the failure of strike teams and other resources to report to the forward control point established by him at the Kalorama oval. Other statements (particularly those made by members of teams coming in from other regions) express concerns about the confusion over which radio channels to use, the absence of local maps or guides, lack of knowledge about where particular resources were located, and lack of co-ordination in arranging relief crews. The FA11 Project team responsible for operations determined that all of these concerns can be addressed by a more structured and disciplined approach to staging resources."*²¹⁰
- 17.10.11** A further paragraph in that statement recognised that an important principle of staging area operations related to ensuring they were equipped with such resources and information so crews could be fully informed:
- "(b) Staging Areas will be equipped to provide these resources with logistical support such as fuel, food, mapping information and local guides as well as instructions concerning the applicable radio channels to be used during the fire fight and incident situation reports, prior to deployment."*²¹¹
- 17.10.12** Mr Leach, when examined about the parts of this statement that related to staging areas, agreed that after the Dandenong fires the CFA saw staging areas as having a vital role to play in supplying incoming crews with information:
- "The use of staging areas, Mr Leach, was regarded by the CFA, after the Dandenong fires inquest, and as a result of the evidence that was led before that inquest, as essential to the safe deployment of crews on a fire ground?—Yes, the development of staging areas was a very significant step forward out of FAIL, and we saw the relationship to the operations point, the staging areas being critical in the provision of information to crews going on to the fire ground or being redeployed around a fire ground."*²¹²

- 17.10.13** Mr Leach indicated he was unaware of any problems relating to the operation of the Staging Area at Linton. Leach believed the Staging Area would be well managed by the personnel working there and the Forward Operations Point would ensure they had appropriate information.²¹³
- 17.10.14** At least two other witnesses acknowledged the value of providing the appropriate information to the Staging Area for distribution to fireground resources.
- 17.10.15** Mr Britton agreed with the proposition that local guides could provide benefits and valuable information about local factors to personnel from other regions.²¹⁴ Mahoney believed the Staging Area would not have been functioning appropriately if they did not have accurate information about the command structure and communication plan.²¹⁵
- 17.10.16** Despite these views, the evidence discussed throughout this Chapter demonstrates that there was a failure at Linton to ensure that the Staging Area personnel were provided with thorough information and aids such as maps and plans so as to fully inform deployed fire crews.
- 17.10.17** Apart from the evidence discussed, these failures were reflected in the Minutes of the Staging Area Debrief. The following point was raised as an issue during the Debrief:
- “29. Ops Point needs to establish an incident structure chart and distribute as soon as possible, and continually supply S/A with incident information and mapping.”²¹⁶*

17.11 Events

- 17.11.1** The majority of the following times are approximations due to the general uncertainty of witnesses as to the time at which events took place at Linton.
- 3.00pm – Messrs Jenkins and Stone are despatched from Ballarat to establish a staging area at the Linton Recreation Reserve.
 - 3.35pm – Messrs Westwood and Browning are despatched from Ballarat in the Personal Equipment Van to assist Jenkins and Stone at Linton.
 - 3.35pm – Messrs Jenkins and Stone arrive at the Linton Recreation Reserve and begin establishing the Staging Area.
 - 4.00pm – Messrs Westwood and Browning arrive at the Linton Recreation Reserve with the PE Van to assist Jenkins and Stone.
 - 4.25pm – The Staging Area personnel note that Phelan is present on the oval.
 - 5.45pm – The Geelong Strike Team arrive at the Staging Area.
 - 6.35pm – The Staging Area logbook indicates that the Geelong Strike Team is deployed from the staging area to the Linton cemetery. The log indicates they are accompanied by the Maryborough and Ballarat Strike Teams.
 - 7.00pm – Evidence suggests this is the approximate time that the Geelong Strike Team actually deploys from the Staging Area. They are accompanied by the Ballarat Strike Team.
 - 8.50pm – The incident in which Browning believed Mr Taylor self-deployed occurs around this time.
 - 10.00pm – Staging area personnel Jenkins, Stone, Westwood, and Browning are relieved. Messrs Long, Neville, Todd and Haase take over staging area duties.

17.12 Conclusions

- 17.12.1** Steps were undertaken by Region 15 CFA and NRE personnel between 2.00 and 3.00pm to establish a staging area at Linton.
- 17.12.2** The initial establishment of the Staging Area occurred at the Linton Recreational Reserve at approximately 3.35pm.

- 17.12.3** This initial establishment was undertaken by CFA employees Messrs Jenkins and Stone. They were assisted by the arrival of CFA employees, Messrs Browning and Westwood, at approximately 4.00pm. They arrived in a Personal Equipment van, which was used to aid in the performance of staging area duties.
- 17.12.4** One of the roles of the Operations Section under AIMS-ICS principles is to establish and maintain the Staging Area. This involves supervision of the Staging Area.
- 17.12.5** There was very limited supervision of the Staging Area by either the Forward Operations Point or the IMT. There was also limited interaction between the Staging Area, Forward Operations Point, and IMT.
- 17.12.6** Due to this limited supervision and interaction and confusion among the staging area personnel as to who was managing the area, decision making and control of staging area activities was generally left to the discretion of Messrs Jenkins, Stone, Browning and Westwood.
- 17.12.7** The Staging Area's only significant communications were to and from the Forward Operations Point at Linton. These communications generally passed through the MCV (*'Linton Control'*).
- 17.12.8** The content of these communications commonly related to instructions for the deployment of strike teams and crews located at the Staging Area.
- 17.12.9** The information supplied to the staging area personnel was inadequate. There is no evidence to suggest that the Staging Area received any of the following at Linton between the time of establishment and the Geelong Strike Team entrapment:
- Communications Plan
 - Incident Action Plan
 - Command Details and Structure
 - Instructions and Briefings for staging area personnel (to inform them of exactly what they should be doing or what information they should be passing onto incoming crews)
 - Written Weather Information
 - Maps
- 17.12.10** The Staging Area did receive some guidance and weather information via radio communications. However, this information was limited and haphazard.
- 17.12.11** The evidence concerning what weather information was received and passed on to arriving crews by the Staging Area personnel is inconclusive. Witnesses had limited memory of the weather information or provided differing accounts of the weather details and the method by which they learnt of these details.
- 17.12.12** The process of receiving and transmitting information to and from the Staging Area was not helped by the poor performance of communications equipment within the PE van, such as the facsimile machine and mobile telephone.
- 17.12.13** The briefings given to crews arriving and deploying from the Staging Area were generally inadequate. They were conducted in an inconsistent *'ad hoc'* manner. This is in large due to the fact that the Staging Area was provided with very few details concerning the operation at Linton and personnel were given no specific instructions on what should be included in their briefings.
- 17.12.14** The Staging Area provided A3 maps to strike team leaders. Whilst the maps lacked detail and were not completely accurate, Messrs Browning and Westwood should be commended for their initiative in copying maps before they were deployed to Linton.
- 17.12.15** The Staging Area was used mainly by CFA personnel. In future AIMS-ICS joint agency fires resources of both agencies should use the Staging Area.

- 17.12.16** Despite recognition before the Linton fire that self-deployment at firegrounds was a problem, this occurred once again at Linton. This creates management and safety dilemmas, as command personnel may be unaware of the presence of or location of some resources.
- 17.12.17** The Staging Area personnel, Messrs Jenkins, Stone, Browning and Westwood, performed reasonably given the circumstances at Linton. These circumstances included:
- A lack of guidance and supervision from commanding officers.
 - The failure of command personnel to provide thorough verbal and/or written information regarding the key aspects of the Linton operation
 - The general lack of experience of the Staging Area personnel in managing staging areas at wildfires.

Communications

18.1 Introduction

- 18.1.1** The two fire agencies rely on a variety of forms of communication when involved in wildfire suppression. The common forms consist of telephones, fax facilities, computers, and a radio network.
- 18.1.2** Both agencies also have a number of procedures and practices in place relating to communications at fires. For example, the CFA, within the Operations Guidelines, lists general principles to be adhered to regarding communications. These include:
- *“Mobiles used for communications should have a driver and a radio operator*
 - *Messages should be short, concise and clear”¹*
- 18.1.3** Each CFA Region also has its own Procedures Manual that will contain some information regarding communications.²
- 18.1.4** Effective communications are essential on a fire ground, in particular radio communications. The CFA and DNRE are reliant on radios as the major form of communication available to crews working in and around a fire. Apart from face to face interaction and supervision, the radio remains the main method by which tankers and crews can be located or sent important information. Thus effective communication is integral to the safety of fireground personnel.
- 18.1.5** The CFA generally uses the following communications equipment:
- A Very High Frequency (VHF) and High Frequency (HF) simplex radio fixed in vehicles
 - A State Mobile Radio (SMR) with trunking capabilities that can be positioned in a vehicle or hand held by personnel outside of the vehicle³
- Most CFA tankers contain simplex VHF radios with no trunking facilities. Trunking facilities are usually available in command vehicles and base stations.⁴
- 18.1.6** The DNRE uses similar equipment with simplex and trunking capabilities.⁵
- 18.1.7** 160 VHF radio channels are available for use by the CFA and DNRE. Channels 1 to 110 are for the CFA. Channels 110 to 160 are available for the DNRE.⁶ Both agencies have their radio equipment programmed so all 160 channels can be accessed by both agencies when required.⁷
- 18.1.8** Within each CFA region there are set allocated radio channels that are unique to that region. These regions will commonly utilise three major radio channels. For example, the major channels used in Region 15 are 15A (67), 15B (68), and 15C (69).⁸
- 18.1.9** At a major incident, such as the Linton fire, under AIIMS-ICS principles an Incident Management Team will commonly be established. In such cases there is also a forward operations point close to the fire ground that operates under the direction of the IMT. This is where the initial communications structure and plan is commonly put into place.⁹

The details of the plan should then be passed onto the IMT for consideration and approval. The IMT should then produce the approved communications plan into written format for redistribution on the fire ground. This written communications plan will form part of the Incident Action Plan.¹⁰

- 18.1.10** The major channel to be used by tankers and crews is often referred to as the fire ground channel. A command channel used by operations staff and key command staff on the fire ground will also be established. This channel is commonly the predominant standard channel used on a day to day basis in the Region in which the fire is burning. Other channels will be established where necessary, such as for aircraft or additional fire ground channels.¹¹
- 18.1.11** Communications base stations support CFA Brigade groups within each region. Additional sub-bases are set up in areas of poor radio reception.¹² As will be discussed later in this Chapter, there were several base stations and sub-bases involved in the Linton fire.
- 18.1.12** Equipment such as mobile repeaters and communication vans are also used by the fire agencies to improve communications on a fire ground. Such equipment was used at Linton and its use will be covered in the relevant sections of this chapter.
- 18.1.13** There is a recognition that VHF communications have limitations and problems can be encountered with performance on the fire ground. The Incident Controller, Mr Greg Leach, made the following observation in one of his first statements:
- “VHF radio systems performance is subject to climatic (weather) and topographic conditions. This sometimes causes black spots and communications can be difficult.”¹³*
- 18.1.14** These problems can be overcome in part by the use of the methods discussed above, such as the presence of an MCV or an established sub-base in a poor coverage area.
- 18.1.15** CFA logs and notes concerning communications over the radio network during an incident are not usually kept by general fire crews on the fire ground. The exceptions to this are Divisional Commanders, Sector Commanders, and Strike Team Leaders, who are required to maintain a log of activities, which may include communications information.¹⁴
- 18.1.16** Logs and notes concerning communications are kept by radio bases, Forward Operations Points, Incident Control Centres, and Region Headquarters.¹⁵
- 18.1.17** The DNRE generally operates on the same principles as the CFA. Sector Commanders and all positions above this level are expected to maintain logs.¹⁶
- 18.1.18** Communication difficulties have been a perennial problem at fires. These problems have been previously documented in numerous reports, some of which were set out in Chapter 6.9 of this Report. As will be seen from this Chapter they continued to be present at Linton.

18.2 Mobile Communications Vehicle (MCV)

- 18.2.1** A brief outline of the role of a mobile communications unit is set out in the CFA Operations Guidelines, where it is recognised that *“its role is mainly administrative.”¹⁷* It also highlights the means of communication available within the van. These are facsimile, telephone, data link, and VHF/HF State Mobile Radio network radios.¹⁸ During the Inquests the Coroner and the counsel appearing were given the opportunity to view the Belmont MCV.
- 18.2.2** The MCV used at Linton came from the Belmont Fire Station in Region 7. The attendance of the MCV at Linton was in response to a request by Mr Brown, the Regional Risk Manager for Region 15. The request was made at 3.07pm by Geoffrey Gray, the Region 7 Operations Manager,¹⁹ who arranged for the dispatch of the MCV.
- 18.2.3** When the MCV left Geelong Mr Trevor Roberts, who is employed by the CFA as a Qualified Firefighter, was in charge of it.²⁰ Two volunteers, Anthony Balm and Tamara Bolger, were also allocated to the MCV. After the MCV arrived at Linton two more individuals were assigned to it to assist with the communications.

- 18.2.4** The evidence suggests the MCV arrived at Linton at a time close to 5.00pm. After arrival there was a discussion between Mr Roberts and John Anderson, and the van was parked in the main street of Linton, approximately 50 metres from the Golden Plains Shire Office. The van was operational by 5.30pm.
- 18.2.5** Mr Roberts' understanding of the role of the van was:
- "In your statement you refer to your role, or the MCV's role, in monitoring various channels. Could you explain what you mean by that?—Our role, when we're asked to assist with communications, is we set up and monitor those radio channels. We're not in a situation where – we do make decisions, but we're not there to make decisions on the overall running of the fire. We are there to be told what to do. Somebody will tell us to pass a message on and that's what we do."*²¹
- 18.2.6** Mr Roberts received instructions from John Anderson at the Forward Operations Point. The instructions given to the MCV were brief and lacked detail. Roberts was told to monitor two fire ground radio channels, but received no additional information, such as what resources were at the fire or who the sector commanders were.²²
- 18.2.7** Messrs Roberts' and Balm had the impression that Anderson was the Incident Controller and the IMT was operating from the Golden Plains Shire Office.²³ Roberts, in his statement, recalled his impressions shortly after arrival at the fire:
- "I was met by Training Manager John Anderson, who I believed at the time to be the Incident Controller. I believed the incident control centre was at the shire offices, it was a couple of days later I found out the centre was actually at Ballarat."*²⁴
- 18.2.8** When cross-examined by Mr Rozen (Counsel for the UFU), Anderson could not explain why he had not provided additional information to Roberts:
- "Is there any reason why you wouldn't tell someone such as Mr Roberts, who is in charge of the mobile communications van, that there was an incident management team set up and operating at Ballarat?—There is no apparent reason why not.*
- That would be a fairly important bit of information for someone in his position, would it not?—I believe so."*²⁵
- 18.2.9** The instructions giving the radio channels that the MCV were to monitor were written on a scrap of paper by Mr Anderson and contained only the following information:
- "15B
16A
Operator to FS"*²⁶
- Mr Roberts' understanding of this information was that the MCV was to monitor radio traffic on channels 15B and 16A, and that Anderson wanted an operator from the van to proceed to the Linton Fire Station to assist with communications.²⁷
- 18.2.10** In his evidence Mr Anderson suggested that he only requested 15B and 16A to be monitored by the MCV because these were the most important channels at the time. Furthermore, he believed 16C was already being monitored at Snake Valley.²⁸ However, the MCV also monitored two other channels, 15A and 20A.
- 18.2.11** Mr Roberts expressed some concern that the MCV had not received an official written communications plan. In particular, he produced a CFA training document that provides a sample of the communications plan that those in a communication role should be provided with at such incidents. The document contains details of the various roles in operation at an incident, such as the Incident Management Team and Aircraft Operations. Their contact details are also identified.²⁹ Roberts recognised that it is valuable to receive all such information, but it is not necessary that it be in a format exactly the same as the training document.³⁰
- 18.2.12** The MCV began monitoring duties at approximately 5.30pm onwards. They kept logs of communications for the following radio channels:

- 16A
- 15A
- 15B
- 20A³¹

Both Messrs Roberts and Balm recognised that they did not record all transmissions on these channels. They also only transmitted messages from the MCV when requested to do so. They maintained contact with Anderson via a telephone connected to the shire office. Roberts also made a number of trips to the Shire Office on foot.³²

18.2.13 The Forward Operations Point requested the MCV to transmit a number of messages to crews on the fireground. The most important of these messages related to the expected wind change being at Wickliffe, which was made shortly before 8.00pm.

18.2.14 Some time before the Wickliffe message, the MCV was involved in the transmission of another wind change related message. The 16A logbook from the MCV indicates a message was broadcast or heard in the MCV at 6.08pm. The details of the message are as follows:

*"Msg for Bill Millar – w/change
1 hr WNW 61km/h"*³³

18.2.15 Mr Roberts had no recollection of the details concerning this message.³⁴ Balm, in his statement, believed the MCV was asked by the Snake Valley Sub-Base to pass this message onto Bill Millar.³⁵ During evidence he indicated he was unsure whether this request came from Snake Valley or whether the message was sent to Snake Valley. However, he is certain the message was sent to Bill Millar.³⁶ Balm had no memory of discussing this message with Anderson.³⁷ The 16A logbook indicates the 6.08pm message was transmitted *"out"* of the MCV, but he recognised that this may have been marked incorrectly.³⁸

18.2.16 Mr Anderson believed he had phoned this wind change information through to Foy at Snake Valley. He believed he also informed Phelan of this face to face at the forward operations point.³⁹

18.2.17 Ms Diane Foy, who was operating the Snake Valley Sub-Base, had a note of this message at 6.07pm in her log. She believed she would have overheard this message being transmitted, but had no memory of the message and the circumstances surrounding its transmission.⁴⁰ Foy further believed she would have passed the message on to Bill Millar if it had come into the Sub-Base.⁴¹

18.2.18 Mr Millar had no recollection of hearing this message.⁴²

18.2.19 The other important wind change message involving the MCV related to the wind change being at Wickliffe. Anderson rang the MCV at approximately 7.53pm requesting them to do a general broadcast advising of *"a wind change at Wickliffe which was a south-westerly change 35 kilometres maximum with no rain"*.⁴³

18.2.20 Mr Roberts consequently insured this message was broadcast on 15A, 15B, and 16A.⁴⁴ Transmissions indicate this message was broadcast on 15B at 7.53pm and on 15A at 7.59pm.⁴⁵ There were no transmission recordings available for channel 16A but there is a note regarding the transmission in the MCV's 16A logbook.⁴⁶ There is also a note in Foy's log indicating this message was heard at the Snake Valley sub-base at around 7.56pm.⁴⁷

18.2.21 Mr Roberts requested acknowledgments from divisional and sector commanders. He was not asked by Anderson to do so. The MCV received only one acknowledgment from a Strike Team Leader of the broadcast. This appears to be from DGO Sinclair.⁴⁸ Sinclair could not recall if he acknowledged the message.⁴⁹ Evidence suggests Foy at the Snake Valley sub-base may also have acknowledged the message.⁵⁰

18.2.22 Messrs Lightfoot and Phelan, who were together at this time, heard the message. Lightfoot believed Phelan acknowledged the message.⁵¹ Phelan indicated he heard the message, but is uncertain whether he acknowledged it or not.⁵²

18.2.23 Mr Roberts was concerned with the lack of acknowledgments. He approached Anderson in the Forward Operations Point after the wind change message was broadcast. He did this to obtain more information on the fire and resources on the fireground. Roberts expressed his concern about this when cross-examined by Mr Livermore:

*“Why were you concerned about that?—Because we had a weather change coming through, an impending wind change. I had no idea of what was out on the fire ground to the extent of what sectors, who was running the fire, who was in control of those crews out there, as divisions and sector leaders, and I have been asked to do a broadcast and I have only been acknowledged by one person. So that is when I also raised that as an important issue with John Anderson.”*⁵³

18.2.24 Mr Roberts indicated that he received a map and brief overview of the strategy from Anderson during this conversation.⁵⁴ Roberts did not recall asking Anderson where Wickliffe was, despite the fact he didn’t know where it was.⁵⁵ Roberts was not asked by Anderson to rebroadcast the message, and did not do so.⁵⁶

18.2.25 Mr Anderson, in his evidence to the Inquests, stated that he did not recall Roberts raising any problems regarding acknowledgments until after the entrapment.⁵⁷ He also stated that at the time of Linton it was not a necessity to receive acknowledgments from fire crews when a general message was broadcast.⁵⁸

18.2.26 Mr Roberts was recalled to provide more evidence on this issue. It was during this evidence that Roberts stated:

“The conversation I had with Mr Anderson was, I can’t remember it word for word, but my purpose for going to the town hall and what I raised was we had very little acknowledgments, and I wanted to find out who was on the fire ground, division sectors and so forth, because we weren’t getting the information back that the information had actually got to the fire ground.

*You just said you raised that you had very little acknowledgements?—Correct.”*⁵⁹

18.2.27 The evidence of Mr Roberts on this was reinforced in the statement of Balm. Balm believed the MCV reported their concern about the lack of acknowledgments by telephone to Anderson shortly after transmission of the message. Shortly after this telephone call, Balm further stated Roberts then went to the Shire Office to report this directly.⁶⁰

18.2.28 Mr Anderson could not recall his conversation with Roberts in the Shire Office in any great detail.⁶¹ The conversation with Roberts was not raised in Anderson’s original statement made in February 1999, but was raised in a statement made in conjunction with solicitors representing the CFA in March 2000.⁶²

18.2.29 Issues relating to the Wickliffe message have been discussed in more detail in other Chapters of this Report.⁶³

18.2.30 The CFA submitted that overall the MCV functioned efficiently and effectively. It submitted that the MCV crewmembers could have obtained any required information regarding divisions and personnel from the Forward Operations Point.⁶⁴

18.2.31 The CFA submission regarding the MCV crew having the means available to seek information from the Forward Operations Point is flawed in some regards. Evidence was heard from Mr. Anderson that the Operations Point had virtually no information regarding resources until some time after the transmission of the Wickliffe message.⁶⁵

Anderson had similar lack of knowledge relating to Sector and Divisional Commanders:

“Mr Livermore: Or five, sorry, or five sector commanders, you didn’t know?—Not personally.

You didn’t make any attempt to find out during of the course of the afternoon?—Not personally.

The Coroner: You are talking about a time from when to when?

What time, again, did you arrive at the Linton Control point?—3.15, Your Worship.

And the Wickliffe message goes out at?—Approximately 1956, I think, Your Worship.

So we have a number of hours?—We have, Your Worship.”⁶⁶

Mr Britton also indicated he had very little knowledge of resources in the northern end of the fire.⁶⁷

18.2.32 The CFA further submitted that at the time of Linton there was no procedure in place requiring critical information to be acknowledged by personnel on the fire ground. Such information was broadcast by means of a general broadcast.⁶⁸

18.2.33 The DNRE supported the CFA position by submitting that the broadcasting of the Wickliffe wind change message as a general broadcast was common practice at the time of Linton. They argued that this view was supported by the evidence of a number of witnesses, including Forward Operations Point personnel Messrs Bob Graham and John Anderson.

The DNRE further submitted that this message contained important information but that this information was not essential for the fire ground.⁶⁹

18.2.34 The Volunteer Associations were in agreement with the CFA and DNRE view that general broadcasts were standard practice at the time of Linton and acknowledgments of such messages were not a necessity. The Associations did however note a problem with the operation of the MCV, in that supervision and management of the MCV was assumed rather than assured:

“there was no clear line of responsibility for ensuring that the MCV and the staging area was fully instructed and operating effectively. In this respect it was assumed that the MCV and the staging area were appropriately instructed and properly integrated with either the forward operations point or the operations unit in the IMT.”⁷⁰

18.2.35 Counsel for Messrs Scharf and Stepnell argued that the use of general broadcasts for important information such as the Wickliffe message was common practice, but was inappropriate in line with AIIMS chain of command principles. There was a belief that firefighters will rely on general broadcasts rather than their appropriate supervisor. Counsel further submitted that a system not requiring acknowledgments was unsafe.⁷¹

18.2.36 As with the Associations submission, the UFU submitted that supervision of the MCV was never appropriately organised. The Union was also critical of the fact that the MCV was not provided with adequate information on resources by way of a detailed communication plan. Furthermore, the Union shared the view of Counsel for Messrs Scharf and Stepnell in that a system not requiring acknowledgments and encouraging general broadcasts is in breach of AIIMS-ICS principles.

18.2.37 Issues relating to acknowledgments and changes to the system since Linton are discussed in more detail in Section 18.9.

18.2.38 During the evidence of Mr Balm, a CFA training document relating to the MCV was tendered.⁷² This document is used in the training of MCV crewmembers. Roberts believes he was not trained using this manual.⁷³

18.2.39 This training manual recognises that the MCV should receive a list of resources and related details, become involved in mapping the fire, and among other duties interact with aircraft to obtain details relating to fire behaviour. The manual does not stipulate whether MCV staff should seek these details if not supplied to them.

18.2.40 The evidence demonstrates that the MCV was supplied with minimal information. This was the case even after Mr Roberts approached Anderson for additional information.

18.2.41 The knowledge of both the MCV crew as to resources at the fire was consequently inadequate. Roberts recognised during examination by Counsel for the DNRE that he only knew the Geelong Strike Team was at Linton by coincidence:

“...and yes I was aware that they were out there because they drove past the communications vehicle to the staging area when they first arrived.”⁷⁴

- 18.2.42** A lack of knowledge of the existence of the MCV at Linton by some key personnel involved in the fire may have also hindered the smooth running of communications during the fire. Most importantly, neither Messrs Grimmer nor O'Rorke knew that the MCV was at Linton and operational.⁷⁵ Grimmer was running communications from the Westmere base (see Chapter 18.6) and O'Rorke was making valuable observations from an aircraft (see Section 18.7). Both were operating independently of the MCV. O'Rorke did communicate with and through Ms Knight at Grenville Group.

18.3 Grenville Group

- 18.3.1** The Grenville Group is a CFA group consisting of seven brigades within Region 15 (see Appendix A2.1 to this Report).

- 18.3.2** At Linton Grenville Group communications were monitored and operated by CFA volunteer and Communications Officer Ms Alice Knight. Knight operated from her home in Linton from an early stage in the fire. At around 3.00pm hours she changed location to the Linton fire station in the main street of the Linton Township. Knight's statement indicates that Ballarat Headquarters suggested she operate from the Linton fire station.⁷⁶ This is likely to be a reference to CFA Region 15 Headquarters, which are located in Ballarat.

- 18.3.3** Ms Knight called out the Grenville Group brigades at an early stage in the fire after a conversation with Group Officers Kevin Knight and Des Phelan.

- 18.3.4** Ms Knight monitored Region 15 channel 15A and answered two telephones after setting up in the Linton fire station. The tasks she performed were explained to the court:

"What about in terms of you operating on 15A, did you just have the one radio there or did you have more than one radio?—There is more than one radio but it had to be down or off because I couldn't hear two.

So it was only 15A you were monitoring?—Yes.

You didn't have 15B on from time to time?—No.

*So it was 15A and the phones basically that you were looking after?—Yes."*⁷⁷

- 18.3.5** She kept a log of communications whilst working in the Linton fire station. The first entry in her radio log was made at 3.03pm.⁷⁸ Ms Knight did not record all messages being transmitted in the log as this was physically impossible.⁷⁹ Furthermore, she was out of the fire station and thus away from the radio on four to six occasions.⁸⁰

- 18.3.6** Whilst controlling Grenville Group communications Ms Knight knew that the Forward Operations Point was operating out of the Shire Offices at Linton. She also knew the Incident Management Team was operating from Ballarat under the control of Greg Leach.⁸¹

- 18.3.7** Ms Knight was not provided with any written communications plan and knew very little about Region 16 communications or DNRE communications.⁸² She also suggested she was given little detail regarding sectorisation of the fire and information regarding sector commanders.⁸³ Knight indicated that such information regarding communications were not required by her.

- 18.3.8** Ms Knight made important broadcasts at 3.06pm and 3.07pm concerning the radio channels to be used on the fireground. The 3.06pm message was as follows:

*VI: A general message for all Grenville group trucks would you please turn to channel 15B repeat would the Grenville group trucks please turn to channel 15B Group officer Phelan will stay on 15A as well as aircraft.*⁸⁴

- 18.3.9** The 3.07pm broadcast contained similar details, but identified channel 16A as the aircraft channel and channel 16C for Region 16 ground crews.⁸⁵

- 18.3.10** These messages are a brief outline of the communications plan developed at an early stage in the fire. Issues relating to the communications plan are dealt with in detail in other Chapters of this Report and other sections of this Chapter.

- 18.3.11** Ms Knight received or overheard a number of important messages whilst monitoring 15A. Her log recorded three significant messages relating to the impending wind change.
- 18.3.12** The first of these wind change related messages is recorded at “1815 hours”. The message indicated that “a north to northwest wind change of 60 kilometres an hour is one hour away”. Ms Knight’s memory of this message was limited. During her evidence she was unclear whether she received this information from the aircraft pilot Peter O’Rorke or G.O. Phelan.⁸⁶
- 18.3.13** The log contains a record of another wind change message at “1910 hours”. This message indicates that there was a wind change south of Dunkeld. Ms Knight explained what she did with this information:
- “Do you recall – if you go to p.3 of your statement, the top of p.3, you refer to receiving at 1910, at 1910 you noted on your log, “South of Dunkeld, five minutes, strong wind, aircraft, may be another change”, what I want to ask you about that one is, what did you do, if anything, with that information?—I didn’t do anything with that information because Dunkeld is 120 kilometres west and I was told that I would be told when it got to the Westmere Group.”⁸⁷*
- 18.3.14** Ms Knight did not hear any wind change messages about the change being at Wickliffe.⁸⁸
- 18.3.15** The next record in the log relating to the wind change is at “2030 hours”. This was perhaps the most vital message heard by Ms Knight. The message was transmitted by aircraft pilot Peter O’Rorke to Knight to indicate the wind change was at Skipton and was a significant change.⁸⁹ Skipton is less than 25 kilometres west of Linton. Knight believed she radioed this information to G.O. Phelan immediately on receiving it.⁹⁰
- 18.3.16** Mr Phelan heard the message on the radio in his utility. The evidence suggests he heard the conversation between O’Rorke and Knight, but was not contacted directly by her.⁹¹ Evidence also suggests this information was not rebroadcast to fireground crews on channel 15A or any other radio channel. Lightfoot also heard the Skipton conversation and raised the issue of wind change messages while at the Forward Operations Point shortly after hearing it.⁹²
- 18.3.17** Submissions on behalf of Messrs Scharf and Stepnell, the Families of the Deceased, and the DNRE suggest Phelan and Lightfoot could have taken further steps in ensuring this message was rebroadcast and reached all fireground crews.⁹³
- 18.3.18** The submission on behalf of Phelan and Lightfoot indicated that Mr Phelan expected the message would be relayed via the MCV as occurred with the earlier Wickliffe message.⁹⁴ It was further submitted that Mr Lightfoot expected the Forward Operations Point would disseminate the Skipton information to the fire ground.⁹⁵
- 18.3.19** As with the Wickliffe message, these issues are discussed in detail in other Chapters of this Report.
- 18.3.20** The CFA submitted that Ms Knight operated Grenville Group communications “efficiently and conscientiously”.⁹⁶ It further submitted that the evidence is inconclusive whether Knight rebroadcast the Skipton message.⁹⁷
- 18.3.21** As with the operation of the MCV, the submission on behalf of the UFU was critical of the lack of supervision and control of the Grenville Group communications. They once again highlight the difficulties in operating effective communications without formal communication plans and resource information being provided to the various communications officers.⁹⁸ This is a view supported by the Volunteer Associations.⁹⁹

18.4 Snake Valley

- 18.4.1** Region 16 communications were monitored and operated by CFA volunteer Ms Diane Foy who was operating from the Snake Valley communications sub-base in her home in Snake Valley.

- 18.4.2** Ms Foy was the second person to learn of the fire at Linton. The fire was reported to her by John Harrigan shortly after 1.00pm. Foy called out the Snake Valley brigade shortly after receiving this notification.
- 18.4.3** After organising the initial call out Ms Foy commenced duties as the Snake Valley sub-base radio operator. She explained her role:
- “During the course of the day what did you understand your duties to be as you were manning the radio base, what did you understand your duties to be?—It was just to log down all traffic and if the fire control needed any further assistance they would radio me and I would try and get organised whatever they requested.”¹⁰⁰*
- 18.4.4** Ms Foy maintained a radio log whilst performing her duties at the sub-base.¹⁰¹ She attempted to record as many messages as possible. Some of these messages were directed to the sub-base while others were conversations she overheard on the airwaves.¹⁰² Ms Foy indicated during her evidence that she did not understand or comprehend the meaning of many of the messages noted in the log. She was simply trying to note messages in the log as she heard them being transmitted.¹⁰³
- 18.4.5** Ms Foy received some assistance from her daughter-in-law, Kristy Foy throughout the day of the fire.¹⁰⁴ Foy was relieved from radio duties at approximately 8.30pm, with Trish and Ray Larkins taking over while Foy answered telephones and assisted where required.¹⁰⁵ Consequently, the notes made after 8.30pm in the log Foy was using were generally made by Trish Larkins. Some of the notes made in the log before this time were made by Kristy Foy.¹⁰⁶
- 18.4.6** Ms Foy was under the impression that the fire was being jointly controlled by CFA personnel Ernie Welsh, Bill Millar, and Peter Smithers. She knew nothing about the Forward Operations Point in Linton or the roles being played by John Anderson and Bob Graham. However, Foy did know that Anderson was at the fire as he had visited the sub-base early in the fire.¹⁰⁷ Foy also had no knowledge of the IMT at Ballarat.¹⁰⁸
- 18.4.7** No written communications plan or information regarding resources was provided to Ms Foy. She produced her own list of resources with information she was gathering from the radio or by viewing appliances passing by her home.¹⁰⁹ In doing so, she showed great initiative.
- 18.4.8** The channels monitored by Ms Foy was channel 16A, although for a short period after receiving a direction for Region 16 appliances to switch to channel 16C she also monitored that channel.
- 18.4.9** Ms Foy’s log records a number of important messages. There are a series of entries regarding the Snake Valley ‘A’ entrapment:
- 1453 hours – *“(To witness): I want to take you to a couple of specific entries in the log, if you can go to p.4, this is of the handwritten one, the original one, at the very bottom, 1453, it says, “SVA” and a note, “Urgent surrounded opp bend”: can you tell His Worship what that relates to?—That was a message that came through from Snake Valley A tanker, that is when they got caught in the fire and they were surrounded by fire and they were opposite the bend.”¹¹⁰*
- 1521 hours – *“Mr Livermore: There is an entry there, “SVA” Snake Valley A, can you read and expand upon that entry, “Rear of fire injured”?—Somebody radioed through that Snake Valley A was at the rear of the fire and there was a person injured.”¹¹¹*
- 1524 & 1526 hours – *“That was 1521. 1524, “Snake Valley A” is that, “Need ambulance”?—Yes.*
- What did you do as a result of receiving that message?—I rang 000 to ring the ambulance.*
- We see on the next page at 1525 there is an entry there, “Notified ambulance”, is that right?—Yes.*
- You did that, you called the ambulance?—Yes.*

*Did you know where to send the ambulance to?—Not at that stage, not exactly the spot to send them”.*¹¹²

1545 hours – *“The Coroner: Before you get to that, 1545 on p.7 of the typed notes, “DGO King in ambulance. Caught in fire. Cut fence. Burnt minor”, what does that mean?—Sorry, what was the time?*

1545.

Mr Livermore: “DGO King in ambulance”?—I remembered at one stage I was radioing through to find out who got hurt.

The Coroner: Yes?—And nobody would give me an answer and DGO

King answered that he was in the ambulance, the person was in the ambulance and still didn’t say who it was and that they were caught in the fire trying to cut the fence.

*This relates to Snake Valley?—Snake Valley A.”*¹¹³

- 18.4.10** The switch from 16A to 16C occurred at around 4.11pm. Mr Anderson requested Foy to instruct appliances to switch to 16C. Anderson then requested Foy to instruct all appliances to switch back to 16A at 4.25pm.¹¹⁴ She indicated during her evidence that very few appliances acknowledged the message informing them to switch from 16A to 16C. Foy gave the following account of this incident:

“Was it 1625, there is a note there “staying on 72”?—Yes, that’s when John Anderson had come back down to the house and he asked how many changed over and I said very few.

He said to go back the other way, tell them all to change back.

Right. So you actually told them all?—I would have told them all to change back to 72, 16A.

*You then stayed on 16A for the remainder of the fires?—Yes.”*¹¹⁵

- 18.4.11** There is some confusion in the evidence regarding the switching of channels. Mr Anderson said that the plan was for 16A to be used as the command channel and 16C as the fireground channel for appliances.¹¹⁶ Foy was under the impression that when Anderson left the sub-base to return to Linton that all Region 16 personnel were on the one channel, this being 16A.

- 18.4.12** The next important message noted in Ms Foy’s log was at “1807 hours”. This was a message for Millar with the following details:

“The next entry I want to take you to is 1807 and that reads, “Linton Control. B Mill”, which I presume is Bill Millar?—Yes.

*It says, “Wind change one hour. West to northwest. 61 kilometres per hour”: are you able to say whether that was a message that was directed to you at the Snake Valley sub-base or just a message you overheard?—I would say it is a message I overheard.”*¹¹⁷

*Ms Foy could recall very little about this message.*¹¹⁸

- 18.4.13** Mr Millar indicated he had no memory of receiving the “1807” message.¹¹⁹ As discussed above in Chapter 18.2, MCV staff Roberts and Balm are also somewhat uncertain regarding the details of this message. Roberts had no memory of the message, whilst Balm believed it may have been forwarded from the Snake Valley sub-base with a request to communicate it to Mr Millar.

- 18.4.14** There is an entry in the log at “1956 hours” with the following details:

*“35 wind change Wickliffe”*¹²⁰

Once again Ms Foy had very little memory of the circumstances surrounding the message. She believed she phoned the details of this message through to Linton Control at 7.57pm due to a note made in the log indicating this, but she had no positive recollection of doing so. Foy knew Wickliffe was in the area, but did not know exactly where it was.¹²¹

- 18.4.15** The most likely explanation of the “1956” entry is that Ms Foy heard the message broadcast from the MCV on channel 16A. The “1957” entry appears to be an acknowledgment from Foy of receiving the message. There is a message logged in the MCV channel 16A log book indicating they received an acknowledgment of the Wickliffe message from the Snake Valley sub-base at around “1956.”¹²²
- 18.4.16** There are several other wind change messages noted in the log between “2040” and “2052” hours. These were made by Ms Trish Larkins. Whilst not being certain of the content of these messages, Foy stated that they are most likely to have been messages indicating the wind change had arrived in certain areas at Linton or nearby.¹²³
- 18.4.17** One of these messages, logged at “2040”, appears to be indicating the wind change has arrived somewhere on the western side of the fire at Linton.¹²⁴
- 18.4.18** The CFA and Volunteer Associations submitted that Ms Foy performed her duties in an effective and competent manner.¹²⁵
- 18.4.19** The Volunteer Associations submission once again highlighted that it is inadequate that communications officers are not provided with written and formalised information such as a communications plan and command details.
- 18.4.20** In the circumstances it can be concluded that Ms Foy performed her duties in an effective and competent way. She also showed great initiative in attempts to compile a list of resources in the area to the North of the fire. It is also correct, however, that Foy would have been assisted if she had a formal communication plan and resource list to help her ensure that messages got through to the right people when necessary.

18.5 Aircraft

- 18.5.1** There were around eight aircraft at the Linton fire.
- 18.5.2** Aircraft at Linton were used for fire bombing and observation purposes. Important information was gathered and communicated from the air to various sources on the fireground.
- 18.5.3** CFA volunteer and pilot Mr. Peter O’Rorke in particular was communicating some very important information to the fireground. O’Rorke was flying a Cessna airplane and making observations of the fire. He arrived at the fire at approximately 1400 hours following a request for his attendance from John Anderson.¹²⁶
- 18.5.4** Mr O’Rorke explained what he perceived his role at Linton to be:
- “What I am after, Mr O’Rorke, is what you perceived your line of command to be, if you like, who you were reporting to, and who was to tell you what they wanted you to do?—My role has always been, in using an aircraft, the eyes for the people on the ground and back at group base or the command or whatever it may be, that’s my role.”*¹²⁷
- 18.5.5** Mr O’Rorke was transmitting messages to ground crews on radio channels 15A and 16C.¹²⁸ He was in contact with Grimmer from the Westmere region. O’Rorke was receiving information from Grimmer concerning the wind change. At approximately 6.00pm O’Rorke was advised by Grimmer that the wind change was at Mt Gambier at 5.00pm. He consequently transmitted this information to Alice Knight on channel 15A at 6.03pm.¹²⁹
- 18.5.6** Shortly after this message, Mr O’Rorke transmitted a message to G.O. Phelan indicating a “north to northwest wind change to 61 kilometres per hour that was expected to arrive in one hour.”¹³⁰ O’Rorke indicated during his evidence to the court that he had very little recollection of the source of this message. He also agreed that it was odd that the details of the wind change in this message were quite different to the details of the earlier “1803” message regarding Mt Gambier.¹³¹
- 18.5.7** The next important message involving Mr O’Rorke occurred at 7.10pm. This was information O’Rorke received from Grimmer indicating the wind change had passed through Dunkeld. He transmitted this information to Ms Knight on channel 15A.¹³²

- 18.5.8** Mr O'Rorke received another very important wind change message from Grimmer at approximately 7.48pm. This message indicated that a southwesterly wind change of 30 to 35 kilometres with gusts up to 40 kilometres with no rain had arrived at Westmere base at 7.45pm.¹³³ O'Rorke believed he transmitted this information to Ms Knight.¹³⁴ As discussed in paragraph 18.3.13 Knight has no recollection of receiving such a message. The evidence does indicate the message was transmitted on 15A by O'Rorke, but it is unclear as to exactly whom it was transmitted to.¹³⁵ O'Rorke is unsure as to whether he also broadcast the message on 16C, other evidence suggests that this did occur.¹³⁶
- 18.5.9** As discussed earlier, either the "1949" conversation between Mr O'Rorke and Grimmer or his "1951" transmission of the Wickliffe information was heard in the forward operations point at Linton. This message led to Mr Anderson instructing the MCV to send out a general message to the fireground containing that information.
- 18.5.10** At 8.23pm Mr O'Rorke contacted Knight to inform her he was heading home because darkness was beginning to descend over Linton.¹³⁷
- 18.5.11** Shortly after that Mr O'Rorke transmitted a very important message to Ms Knight:
- "VI: Grenville group Region 15 aircraft*
V2: Region 15 aircraft Grenville group yes Peter
V1: Grenville group Region 15 aircraft I've just come through the front aah it was about aah 2 mile east of Skipton I was at 4,000 feet very very rough so I don't know what its like on the ground but I'm just on the west side of Skipton now and it has settled down a bit
V2: Thanks for that note that the change is 2 miles east of Skipton and things have settled down a bit on the other side of it sounds good
VI: Yeah but I think they want to be prepared for some pretty rough wind because aah I would say aah it was wouldn't know it could be nearly a 100 k of gusts at 4,000 feet
*V2: Right thanks for that Peter"*¹³⁸
- 18.5.12** This message was relayed to Ms Knight on channel 15A.¹³⁹ Once again, O'Rorke is unsure whether he also broadcast the message on 16C, although other evidence suggests this did occur.¹⁴⁰ As indicated in Chapter 18.3 there was no re-broadcast of the Skipton information as a general message to those on the fireground.
- 18.5.13** This message was however heard by a number of personnel on the fireground. It was of vital importance in that at least one firefighter took precautionary measures upon hearing the message. For example, Mr Alan Pitcher, a CFA volunteer, gave the following account of the significance of the Skipton message to him:
- "The Coroner: What significance does that have to you?—Your*
Worship, there could have been a risk to our tankers that, we had to be very careful on the fire front. We were on the eastern flank, so the wind coming from that direction would have fanned the fire up towards our tankers and that
*control line and we were aware our tankers needed to be in the clear. I think at that stage we had a tanker that was working in a clearing below a house on the western side of that fire and I was deployed by Mr Chapman, we discussed it, and I was deployed by him to go and visually bring that tanker up from the bush and put it, bring it into the clearing. We were aware the tanker may have a problem with the wind change if it hadn't been shifted from its position."*¹⁴¹
- 18.5.14** Parties' submissions recognised the importance of the Skipton message also. As discussed above in Section 8.3 several submissions indicated that further steps should have been taken by various operational personnel and commanders to rebroadcast this message. It should be noted that would not have been enough to ensure the safety of firefighters unless the message sent out told them at the time of arrival at the fireground and what action to take.

- 18.5.15** Other aircraft at Linton were also making valuable observations of the fire and communicating information to ground crews or the IMT in Ballarat. One of the most significant observations was made and communicated by NRE air observer Mr David Munday. Munday noted a CFA backburn at around 3.45pm that he thought “*was going pretty bad*”.¹⁴² He relayed some information regarding this backburn to Brad Mahoney in the Ballarat IMT at 3.50pm.¹⁴³
- 18.5.16** A number of submissions recognised the importance of Mr O’Rorke’s work and stated that he added to the quality of the communications system at Linton. It was recognised that O’Rorke had excellent radio coverage and that the method he used of switching between channel 15A and 16C allowed information to reach a number of key personnel on the fireground.¹⁴⁴
- 18.5.17** It can be concluded that observations and consequent communications made by various aircraft at Linton were potentially an invaluable aid in informing those on the ground of such things as fire behaviour and weather changes. Messrs O’Rorke and Munday were skilled observers and their reports were timely and accurate. Regrettably, however, they were being fed into a system that was dysfunctional, as described in Chapters 15 and 16, and appropriate use was not made of their good work.

18.6 Westmere Base

- 18.6.1** The Westmere Group is a CFA Group within Region 16 (See Appendix A2.1). Their communications officer is CFA volunteer Mr Gary Grimmer, with the assistant communications officer being his wife Mrs Sue Grimmer.
- 18.6.2** The Grimmers operated Westmere Group communications from their home, which was situated just north of Wickliffe.¹⁴⁵ They became aware of the fire at approximately 1343 hours. Mr Grimmer became active in performing communication duties from 1408 hours after his wife had controlled the initial stages.¹⁴⁶
- 18.6.3** The Grimmers were operating on channel 16C, although there was at least one occasion where they switched to channel 15A to speak to Mr O’Rorke.¹⁴⁷ They kept a log of messages heard and transmitted over the radio.¹⁴⁸ Grimmer indicated the log did not record every message as that “*is virtually impossible*” to achieve.¹⁴⁹
- 18.6.4** There are a series of entries in the Westmere log indicating that certain resources are enroute or at Linton. Mr Grimmer explained that the majority of these messages were communicated to him or were conversations overheard by his wife and himself on 16C.
- 18.6.5** A communication logged at “1455” indicates the fire has crossed the Pittong Snake Valley Road and is “*burning fiercely*.”¹⁵⁰
- 18.6.6** Mr Grimmer explained an entry at “1555” hours in the log during his evidence. The entry contains the following details:
- “*Mt Gambier re weather*
Change 2 hours away there – another 4 hrs to here. isol. light rain – change”¹⁵¹
- 18.6.7** This information relates to a call made by him to the Bureau of Meteorology at Mt Gambier to check on the progress of the wind change. Mr Grimmer explained why he sought this information when examined by Mr Livermore:
- “*Why did you make that call?—We had 11 units committed to that fire, it was not our fire to run by any means, but we have a bit of a responsibility or concern when tankers go out on a strike team and we like to try and keep them as up-to-date as we possibly can with information that might assist them, we give any sort of help to them when they are away: and also for our own information, when we had such a large commitment out of our own group area, something may have come up and we had to be aware of what the weather was going to do.*”¹⁵²

- 18.6.8** Mr Grimmer further indicated that whilst he is not certain what he did with the information he believes there is “a 90 per cent chance” he broadcast the wind change details as a general message on channel 16C.¹⁵³
- 18.6.9** There is a further entry concerning the wind change and Mt Gambier at “1805.” Mr Grimmer explained that this related to him relaying information to O’Rorke that a southwesterly wind change is due at Mt Gambier at “1700 hours.” Grimmer believed he gathered this updated information by telephoning the Mt Gambier branch of the Bureau of Meteorology again.¹⁵⁴ Grimmer’s evidence on this issue is consistent with O’Rorke’s view of how he gained knowledge of the Mt Gambier wind change information (see section 18.5).
- 18.6.10** The next message of importance in Mr Grimmer’s log is noted at “1915.” He indicated this is information he received via telephone from a CFA volunteer who monitors weather from Dunkeld. The message passed to Mr Grimmer was that the wind had changed south of Dunkeld at “1910” hours and had been quite strong for five minutes before dying down.¹⁵⁵
- 18.6.11** Mr Grimmer consequently passed this information onto O’Rorke. This was noted in his log as occurring at “1919” hours.¹⁵⁶ He was once again 90 per cent sure the Dunkeld information was also transmitted as a general broadcast on 16C by him.¹⁵⁷
- 18.6.12** Another message transmitted by Mr Grimmer to O’Rorke was one concerning the wind change passing through Wickliffe. This is noted in Grimmer’s log at “1945” hours. He explained the meaning of the message to the court:
- “The next one I think is in your handwriting, 1945, again the in and out boxes are ticked, again this is Mr O’Rourke?—That is correct, yes.*
- The detail of that message, what’s that?—It was to Mr O’Rourke of the Westmere aircraft stating there is a southwest change here, came in about five minutes, went about 1945, the wind went southwest gusting at 40 kilometres an hour tailing southerly at times. There was no rain associated with that change.”¹⁵⁸*
- He believes this conversation occurred on 16C only, although he is unaware whether Mr. O’Rorke communicated the message on another channel.
- 18.6.13** Mr Grimmer’s actions in passing on the Wickliffe wind change message to O’Rorke are highly commendable. This information was relayed by O’Rorke to the fireground via channel 15A, and consequently led to a decision by the Forward Operations Point to ensure it was transmitted as a general broadcast via three channels. Information such as this is valuable in providing a warning that the wind change is nearby. However, it has to be recognised that the effectiveness of such a message was reliant on people actually receiving it and also understanding the reference to Wickliffe.
- 18.6.14** The final communication of importance heard by the Westmere base occurred at 8.28pm. This was a message noted by Mr Grimmer from O’Rorke that contained the following details:
- “on way home went through front v. rough. Threw everything about in cab.
Just as well had seat belt on – could Have went through roof.
Over Charlie Wetherlys now”.¹⁵⁹*
- 18.6.15** Mr Grimmer explained to the court that this message indicated that O’Rorke had encountered a very rough front halfway between Skipton and Lake Bolac. He indicated that he calculated, on the basis of this information that the change was getting very close to Linton:
- “Mr Livermore: Once again, with that – to your knowledge when you received that information from Mr O’Rourke, did you then compute in your own mind how long it would take for the wind change to reach Linton?—We would have, yes, yes, because of the time period when it came through to us at 1945 and went to Carranballac at 2028, yes, it wouldn’t have taken, been very hard to work out, “Okay, it is probably halfway to Linton at 2028”.¹⁶⁰*
- Mr Grimmer does not believe he rebroadcast this message, but he thought that anyone listening to channel 16C would have heard it.

- 18.6.16** Mr Grimmer had no knowledge of the Forward Operations Point at Linton or the Staging Ground. He became aware at around 4.00pm that there was “*some set-up going ahead*” at Ballarat.¹⁶¹
- 18.6.17** The Firefighters Union submitted that the IMT had failed to make use of the Westmere base. Their Submission recognised that Mr Grimmer was a valuable resource for local weather information.¹⁶²
- 18.6.18** The CFA and DNRE made no direct submissions or replies regarding the operation of the Westmere base.

18.7 Repeaters

- 18.7.1** Repeaters can be used to improve the quality and capabilities of communications. A mobile repeater will be placed in a position that will allow for improved range and performance of radio communications.¹⁶³
- 18.7.2** During the Linton fire, at approximately 3.20pm, the IMT were investigating whether a repeater could be used to assist DNRE communications. This task was being organised by Mr Brad Mahoney, an DNRE Operations Officer in the IMT at Ballarat.¹⁶⁴
- 18.7.3** Mr Mahoney indicated he contacted the Logistics Unit to look at the possibility of establishing a repeater on Cherry Tree Lookout. Cherry Tree Lookout contains a fire-spotting tower and is situated within a pine plantation east of Linton.¹⁶⁵ Mahoney indicated he investigated the use of the repeater after being contacted by Murray Fullerton, a DNRE officer operating in the northern sector of the fire. Fullerton informed Mahoney that communications on the fireground on DNRE simplex channel 118 “*were not working well.*”¹⁶⁶
- 18.7.4** A log kept by Mr Mahoney in the IMT indicates this conversation occurred at “1520.”¹⁶⁷ A later entry in the log at “1850” was confirmed by Mahoney as a reference indicating that the repeater became operational at this time and that DNRE resources were directed to switch to channel 126.¹⁶⁸
- 18.7.5** Mr Fullerton highlighted the effectiveness of the repeater:
- “—That’s when I contacted Brad Mahoney at the incident control centre at Ballarat and let him know of that. Once they set up a repeater at Cherry Tree we were told to go to channel 126, and from that point on we had no communication problems on our radio at all.”*¹⁶⁹
- 18.7.6** The evidence of several DNRE personnel indicated that the majority, if not all, of the DNRE crews on the fireground were aware that they were to switch from channel 118 to 126 due to the establishment of the repeater. At least one DNRE member indicated he was provided with this information by both radio and in person by other members.¹⁷⁰
- 18.7.7** It can be seen therefore that in difficult terrain repeaters may be used to improve the quality and reliability of radio communications. Good practice would dictate that consideration be given to the use of repeaters as early as possible in any fire where the terrain appears to be interfering with effective communication by radio.

18.8 Radio Discipline

- 18.8.1** A number of issues were raised during the Inquests about radio discipline. In the main these issues related to the use of radio channels not recognised in the communications plan and firefighting personnel operating radios in breach of expected guidelines and communication etiquette.
- 18.8.2** One of the most significant issues covered during the Inquests in this area related to crews using radio channels not recognised by the IMT and command as forming part of the communications strategy or plan.

- 18.8.3** Before discussing this area in detail, it is relevant to indicate that notions of crews being undisciplined by using “*unrecognised*” channels involves an important factor. This is that the crews must actually have knowledge of the communications plan in operation in order for them to understand what channels are to be used on the fireground. As will be discussed in sections 18.10 and 18.15, there were a number of problems at Linton in relation to the formulation of the communications plan and its subsequent distribution to personnel. Indeed no such plan was formalised or distributed by the IMT.
- 18.8.4** As was discussed in Chapter 14, the use of alternative radio channels was an important factor in the circumstances surrounding the Geelong Strike Team entrapment. Evidence showed that the Geelong Strike Team leader, Simon Scharf, had his command vehicle radio tuned to channel 15B. He also had a portable radio on channel 7C. 7C was one of the Geelong Strike Teams regional “*go to*” channels. Go to channels are channels that are commonly used by CFA appliances within a specified Region when there is radio congestion.
- 18.8.5** The CFA submitted that in line with the communications plan operating at Linton, “*Mr Scharf, as strike team leader, should have had his utility on channel 15A and his appliances on channel 15B.*”¹⁷¹
- 18.8.6** Obvious problems can arise when there is a situation where crews are on radio frequencies which are not designated command or fire ground channels. For example, the Geelong Strike Team which was operating on channel 7C, while being able to communicate between their own tankers, could not hear the general radio traffic in the area on the fire ground in which they were working. This is because the fire ground channel being utilised was 15B. Furthermore, Mr Scharf’s command vehicle radio was not receiving messages sent between commanders and group officers on 15A, which was the command channel being used in the southern part of the fire where the Geelong Strike Team was working.
- 18.8.7** Counsel Appearing on behalf of Mr. Scharf argued that his use of channels 15B and 7C was not inappropriate in the circumstances. It was submitted that Scharf had been informed by DGO Kavanagh at a briefing shortly before the Geelong Strike Team’s deployment down the dozer line that he could contact Mr Kavanagh on channel 15B.
- 18.8.8** There was in fact clear evidence in the recorded communications that Messrs Scharf and Kavanagh had spoken on 15B shortly after this briefing.¹⁷² However, it is also evident in the same recordings that Kavanagh was operating on 15A at other times during the fire as well.¹⁷³ There were few other witnesses that could provide reliable evidence on exactly what occurred at the briefing between Scharf and Kavanagh. Whilst Ballarat Strike Team Leader Rigg was in the vicinity of Scharf and Kavanagh, he could not hear what they were saying.¹⁷⁴ Scharf’s utility driver, McPhail, was also very close to the briefing, but was unable to recall if he had actually heard discussion between them regarding radio channels or whether Scharf had informed him of the channels they would use.¹⁷⁵
- 18.8.9** The evidence of Mr Scharf is preferred to that of Kavanagh in relation to which channel Scharf was advised to use to contact Kavanagh. Mr Scharf’s evidence regarding the Region 15 channel is supported by radio communications recordings and a notation on his map indicating 15B was the channel to be used. He indicated he made this note at the cemetery as he was under the impression he would be on the same channel as Kavanagh, this being 15B.¹⁷⁶
- 18.8.10** There was a further submission made on behalf of Mr. Scharf regarding the Geelong Strike Team’s use of a “*go to*” channel:
- “The evidence clearly establishes that Scharf informed Kavanagh that the Geelong strike team tankers were on 7C. Scharf informed the crew leaders to remain on 7C prior to being briefed by Lightfoot at Possum Gully Road.”*¹⁷⁷
- 18.8.11** This submission was supported by reference to the fact that Mr. Scharf had informed Kavanagh during the briefing that his Strike Team would operate on channel 7C. Scharf believed Kavanagh had accepted this proposal.¹⁷⁸

- 18.8.12** The evidence about the use of channel 7C by the Geelong Strike Team is confusing. Mr Kavanagh said that he had not been told about the proposed use of channel 7C by the Geelong Strike Team. Kavanagh asserted that he would not have allowed this channel to be used:

“Would you on that day, particularly when you were at the cemetery, have regarded yourself as having the authority to permit a strike team leader to divert his appliances on to another channel like 7C?—No.

Would you have permitted that to have happened on that day?—No.

*Do you have any recall at all of being told that they were on 7C?—No”.*¹⁷⁹

- 18.8.13** While there is confusion about what Mr Scharf was told by Kavanagh and vice versa in regards to Region 7 channel usage, it is clear that the Geelong and Ballarat Strike Team tankers operated on channel 7C from the time of the meeting with Kavanagh. This is consistent with the evidence of Scharf and therefore for a number of reasons that evidence is accepted (see Section 14.4.14).

- 18.8.14** This was not in line with the communications plan, such as it was, operating at Linton, and created a number of problems. For example, DGO Taylor explained to the court how Mr Lightfoot had tried to contact Scharf on 15A after the entrapment. Both Taylor and Lightfoot were surprised to learn after having no success that Scharf could be contacted on 7C.¹⁸⁰ Perhaps more importantly, Scharf and Rigg had no opportunity to hear O’Rorke’s Skipton wind change conversation with Ms Knight, which came over channel 15A approximately 15 minutes before the fatal entrapment. It was not turned into a message and sent out to the fireground on channel 15B.

- 18.8.15** The evidence demonstrates that the use of a home region go to channel occurs from time to time when CFA crews leave their region. As was highlighted in the Submissions made on behalf of Messrs Scharf and Stepnell and the Union, there was evidence that other personnel at Linton and in fires attended before Linton had used “go to” channels.¹⁸¹ For example, CFA volunteer Billings, a Strike Team Leader of the Otway Group, gave the following account of his strike team’s communication set-up at Linton:

*“I asked Des what radio Channel he wanted me on and he said, 15B. I then said to Des that my tankers will be on 6A and I would be on 15B. Des didn’t make any comment in relation to this suggestion”.*¹⁸²

- 18.8.16** During his evidence, Mr Phelan indicated he had little memory of this conversation and was unsure exactly what was said in this discussion with Billings.¹⁸³ Phelan indicated that in his experience, at the time of the Linton fire, that strike teams had utilised “go to” channels from their own region when away from the home region:

“At the time of the Linton fire was it your experience that strike teams such as the Colac strike team would have the strike team leader on the command channel and the tankers on a go to channel that they would use to talk to one another?—That’s been done, yeah.

*You said earlier in your evidence today that the important thing was for you to be able to contact the strike team leader?—That’s right”.*¹⁸⁴

- 18.8.17** The Incident Controller of the Linton fire, Mr Leach, also indicated that such practices were not uncommon and that “go to” channels were often used at fires in early 1997 and also at the time of the Linton fire.¹⁸⁵

- 18.8.18** The CFA, in their Reply, reinforced a point made in their original Submission in relation to the use of “go to” channels. They argued that the question is not one of whether “go to” channels can be utilised, but whether the Strike Team Leader has “appropriate approval and authority” to do so.¹⁸⁶ This is clearly correct. It should also be noted that if approval is given then the “go to” channel should be incorporated in an amended communication plan for the fireground and then disseminated to appropriate people.

- 18.8.19** Brief consideration of other evidence before the Inquests demonstrates that the use of a variety of radio channels caused other concerns at Linton. CFA volunteer and Snake Valley Captain Peter Smithers raised some concerns regarding radio discipline:

“Perhaps if you could tell His Worship how do you think the relationship between the two regions worked on the night, do you think it was satisfactory or could be improved?—I have an acute dislike to the idea of people turning up to a fire and refusing to change radio channels to the home brigade channel or the home district channel. To say I find that annoying would be an understatement, because it does make it quite difficult to get any structure into controlling things. As a general rule we have a very, very close relationship with the Linton brigade, and a reasonably good working relationship with Smythesdale, and we do common training evenings with both Linton and Haddon, however, it is still – and I have had cause to ring my regional officer and the regional officer from Region 15 on a number of occasions where we have had tankers appear from other areas into our district and refuse to change channels.”¹⁸⁷

18.8.20 Many of the problems involving the use of unauthorised or alternate radio channels could be solved by the formulation and distribution of an authorised written communications plan complying with AIIMS-ICS to all crews attending a fire. As will be discussed in detail in section 18.15 of this Chapter, there were problems encountered at Linton in this respect.

18.8.21 The other major area of radio discipline under scrutiny during the Inquests related to the procedures and protocol employed by firefighters when communicating via the radio network. It was evident at Linton that there was inadequate use of communication call signs. Radio messages were frequently transmitted and responded to without the caller or recipient using titles that would be clearly identifiable to all on the fire ground. In other words Group titles and not AIIMS titles were used by people on radio channels.

18.8.22 Consideration of the recorded communications and transcript of same provide ample evidence of this occurring at Linton.¹⁸⁸ Many messages were sent with call signs utilising peoples’ individual names, such as “Des” or “Alice”. Titles exclusive to CFA Groups were also commonly used, such as “Grenville Group”, “Group Officer Taylor”, “Bunniyong Group Officer” and “DGO Kavanagh” to name but a few.

18.8.23 The communications were being run on CFA Group system or local brigade principles. A significant number of key witnesses recognised that call signs adhering to AIIMS-ICS principles should have been used.¹⁸⁹ In other words, callers should have identified themselves by way of AIIMS-ICS titles, such as Operations Officer, Divisional Commander, Sector Commander, or Strike Team leader.

18.8.24 The Incident Controller during the Linton fire, Mr Leach, indicated the importance of AIIMS-ICS call signs:

“There is another point I want to ask you to comment on that I think is related in some way to the tabards, that is in communications ICS role prefixes are to be utilised and not agency call signs, for example, Sector Commander Smith not Group Officer Smith?—Correct.

Is that an important principle?—It is.

Why is that important?—As we said before, it is like tabards, it clearly identifies who that person is and the role they are performing within the structure.”¹⁹⁰

18.8.25 Another major problem concerned the congestion on channels due to excessive transmission of messages. A number of witnesses recognised the importance of firefighters restricting radio usage on a fire ground to allow for effective information flow of important messages. This issue in fact interlinks with the use of “go to” channels as discussed above. Messrs Scharf and Billing were of the belief that the use of “go to” channels was necessary because of the congestion and heavy use of the main fire ground channels.¹⁹¹

18.8.26 Mr Rigg also identified problems he had experienced with channel 15A, 15B, and 15C when attending other fires earlier in the day. This related to the multiple use of these channels at a number of fires burning at the same time in Region 15 causing communication problems.¹⁹²

18.8.27 A number of witnesses identified that it was important to give precise and short messages when using radios. For example, CFA volunteer Mr Handley noted the importance of adopting appropriate operating procedures when answering a question from the Coroner:

*“What’s your view?—Well, my view is that we should have been listening on the fire ground channels on the day as well. I mean, it becomes that they don’t like it because people tend to get in there and want to start putting their two bob’s worth in. It becomes more radio traffic than what’s needed. That’s probably why they just left us on our own channel but I think for future, and I stated this in a statement that I made, that we should look at having one radio on, whatever it is, on our own channel, and one on the actual fire ground channel so everyone’s hearing what’s going on. We’ve just got to discipline ourselves not to pick up the radio and start talking when there’s no need for it”.*¹⁹³

18.8.28 Mr Rigg reinforced Handley when questioned about appropriate use of radios:

*“Your general instruction as a fire officer is to give a clear and short message: is that right?—When we are using radio procedures, yes, it is clear and concise, to the point”.*¹⁹⁴

18.8.29 Overuse and unnecessary use of radios can present significant problems for firefighters. Personnel may not be able to transmit or receive valuable information due to congestion. Operations Officer John Anderson highlighted the importance of radio discipline:

“If all of the tankers in the southern division of the fire were operating on 15B, how many conversations could occur on that channel at any one time?—Radio discipline is very crucial, the appliances need to be trained to not make transmissions.

How many conversations could occur on 15B at any one time, if all of the tankers were on that channel in the southern division of the fire?—Only one.

*One. So if a message, a general message was sent from Linton on 15B, if a conversation was occurring between two appliances on the fire ground, would the other appliances operating on 15B be able to hear the message that had been sent from Linton?—They would not”.*¹⁹⁵

18.8.30 The problems overuse of a radio channel can create was clearly demonstrated at Linton during the Snake Valley ‘A’ entrapment. The crew member injured during the incident, Mr. Hollingworth, stated his frustration in trying to radio for assistance:

*“One comment that I want to make in relation to this incident is regarding the problems we experienced with our radio communications. This was not only because of the poor reception but also because of the amount of radio traffic which makes very difficult to get through”.*¹⁹⁶

18.8.31 Problems relating to discipline such as overuse of fireground channels and the use of channels that command are unaware of is without doubt a significant issue that the fire agencies need to turn their mind too. Many radio messages transmitted on a fireground are essential to the safety and welfare of firefighters. This was evident at Linton with messages concerning the forthcoming wind change or the Mayday call following the entrapment of the Snake Valley ‘A’ crew.

18.8.32 It is noted that problems in this area have been recognised by CFA Chief Officer Trevor Roche. During his evidence Mr Roche recognised that *“we have to do a lot more work in terms of improving the discipline of the people using our network to reduce that traffic congestion.”*¹⁹⁷

18.8.33 It is also noted that the CFA is addressing such concerns through their involvement in the State Government’s SIPSaC Strategy. In particular, the possible use by the CFA of a Mobile Data Network under the Strategy could assist in overcoming congestion problems. However, at this point in time it is apparent that the Strategy is treating regional areas as low priority in terms of communication initiatives.¹⁹⁸

18.8.34 Issues regarding communication initiatives and technology receive more detailed consideration in section 18.12 of this Chapter.

18.9 Acknowledgments

- 18.9.1** The operation of a communications system involving acknowledgments was considered briefly in section 18.2 of this Chapter. It was noted in that section that the major issue concerning acknowledgments at Linton revolved around the dissemination of the Wickliffe wind change message.
- 18.9.2** There is no dispute between parties to these Inquests that a wind change message stating the change had reached Wickliffe was broadcast on channels 15A, 15B, and 16A between 7.50pm and 8.00pm by the MCV. It is also common ground that the MCV asked crews for acknowledgments of the message and only received one. What was in dispute during this investigation was whether at the time of Linton it was a requirement of the agencies communication system to seek and receive acknowledgments of important messages from personnel on the fireground.
- 18.9.3** In respect of the Wickliffe message the evidence indicates that Mr Anderson requested the MCV to send out a general message but did not ask Mr Roberts to seek acknowledgments.¹⁹⁹ Roberts decided to seek acknowledgments because this is his standard practice and he wanted *“to be satisfied that the message is getting through.”*²⁰⁰
- 18.9.4** The evidence at the Inquests demonstrates that the fire agencies had no official communications procedure in place at the time of the Linton fire requiring acknowledgments of general broadcasts. This fact was recognised by a number of key witnesses during the proceedings. CFA witnesses such as Messrs Anderson and Leach indicated that at the time of Linton it was not necessary that general radio broadcasts were acknowledged by personnel on the fire ground.²⁰¹
- 18.9.5** This evidence was reinforced by Chief Officer Roche, who described the procedure operating at the time of the Linton fire as:
- “There was no formal process for following up any failure to acknowledge and, in the absence of a specific instruction to the contrary, communications personnel were not expected to do so”.*²⁰²
- 18.9.6** In his evidence Mr Roche added that up until Linton he believed the use of general messages was appropriate and had been successful:
- “My experience has been in having used the process of general messages for many, many years it was not – I had never had circumstances arise where that had caused a problem to the extent where I would say, “Hey this is not working”.*
- Do you mean by that you had never had experience of someone missing a message or you had never experienced ever someone missing a message where that had important consequences?—I never had someone post an incident – I had never established that someone hadn’t got information that they needed to have, personally I was not aware of that. Now, it may well have been occurring, I am not saying it wasn’t occurring, but it was certainly not widely known in the organisation and certainly not known to me”.*²⁰³
- 18.9.7** The Submissions on behalf of the CFA and Messrs Lightfoot and Phelan indicate this was long-standing protocol and practice in CFA ranks. Their Submissions rely on such evidence in highlighting that Lightfoot and Phelan and any other division and sector commanders were under no obligation to ensure the various wind change messages were acknowledged by fire ground personnel.²⁰⁴
- 18.9.8** It was also submitted by the DNRE that the CFA used such a system at the time of the Linton fire and for many years prior to the fire.²⁰⁵
- 18.9.9** The evidence supports the view that there was no formal system governing radio acknowledgments operating at the time of the fire. The evidence also indicates that this had been standard practice for a considerable time before Linton.

- 18.9.10** Whilst there was no formal policy operating regarding acknowledgments, there is substantial evidence to suggest that a number of individuals viewed acknowledgment of important communications as a necessity or of high importance in ensuring crews working on the fire ground were receiving messages.
- 18.9.11** Witnesses such as Messrs Graham, and Leach indicated that general messages could not always be relied upon as a method of ensuring fire ground personnel had received the transmission.²⁰⁶
- 18.9.12** In fact, Mr. Lightfoot indicated that before Linton there were circumstances where acknowledgment of messages was required:
- “The Coroner: Was there any practice to receive acknowledgements of general messages?—Not all the time, Your Worship.*
- What do you mean by that?—Well, we didn’t always do it.*
- Could you explain that further?—In general we didn’t do it.*
- Did you do it sometimes, is that what you are saying to me? —Yes.*
- Why did you do it sometimes?—Depends on the situation, I would imagine, Your Worship”.*²⁰⁷
- 18.9.13** Furthermore, there were indications that several personnel viewed acknowledgments as important during the Linton fire.
- 18.9.14** As discussed in section 18.2, Communications Officer Trevor Roberts was one such person. Mr Roberts indicated that his practice was that he would ask for acknowledgments when transmitting valuable messages.
- 18.9.15** The evidence demonstrated that Messrs Roberts and Balm were concerned when only one acknowledgment of the Wickliffe wind change message came into the MCV. This caused Roberts to visit Anderson in the Forward Operations Point to express concern at the lack of acknowledgments. He explained his concerns when examined by Mr Livermore:
- “Why were you concerned about that?—Because we had a weather change coming through, an impending wind change. I had no idea of what was out on the fire ground to the extent of what sectors, who was running the fire, who was in control of those crews out there, as divisions and sector leaders, and I have been asked to do a broadcast and I have only been acknowledged by one person. So that is when I also raised that as an important issue with John Anderson”.*²⁰⁸
- 18.9.16** The importance of fire crews acknowledging messages was further highlighted by the evidence of DNRE officer Mr Graham. Graham elected to contact the DNRE commanding officers on the eastern flank directly with vital wind change information rather than relying on a general broadcast. This way he could *“ensure that the two sector commanders had the message”*.²⁰⁹
- 18.9.17** Furthermore, Mr Graham believed that he asked either Anderson or Britton to seek confirmation from crews when broadcasting the Wickliffe message to CFA personnel. However, Graham did not recall checking with Anderson or Britton after transmission of the message on CFA frequencies as to whether confirmations had been received.²¹⁰
- 18.9.18** Counsel for the DNRE submitted that Mr Graham was under no obligation to do any more than he did in relation to having the important wind change messages broadcast to CFA resources. In this respect the DNRE submitted that:
- “In so doing, and in passing information which was to be disseminated to CFA personnel to Mr Anderson and Mr Britton, Mr Graham was utilising the chain of command as envisaged by the AIIMS-ICS principles”.*²¹¹
- 18.9.19** In summary, the DNRE position was that Mr Graham had fulfilled his responsibilities to the CFA by providing them with the relevant information to disseminate. The apparent differences of opinion between Graham and Anderson in relation to the importance of receiving acknowledgments demonstrate the danger in a joint agency operation where communication operations are ultimately managed and overseen by each individual agency, rather than on a unified fire ground basis.

18.9.20 There is also evidence that Mr Anderson viewed acknowledgments as important at an earlier stage in the fire. This related to a message other than those involving the wind change. Snake Valley Sub-Base operator Diane Foy indicated that Anderson had asked for acknowledgments of a message, which she was asked by him to send out. This was a message concerning a change of radio channels for Region 16 personnel. Foy explained what occurred during her evidence to the court:

“What did Mr Anderson tell you to do in that regard?—Region 16 to change to channel 16C, which is 72, and as they change over acknowledge that they changed over to 74.

Did you put a message out to that effect?—Yes”.²¹²

18.9.21 Later in her evidence Ms Foy explained what occurred when Anderson returned to the Snake-Valley Sub-Base after a trip out to the field:

“You only received a couple of acknowledgements?—Roger, yes, that’s it.

Was it 1625, there is a note there “staying on 72”?—Yes, that’s when John Anderson had come back down to the house and he asked how many changed over and I said very few.

He said to go back the other way, tell them all to change back”.²¹³

18.9.22 It was noted during the Inquests and in the CFA’S final submission that the system regarding acknowledgments has changed since the fire at Linton. There is now a “Red Flag” warning system. The CFA recognised that the introduction of the new system is not an indication that the system used at Linton was deficient. In this regard their final submission recognised the following:

“The response of the CFA to the issues arising out of the Linton fire was responsible and sensible. It is not, however, a concession that hitherto the CFA had adopted a deficient system”.²¹⁴

18.9.23 The “Red Flag” warning system was explained in the statement of Mr Roche. He indicated that Standing Orders relating to the system would be introduced. The Standing Order will stipulate that critical information will be communicated to key personnel and receipt of the message would then have to be confirmed by these personnel.²¹⁵

18.9.24 An Interim Standing Order regarding the “Red Flag” warning system was in fact formulated by the CFA in August 2000.²¹⁶

18.9.25 The system was operational during the 2000/2001 fire season. During his evidence to the Inquests Mr. Roche gave the following account of the early progress of the system:

“It was in operation during the last fire season, is that correct?—That’s correct.

And what sort of feed back have you had about it?—The anecdotal evidence that’s come back to us is that whilst people initially had some reservations about it, it’s worked very, very well and really appears to have overcome a number of the issues in which it was designed to fix and we certainly had no adverse criticism of it. It’s been used on a number of occasions this year and been successful”.²¹⁷

18.9.26 DNRE submitted in September 2000 that they had not been involved in the formulation of the “Red Flag” warning system. It submitted that such a system “is outside the joint firefighting practices of the Multi-Agency Incident Management Agreement.”²¹⁸ This submission is sound. The flow of information under AIIMS-ICS is via the chain of command. The use of a “Red Flag” warning is inconsistent with the span of control and supervision inherent in AIIMS-ICS, which is after all the system used by the CFA. If used, it would need to be in conjunction with AIIMS system of control and supervision.

18.9.27 The submission made on behalf of the Union recognised that the effective operation of the “Red Flag” system will be reliant upon the appropriate implementation of AIIMS-ICS. The submission indicates that “the failure to produce a communications plan and incident action plan would almost certainly have defeated the Red Flag Warning system at Linton”.²¹⁹

- 18.9.28** The Union submission raises a very important point. It is evident that those seeking acknowledgment of messages will need information on exactly who they are trying to communicate with. Furthermore, they would need to know how to reach these people. It is evident that at Linton the “*Red Flag*” system would not have functioned successfully as neither Mr Roberts nor Anderson had all the relevant information on fire ground resources. For instance, as discussed in section 18.2, Anderson was not aware exactly who the sector commanders were or how many were operating on the eastern flank.
- 18.9.29** Also the content of the message will have to be clear and concise. In the case of wind changes, appropriate information would include exact details of the strength of the wind, its estimated time of arrival on the fire ground, and clearly stated warnings for crews to exercise caution.

18.10 Problems Encountered

- 18.10.1** A variety of communication problems were experienced during the Linton fire. These problems ranged from management issues through to issues relating to equipment failure. Issues relating to radio discipline and congestion have been discussed in section 18.8, where the major problem identified during this discussion related to a number of “*go to*” channels that were in operation at Linton of which communication officers and a number of personnel in command positions were unaware. This created some difficulties by limiting the dissemination of important messages or preventing contact with certain appliances and members of strike teams. Such problems are significantly linked to the formulation and distribution of a communications plan. The circumstances surrounding the communication plan at Linton are discussed in more detail in section 18.15.
- 18.10.2** In summary, it can be said that there was never a written communications plan formulated by the IMT in Ballarat. Consequently, fireground personnel were generally not provided with any written plan identifying the radio channels to be used at Linton. Crews had to then rely on appropriate face to face briefings or “*word of mouth*” to receive accurate communications information.
- 18.10.3** Confusion and misunderstanding about the radio channels being used at Linton was highlighted during the evidence of a number of witnesses.
- 18.10.4** There was also some confusion regarding Region 16 communication channels. Snake Valley sub-base operator Ms Foy experienced a problem in regard to her knowledge of channels being used by Region 16 personnel. During her evidence Foy indicated that she believed only one channel was being used by Region 16 personnel. Foy appears to have been under the impression from about 4.25pm onwards that all Region 16 appliances were operating on channel 16A as had been directed by Anderson.²²⁰
- 18.10.5** The confusion regarding Region 16 channel usage is further demonstrated through the evidence of other Region 16 CFA members. For instance, Mr McInnes indicated his tanker was on channel 16A all day.²²¹ Smithers said he was monitoring 16A and communicating with crews on 16C.²²² DGO Welsh agreed with Smithers as to this being the correct plan for Region 16 crews.²²³
- 18.10.6** Mr Anderson stated the communications plan for Region 16 personnel was as follows:
- 16A (72) – Command Channel*
- 16C (74) – Fireground Channel (for appliances)²²⁴*
- 18.10.7** This is in line with what the Region 16 DGO’s and Captain Smithers who believed the plan was as indicated above. However, Foy and McInnes thought 16A was the channel to be used in the northern sector of the fire.
- 18.10.8** These problems are further highlighted when considering the evidence of Mr Ferguson, who was a vital part of the IMT in Ballarat. Ferguson, after having contact with CFA Region 15 headquarters, was of the belief that channel 16B was being used by Region 16 personnel. Ferguson gave the following account of his impressions as of 4.00pm on the day of the fire:

“Mr Anderson has said that he phoned through the communications plan to Region 15, noting that Region 15 appliances would be on Region 15B, Region 15A would be the command channel and Region 16 appliances would be on Region 16C, do you follow that’s Mr Anderson’s evidence?—Yes.

*That’s quite different to what Mr Brown and Ms Myer told you, isn’t it?—Yes”.*²²⁵

- 18.10.9** This discussion about Region 16 communications demonstrates the problems that can occur when communications plans are not reduced to writing as required under AIIMS-ICS. It is apparent formally approved and written communication plans will avoid many of the complications and confusion that occurred at Linton.
- 8.10.10** Problems encountered extended to the identification of fire ground resources. As discussed in sections 18.2 to 18.6 personnel performing valuable communication roles at Linton had limited information about resources on the fire ground and the operations structure at the fire. Examples of this include the concerns raised by MCV personnel Messrs Roberts and Balm relating to the lack of information they were provided.²²⁶ Ms Foy experienced similar problems and attempted to overcome them by making her own list of resources.²²⁷
- 18.10.11** Other evidence suggested most of the communications officers operating on the day had little or no knowledge of the various communication sub-bases or IMT in Ballarat. For instance, Ms Foy knew nothing about the existence of the IMT in Ballarat and Grimmer had no knowledge that there was a forward operation point at Linton.²²⁸
- 18.10.12** Once again such information and an awareness of all communication systems in place by those performing important communication functions can allow for improved information flow. For example, a communications officer may use a resource list to indicate that key personnel such as sector commanders are acknowledging messages. They may also contact a sub-base to assist them if they are unable to raise particular personnel via their radio network.
- 18.10.13** Various witnesses identified problems relating to the communication hardware being utilised at Linton. Ms Foy explained that she had learnt during the fire that the radio on the Beaufort tanker had failed completely. The tanker was decommissioned after this occurred.²²⁹
- 18.10.14** Mr Britton recognised that the forward operations point was experiencing difficulties communicating with Ballarat. He identified three problems at Linton, the first being that they were experiencing difficulties communicating with the IMT because the telephone lines could not handle the demand. Additional lines had to be installed by Telstra. Britton also believed mobile telephone and trunking radio coverage around Linton was virtually non-existent.²³⁰
- 18.10.15** There was evidence from the IMT to support Mr Britton’s views. DNRE Situation Officer Tange stated the IMT faced some difficulties in contacting personnel via mobile telephone and trunking radio on the night of the fire.²³¹
- 18.10.16** The failure of the trunking system was also acknowledged in the Joint Operations Review:
- “The State Mobile Radio (trunking) Network was not effective in many parts of this fire (including the Operations Point and Staging Area) due to poor cell coverage”.*²³²
- 18.10.17** MCV operator Mr Balm raised an issue relating to the interference of smoke with communication equipment. Balm was experiencing difficulties in transmitting a number of messages and believed this was due to the effect of the high level of carbon from smoke interfering with the MCV’S signal. He overcame this problem by using aircraft to transmit certain messages.²³³
- 18.10.18** Forward Operations Officer Mr Graham expressed a similar view during his evidence. Graham believed one of the reasons he couldn’t contact Millar via radio in the northerly area of the fire was because of the effect of smoke, among other factors, on communications.²³⁴
- 18.10.19** This issue was addressed by CFA Communications Manager Mr Booth. His statement indicated that there had been limited scientific study on the effects of smoke on communications. Booth stated the CFA were undertaking a search of the literature in this area at the time his statement was prepared. He reached the following conclusion regarding the effects of smoke at Linton:

"In my opinion, there is no basis for suggesting that the atmospheric conditions near Linton after about 6.00pm on 2 December 1998 could have adversely affected radio reception in the area".²³⁵

- 18.10.20** Another issue raised about communication equipment was the ability of crew members on the back of tankers to hear radio communications. This involved discussion of the effectiveness of loud speakers fitted to the rear of CFA appliances. CFA volunteer and crew member of the Corio tanker at Linton, Mr Moore, explained the problems associated with hearing messages when working from the back of an appliance:

"You were sitting on the back of the Corio tanker?—Yes.

What was your ability to hear any radio transmissions?—There is an extension speaker on the rear of the tanker. In the cabin there is a little box that has "monitor" and "normal", if you have it on "monitor" you can hear the conversations in the front of the truck as well as some radio traffic, but the speaker on Corio's tanker was, I suppose, a bit scratchy as there was a bit of noise around, and you can hear conversations, but some time it is very hard to understand, yes".²³⁶

- 18.10.21** This is an important consideration as messages will not always be heard in the cabin, particularly if the cabin radio is unmanned for some reason. Furthermore, even if messages are heard in the cabin the information may not be passed onto crew members working in the rear of the appliance.

- 18.10.22** A similar problem relating to limited access to messages and communication equipment was experienced by bulldozer operator David Rowan. Mr Rowan was constructing the eastern flank control line that the Geelong strike team was working on. At the time of Linton he had a radio that was not compatible to the fireground channels. Consequently, he had to rely on face to face contact to receive important information.²³⁷

- 18.10.23** Mr Rowan explained to the court that this system has changed since Linton. Bulldozer operators are now issued with DNRE compatible radios each fire season.²³⁸

- 18.10.24** A significant number of problems were raised by fire fighting personnel in regards to radio coverage at Linton. A brief outline of such problems will be provided below with more detailed discussion in section 18.16.

- 18.10.25** As was discussed earlier in this chapter, the DNRE experienced significant problems with channel 118 earlier in the fire. This problem was rectified by the establishment of a repeater at Cherry Tree Hill.

- 18.10.26** Problems associated with trunking radios and mobile phone coverage were apparent, as was discussed earlier in this section.

- 18.10.27** A number of witnesses recognised problems with blackspots and areas on the fireground where communications failed. One example was that offered by CFA volunteer Glen Carter, a member on the Smythesdale tanker at Linton. Mr Carter experienced a problem in communicating with tankers in close proximity to him. He further indicated that he had experienced this again since Linton.²³⁹ Carter explained the problem at Linton:

"If I could ask you about the radio communication situation. You were asked about that in your record of interview at question 302 and the question is, "What about your radio communications? Did you have any difficulty with that at all? Yeah. There's a lot of dead spots out there. Unfortunately, this whole area was riddled with 'em."

What do you mean by that?—Like a lot of brigade areas – I have since been made aware of – that a few brigade areas do suffer from, yeah – just where the traffic drops. You might be able to hear the traffic but you can't, you mightn't – like I say, I think I say in there, you could be right next to another tanker and you can't even talk to them, and yet you'll have outside traffic come in but you can't talk to somebody only 20 metres away".²⁴⁰

- 18.10.28** Other witnesses who recognised problems associated with poor coverage included Messrs Greg Leach, Trevor Roche, Peter Smithers, Ernest Welsh, and Daryl Scherger.

- 18.10.29** The CFA undertook a test of radio communications in the Linton area in December 1999 and August 2000 to assess coverage. A statement and reports regarding these tests was prepared by Mr Booth and tendered to the court.²⁴¹
- 18.10.30** Further issues were also raised in submissions. The Submission made on behalf of the Volunteer Associations also highlighted problems with resources at Linton. They were of the belief that both Ms Foy and Ms Knight required further assistance in performing their communication roles. The submission indicated that Foy and Knight were unable *“to listen to, manage and then record information as well as analyse every piece of that information some of which might be important and some of which may not. Each of the operators were in need of assistance.”*²⁴²
- 18.10.31** The United Firefighters Union recognised that the problems experienced at Linton in the communications area had occurred at past fires, particularly at the Dandenong Ranges fires of 1997.²⁴³
- 18.10.32** The CFA submitted that overall the communications structure at Linton provided good communications to and from the fireground.²⁴⁴

18.11 Training

- 18.11.1** Training of firefighting personnel in the area of communications was not an issue that received substantial coverage during the Inquests, although training in general was a major issue. A significant explanation of the fire agencies training systems is provided in Chapter 6 of this report. An overview of communications training will be provided in this section.
- 18.11.2** In the CFA there have been Standing Orders operating since July 1992 that stipulate that CFA Probationary Firefighters complete certain compulsory training courses. Standing Order 3.02 incorporated Communications training as one of these core units.²⁴⁵ This Probationary Firefighter training required the study of four hours of communication related material.²⁴⁶
- 18.11.3** Since the Linton, there has been a shift in the CFA towards the introduction of a minimum skills program. It is aimed at all volunteer and career firefighters within the organisation. Chief Officer Roche explained the system in some detail in his statement dated 23 August 2000. As part of this explanation he indicated *“minimum skills are those skills considered necessary for safe and effective operation.”*²⁴⁷
- 18.11.4** The importance of communications is recognised in the minimum skills requirement for wildfire. Mr Roche identified radio operation as one of six essential training components for minimum skills competency for wildfire.²⁴⁸
- 18.11.5** This minimum skills wildfire training in regards to radio operation involves the study of *“AFAC module 1.19 – Communication Systems.”*²⁴⁹ The CFA Operations Guidelines also contains a very brief chapter recognising key principles relating to communications.²⁵⁰
- 18.11.6** A brief outline of training procedures regarding communications within the CFA before and after Linton was provided by Mr Roche:
- “186. At the time of the Linton fire, basic firefighter training included a module on communications, which included both the technical and procedural information to enable basic understanding of radio communications. Further, part of the role of Brigade and Group Communications Officers was to address control of the radio network, the training and exercising of personnel and the maintenance of radio discipline. However, Standing Orders and Standard Operational Procedures did not set down procedures for the operation of the CFA radio network, protocols for the transmission, reception and/or recording of information by radio. Standing Order 12.01 (1/9/99) (Appendix 4) now formalises procedures in respect of PAN (“possible assistance needed”) and MAYDAY calls. And Standing Order 3.06 (in draft) (Appendix 4) establishes protocols and procedures for Red Flag Warnings (see below).”*²⁵¹
- 18.11.7** Training of DNRE personnel before Linton was based on the same National Training Modules used in the training of CFA personnel. DNRE crew members attending a fire must have at least Basic Firefighter accreditation.

18.11.8 Communications forms a part of DNRE Basic Firefighter Training. There are components of “*Teamwork and Communication*” and “*Use of Radios*.” This training involves both theory and practical demonstration on both handheld radios and fixed sets in vehicles or offices. Some of the subject matter taught includes the following:

- Demonstrate the correct method of holding and using the microphone
- Locate a trunk radio number for a specified person, vehicle or location and make a trunk call to that number
- Divert a trunk radio to another set
- Change from conventional mode to trunk mode²⁵²

18.11.9 Accreditation for higher roles, such as Operations Officer Level 1, involves more detailed training. For example, one of the areas studied for Operations Officer accreditation is AFAC module 1.19 – Communication Systems. This involves instruction in the use of the “*various radio, telephone and computerised information systems that operate within the organisation*.”²⁵³

18.11.10 There are no set procedures for training individuals performing communications officer roles at CFA base stations.²⁵⁴ In fact, there was evidence that some of these personnel receive no or little training. For instance Snake Valley Sub-Base operator Ms Foy had received no official training about her role:

“The Coroner: Have you ever heard of the existence of a written communications plan?—No.

Do you know what a written communications plan is?—No.

Have you ever received any training in relation to what to do if you receive a written communications plan?—No.

Even now?—No, sorry.

Have you received any training from the time of the Linton fire to now in relation to communications?—No.

*You still operate communications in the Linton area?—Yes”.*²⁵⁵

18.11.11 The CFA/DNRE position paper on Safe Forest Firefighting has recognised the importance of communications training. It also recognises that CFA volunteers time demands are interfering with their ability to keep pace with continual communications developments:

*“As a result the overall level of competence, particularly at large incidents, is often low”.*²⁵⁶

This problem needs to be addressed.

18.12 Modern Innovations

18.12.1 Communications technology is constantly evolving. The fire agencies are looking to such developments to improve the standard of their communications systems. The initiatives being undertaken by the CFA were outlined in a statement by CFA Communications Manager Mr Douglas Booth. He explained that the CFA was one of five emergency service agencies in Victoria involved in a state government project to improve communications. This initiative is known as the State-wide Integrated Public Safety Communications Strategy (SIPSaC Strategy).²⁵⁷

18.12.2 Mr Booth indicated that the strategy had two major restrictions in terms of meeting CFA requirements:

“The diverse interests and requirements of all of these agencies have to taken into account in developing projects as part of the strategy. This has involved and will continue to involve each of the agencies compromising on certain elements of the type of system they would be seeking if it were designed for use solely by that agency.

Secondly, the implementation of the strategy has focused substantially on the BEST CAD area.

*While systems for regional areas are included in the strategy, they have been given a relatively low priority”.*²⁵⁸

- 18.12.3** CFA Operations Officer Mr Britton described the BEST-CAD area as the “*areas bounded by Lorne, West of Geelong, Meredith, Myrniong, Woodend, Wallan, Marysville, Bunyip and Phillip Island.*” There are 230 CFA Brigades within these areas.²⁵⁹
- 18.12.4** Mr Booth recognised further difficulties for the CFA in enhancing communications beyond the scope of the SPISaC strategy. This related to the problems the CFA face in receiving funding from the State Government to implement their internally developed communication strategies.²⁶⁰
- 18.12.5** The CFA, under the SIPaC strategy, will be involved in the use of a mobile data network (MDN). MDN will involve the installation of data terminals in CFA appliances, some operational vehicles and fire stations in CFA Regions 7, 8, 13 and 14. Installation of the network should occur before 2004.²⁶¹
- 18.12.6** Mr Booth explained that the exact details regarding the facilities to be provided by the MDN are still uncertain, but identified the CFA’s main priorities in using the network as follows:
- “The CFA’s primary objective is to use the MDN for dispatch details and status reporting of appliances and to provide some inter-MDN terminal messaging capability. Thus, Brigade members in the relevant Regions will be alerted to an emergency in the usual way (an alert and dispatch message through a pager). At the same time, the CAD contractor will send out a dispatch message over the MDN and this message will be received on the mobile data terminal in the affected Brigade station and every appliance within that station. When the Brigade members board the appliance, they will push a button on the terminal to say they are responding and will do so again to indicate “on scene”. All of these messages will go back to the CAD centre”.*²⁶²
- 18.12.7** Limitations of the proposed MDN system for the CFA, which are apparent at this stage, are:
- It is restricted to BEST-CAD areas (Region 7,8, 13, & 14). Mr Booth recognised there are a number of complications with establishing a Regional MDN, and “*even if it does go ahead, it is almost certain to be limited to larger regional centres and main roads and not extend to remote areas.*”²⁶³
 - Capacity is likely to be restricted to simple text messages. Graphics and Images may take considerable time to transmit
 - Most importantly, MDN relies on UHF radio transmission, thus will face similar problems with “*blackspots*” and interference as radio communications (see Linton problems, sections 18.10 and 18.16). However, one advantage in this regard over radio communications is that the terminal will indicate if the network is “*in service.*”²⁶⁴
- 18.12.8** CFA Chief Officer Mr Roche recognised that it was likely it would be a number of years before the MDN system was implemented in regional areas. He also hinted that financial considerations may restrict the capabilities of the MDN system.²⁶⁵
- 18.12.9** Another issue raised during these Inquests related to installing a global positioning system (GPS) in appliances. GPS facilities in appliances can allow for the tracking of vehicles and identification of their location by satellite technology.
- 18.12.10** The CFA is expecting that the MDN program will involve the installation of GPS receivers in all appliances within BEST-CAD areas. This will allow, with some modifications to the MDN system, for the tracking of vehicles through the establishment of Automatic Vehicle Location (AVL) capabilities. Mr Booth explained how the system would operate:
- “However, for the CFA to use these GPS receivers to form part of a reliable AVL system that could be used for operational purposes, it will be necessary to also develop and install an AVL interface to the MDN. Such a system would be able to “poll” appliances at pre-determined intervals and, with the assistance of appropriate software and mapping applications, to plot the location of appliances. The regular polling of appliances can take up network capacity so the frequency of polling would need to be carefully determined and monitored”.*²⁶⁶

18.12.11 Mr Booth recognised two main problems in establishing a system involving AVL:

- For the system to work a MDN or similar network is necessary. Otherwise, a system relying on the use of GPS alone raises a number of difficulties:

"Although the GPS units themselves are not expensive, there would be significant expense associated with an on-board device for each vehicle capable of transmitting data back to a satellite, fees for transmitting data via satellite, and purchasing and developing the computer equipment and applications necessary to collect and process the data".²⁶⁷

- Even if the MDN is in place, enhancements will need to be made to the MDN to allow for effective vehicle location data. This will require additional funding that has not been allowed for as a part of the SIPSaC strategy.²⁶⁸

18.12.12 During these Inquests Snake Valley Brigade Captain Mr Peter Smithers described a Global Positioning System being devised for usage in CFA appliances. Smithers explained the system:

"Arising out of the experience of this fire, and your experience in the northeast, have any positive lessons or developments come out of this for you?—Well, we've taken a couple of initiatives within our own brigades to fit GPS units in both tankers, I am working with another chap in Melbourne, a computer programmer, we have a trial program running of a satellite tracking system for our tankers which will indicate the water level and speed, the channel the radio is operating on and whether there is a driver sitting in the driver's seat, which we hope to have operating in both our tankers by Christmas time.

The Coroner: Is that pilot scheme operated with the consent of the CFA?—No.

Do you know of it being trialed anywhere else in the State?—No".²⁶⁹

18.12.13 Mr Booth indicated he had discussed this system with Smithers. Booth was of the belief that the system could be trialed by the CFA, but identified some key components that would need to be established for it to function effectively:

"Although as a concept for a single vehicle or a few vehicles only, the system is feasible, experience overseas with such systems indicates that an overall system design, including adequate radio network capacity, is needed to reliably provide service to the large number of vehicles normally involved at wildfires. Integral to the utility of such a system is reliable mapping information at a sufficiently detailed scale for all possible areas of deployment".²⁷⁰

18.12.14 Two DNRE witnesses during the Inquests also raised the use of GPS's in appliances. Messrs Scherger and Fullerton believed that newly built DNRE appliances would contain GPS facilities.²⁷¹

18.12.15 One of these vehicles, with GPS installed, was viewed during the inquest field trip to the CFA training facility at Fiskville.²⁷²

18.12.16 DNRE made no submission concerning these GPS developments.

18.12.17 Mr Britton gave evidence in relation to another step that has been taken by the CFA (in Region 15) in attempting to overcome some of the limitations encountered at Linton. This involves the use of satellite equipment to overcome facsimile problems:

"—There has been some work done on additional telephone lines into some of these, the more key ICCs that could be used at Level 2, or certainly Level 3. Region 15, as far as the forward operations point is concerned now, has a portable fax machine that can be used in conjunction with a satellite phone. That's only come on line since late 1999.

That's a satellite phone as opposed to digital or CDMA?—That's correct".²⁷³

However, Mr Britton recognised some limitations with this new equipment. The machine only seems capable of transmitting short and non-complex faxes. Britton indicated that large faxes caused the transmitting process to become lengthy and even "time out." ²⁷⁴

18.12.18 Mr Britton described further initiatives in the CFA relating to satellite facilities:

“What about general communications on satellite phones, has that been explored?—As part of the Y2K preparedness across the State the CFA provided a fixed satellite phone into each regional headquarters and also a mobile satellite phone in each regional headquarters as well. I suppose if all else fails, there is the ability to communicate using both the fixed phone at regional headquarters and also the mobile phone”.²⁷⁵

- 18.12.19** Another innovation raised during the Inquests as a possible method of improving the standard of the fire agencies communications was Bluetooth Technology. Bluetooth Technology is a form of wireless voice and data technology.²⁷⁶ Mr Booth provided an example of how Bluetooth can operate:

“It is particularly suited to mobile communications devices such as mobile phones and palm top and notebook computers because it eliminates the need for cumbersome cable connections to printers and scanners and between devices. Thus, for example, it provides a simple way wirelessly to send pages from a notebook computer to a printer or to hook up to the internet by connecting wirelessly with a Bluetooth-enabled cellular phone”.²⁷⁷

- 18.12.20** Mr Booth recognised that Bluetooth Technology was designed to operate over distances of approximately ten metres. Consequently, the CFA is not assigning high priority to the use of the technology. Booth identifies their highest priority being that in the area of long distance communications, thus they are focussing on initiatives in this area such as the MDN.²⁷⁸

- 18.12.21** Finally, other communications initiatives being undertaken by the CFA are the study of “blackspots” in areas outside of the BEST-CAD regions and analysis of BEST-CAD areas is also being undertaken.²⁷⁹

- 18.12.22** As a result of these studies undertaken in all 16 Regions outside of BEST-CAD, the CFA plans to establish a number of base stations within the Regions to improve coverage.

- 18.12.23** The Submission made on behalf of the CFA recognised that the CFA’S current priorities in enhancing communications are as follows:

- Obtaining the funding for installation of base stations
- Ensuring the MDN and GPS initiatives are extended to Regional areas
- Upon successful implementation of the MDN, introduce a text-based communication system.²⁸⁰

- 18.12.24** There was limited evidence heard during the inquest concerning DNRE communications innovations and technological developments. However, DNRE did tender a short document relating to computer technology advances. The document was entitled “*Fire Related Computer Technology Advances in NRE*” and related to the DNRE’S development of the “*Integrated Fire Information System*” (IFIS).²⁸¹ It was produced to the court on 14 December 2000.

- 18.12.25** IFIS is not a method of communication to be used in the same fashion as the current radio network. It is essentially a computer based information system that appears to be aimed towards management. A strategy for the development of IFIS was developed in 1998. The objective of the strategy is “*to be able to collect, manage, and deliver quality fire information to those who require it, and importantly to be able to do this in a reliable, effective and efficient manner.*”²⁸²

- 18.12.26** The major component of IFIS will be FireWeb, a user application located on the DNRE web site. FireWeb will allow vital fire-related information to be accessed. A number of the key roles that will be played by FireWeb were identified by the DNRE:

- “*access to Bureau of Meteorology enhanced weather products such as radar (for tracking of storms) and lightning detection mapping;*
- *enhanced resource (firefighters, vehicles, plant and equipment) management for which deployment and details of items/people deployed are available;*
- *mapping facility based on both 1:25,000 and 1: 100,000 scale. The map bases are also available on CD and have been widely distributed within NRE;*
- *ability to display location of aircraft resources, together with details of flight path and speed;*

- a repository of relevant Fire Management documents, including instructions, guidelines, forms, scientific reports and publications;
- a means of live entry of fire reports and situation updates together with access to a statewide picture of active fires and their details;
- a means of entering prescribed burns and display of active burns;
- reporting mechanisms to allow interrogation of wildfire, burns and resources; and
- a means of dissemination of important statewide fire messages.”²⁸³

IFIS is in its final stages of development.

- 18.12.27** An apparent limitation of the system is that internet access is required,²⁸⁴ thus the use of the system at wildfires will be dependent upon the characteristics and facilities available at each fire.
- 18.12.28** The DNRE made no direct submissions regarding communications innovations.
- 18.12.29** The problems faced in regards to financing communications innovations was recognised once again by both the CFA and DNRE. In the August 2000 joint position paper, the agencies make the following statement in regards to communications technology:

*“Communications technology can be very expensive. In some cases product life may be short, or providers may exit a product or service with insufficient time to plan for a product replacement”.*²⁸⁵

18.13 Hardware

- 18.13.1** A variety of communications hardware is used by the fire agencies at operational and management levels.
- 18.13.2** The major hardware utilised by CFA firefighting personnel consists of three forms of radio equipment. Arson Squad Detective Sgt. Brad Daley in a report he compiled concerning communications described their systems:
- “The C.F.A currently use a VHF (Very High Frequency) simplex radio in C.F.A vehicles and a HF (High frequency) radio as a redundancy system. An SMR (State Mobile Radio) with trunking facility is also utilised which is predominantly used by command. These radios are either fixed units within a vehicle or hand held.”*²⁸⁶
- 18.13.3** DNRE operational personnel have a similar set-up to the CFA, with simplex and trunking facilities available.²⁸⁷
- 18.13.4** As was discussed in the Introduction to this Chapter, there are approximately 160 channels available for CFA and DNRE use. The CFA can use channels 1 to 110 whilst the DNRE have available channels 110 to 160.²⁸⁸
- 18.13.5** At management level, such as in the IMT and Forward Operations Point, both agencies will use equipment such as telephones, computers, and facsimile machines. This will depend on the location of the management team and the facilities available.
- 18.13.6** As discussed in section 18.7 of this Chapter, the DNRE also have mobile repeaters available if required. Repeaters are used to increase the quality of communications.²⁸⁹ A mobile repeater was used at Linton to improve the standard of its communications.
- 18.13.7** At Linton, it was apparent that some of the CFA personnel performing key roles, such as strike team leaders or group officers, had two radios available to them. This generally consisted of a fixed radio within their vehicle and a mobile radio to carry around with them whilst away from the vehicle.
- 18.13.8** For example, Geelong Strike Team Leader Scharf had a fixed radio in his command vehicle operating on what he believed to be the command channel, whilst he carried a mobile radio fixed on his strike team’s “go to” channel.²⁹⁰

- 18.13.9** There was evidence that other CFA volunteers, such as Messrs Peter Smithers, William Millar, Leigh Buckley, Alwyn Parker, and John Taylor, were using two radios at Linton.²⁹¹ All of these personnel were fulfilling strike team leader or command positions at the fire.
- 18.13.10** There was also evidence that other CFA personnel fulfilling important roles at Linton had access to just one radio. This was the case with DGO Kavanagh, who explained the problems this situation created:
- “Mr Pitcher has given evidence before the inquest that fairly early in the fire he met you and that you were having some sort of trouble with your radio, was that about the time when the battery went flat on your scanner?—No, that would mean that I was, because I only had one radio, they were in a different region with a different frequency and different channel and I wanted to hear what was being said from that and I asked if he could stay by me, or we work together.*
- Yes?—For that reason, because I only had one radio.”*²⁹²
- 18.13.11** DNRE Officer Peter Keppel encountered a similar problem to Pitcher’s. Keppel was responsible for DNRE operations in the south east sector of the fire and had only a fixed radio available to him for the majority of the time. This was because he had given his portable radio to the Forward Operations Point to boost the hardware available within the Shire Office.²⁹³
- 18.13.12** The evidence suggests that the majority of DNRE personnel at Linton also had access to two radios. In some cases, this consisted of two fixed radios in vehicles, which were capable of operating on both simplex and trunking functions. In other cases DNRE personnel may actually have portable radios as well as a fixed radio. DNRE Fire Management Officer Brad Mahoney gave a brief outline of this:
- “N.R.E. use Motorola M.C.S. 2000 in fire vehicle and offices, with trunking and conventional capabilities. These radios can only operate in either trunking or conventional mode. Some of our vehicles are fitted with two radios, so both systems can be monitored. These are usually fitted into Operations officers or Sector Commanders vehicles. As a general rule most of our vehicles are only fitted with one radio. We also use hand held radios MTS 2000 these also operate in either trunking or conventional mode. I believe we have 160 operational radio channels available in conventional mode, some are repeater channels, some are simplex.”*²⁹⁴
- 18.13.13** Among the DNRE personnel who used two radios at Linton were Messrs John Searby, Murray Fullerton, and Daryl Scherger.²⁹⁵
- 18.13.14** While it is evident that a number of personnel had access to portable radios as well as fixed radio systems, a number of problems were recognised with portables and the trunking system. As discussed in section 18.10, problems with trunking coverage around Linton have been recognised by various witnesses involved in the fire. A further problem was recognised by Mr Scherger. Importantly, this problem occurred when he was walking the eastern flank and was out of visual contact with all other firefighting personnel for some time. During this walk he was reliant on a DNRE portable radio for communications. He described what occurred when answering questions from the Coroner:
- “...Tell me, did you go out without a radio for your walk?—No, I had a portable radio with me which was on the simplex channel that my crew were using.*
- Did you receive any communications on that when you were walking around the bush?—No, strangely, Your Worship, I didn’t.*
- What do you mean “strangely”?—Normally there is chatter on the radio but during the time that I had basically gone over the hill and down into that gully, after I was talking to the crew I really didn’t get any more chatter on the radio until I was nearly back to where my crew was. I have no explanation as to why.”*²⁹⁶
- 18.13.15** DNRE, in their submission, conceded that there are problems with the operation of trunking radio in emergency situations.²⁹⁷
- 18.13.16** It is also evident that personnel at fires will often make use of mobile telephones to communicate with various sources.²⁹⁸

- 18.13.17** At Linton, a number of personnel attempted to use, or did use, mobile telephones to communicate. For example, DGO Millar used a mobile telephone to contact Beaufort headquarters and DGO Wyllie indicated that he had originally been informed of the fire via mobile telephone.²⁹⁹
- 18.13.18** However, as has been recognised with trunking radio, there are usually considerable problems encountered with mobile telephone coverage in wildfire regions.³⁰⁰ This was certainly the case at Linton, with only a few reports of successful mobile telephone communications. A number of witnesses identified difficulties in the Linton area in mobile telephone operation.³⁰¹
- 18.13.19** Mr Britton, Forward Operations Officer during the Linton fire, recognised that some improvement has now occurred at Linton in regards to mobile telephone coverage. Coverage is now wider due to the installation of towers by Telstra in the Linton vicinity.³⁰² As discussed in section 18.12, the capabilities in Region 15 have been further increased by the availability of satellite equipment.
- 18.13.20** The agencies utilised several other forms of communication within the various fire control divisions that were operating during the fire. The most important of these were the IMT in Ballarat, CFA Region 15 headquarters in Ballarat, and the Forward Operations Point, incorporating the Staging Area and MCV, situated in Linton.
- 18.13.21** Apart from the same simplex and trunking radios and corresponding channels being used on the fireground, these bodies used other hardware. The most significant of this equipment consisted of landline telephone facilities, facsimile machines, and limited computer usage.
- 18.13.22** Landline telephones were used for communications between a number of areas. The IMT, forward operations point, Region 15 headquarters, the various communications sub-bases, and MCV all used telephones to some degree. For example, the MCV telephoned the forward operations point on occasions.³⁰³ Ms Foy spent significant time in the Snake Valley sub-base answering telephones.³⁰⁴ There was a significant amount of evidence indicating that the IMT and forward operations point regularly used telephone facilities to communicate with one another.³⁰⁵
- 18.13.23** CFA Risk Manager Kevin Brown, while working from Region 15 headquarters, was also using the telephone to organise resources from a number of regions to attend the Linton fire.³⁰⁶
- 18.13.24** There were some initial difficulties with the telephone connection between the forward operations point and the IMT in Ballarat. This made communication between the two points difficult until around 5.00pm when Telstra installed additional telephone lines.
- 18.13.25** Facsimile machines were also used in various areas. The main information transmitted by facsimile was weather information and situation reports on the state of the fire. The most significant use of facsimile machines occurred in the Forward Operations Point and IMT. However, there was also limited use of these facilities in other areas, such as the MCV and Snake Valley sub-base.³⁰⁷
- 18.13.26** The IMT was faxing weather information to the Forward Operations Point.³⁰⁸ They were also faxing situation reports to CFA headquarters situated in Burwood, Victoria.³⁰⁹ The IMT was also receiving weather information via fax from the Bureau of Meteorology from approximately 2.12pm onwards. These faxes generally took the form of Spot Fire Forecasts and Wind Change Charts.³¹⁰
- 18.13.27** CFA Region 15 headquarters in Ballarat were also faxing weather information to the Forward Operations Point. CFA employee Kylie Lampard provided a detailed statement regarding the information that was faxed from Region 15. Much of this information consisted of RAWs printouts.³¹¹
- 18.13.28** The Protective Equipment Van situated at the Staging Area at the Linton football oval had a facsimile machine that would not function on the day of the fire. One of the personnel operating at the Staging Area, Mr Ian Westwood, gave this account of what occurred in regards to the faxing equipment:

“The fax machine dropping out, what facilities did you lose because of that?—The ability to be able to communicate with the region, the incident management team, we managed to get...

How did you get around the problem of the fax dropping out when you were at Linton?—As in wanting additional resources, food, et cetera, we worked through the control vehicle.

*In the same way with the portable phone dropping out, did you link up direct radio communication through channel 20, I think it was with the MCV?—That is correct”.*³¹²

18.13.29 Computer equipment was also used for information gathering and communication during the Linton fire. Region 15 headquarters and the IMT made the most significant use of computer facilities.

18.13.30 Region 15 headquarters were using computers to gather weather information from the CFA remote automatic weather stations (RAWS). This data provides regular updates of weather conditions in areas around Victoria where these weather stations are located (see Chapter 19 of this Report for more detail). Evidence from Ms Kylie Lampard was that this information was accessed via computer and printed on at least 35 occasions during the fire.³¹³

18.13.31 IMT computer usage was similar to that of Region 15 headquarters. Planning Officer Peter Boadle provided an explanation of what was occurring within the IMT in this regard:

“Before you go on I will ask you if you can expand on that. What sort of weather information was available to you by computer?—On FIRE(?), which is the computer program we use, we have access to Bureau of Met information, that has automatic weather station data, and also provides, obviously, current temperature, humidity, wind strength, wind direction information.

*Were you accessing that from the IMT on the day of the Linton fire?—The planning group was, not me personally”.*³¹⁴

18.13.32 The Forward Operations Point at Linton did not use any computer equipment.³¹⁵ The problems created by this lack of access on the fire ground were recognised in comments made by Mr Britton when answering a question from the Coroner:

“Is that possible, having field access?—I heard Your Worship make a comment on the first day at Geelong when I happened to be in the court. I believe a real issue in this day and age is we really need to have a look at the means of using modern technology to both send data and information both from the IMT and down to the field, but also to get some of that critical information back from the field to the IMT.

And to know exactly where your resources are, where your tankers are and what position they are on a particular map?—I totally agree. I believe NRE are doing some work on that at the moment. I believe the CFA should be looking at it as well.

*Are they?—I am not aware of whether the CFA are looking at that within NRE. My personal view is that we really need to be looking at the use of whatever technology is available to do that”.*³¹⁶

18.13.33 There were limited submissions made in relation to communications hardware.

18.13.34 The Firefighters Union made a short submission in the area of hardware, this being a recognition that problems with communications can in part be addressed by the implementation of appropriate systems. However, the submission stipulates that such systems must be supported by “disciplined radio use, adequate training, and basic radio procedures such as requiring acknowledgements.”³¹⁷

18.14 CFA/DNRE Interaction

18.14.1 The evidence from the Inquests demonstrated that at Linton the CFA and DNRE were operating under separate communication plans. Consequently, the agencies were operating on different radio channels. This separation of communications between the agencies appears to have been approved and accepted as appropriate by key command personnel operating at Linton.

18.14.2 DNRE Operations Officer at the Linton Forward Operations Point, Mr Graham, indicated he was controlling DNRE communications and he delegated CFA communications control to CFA personnel Anderson and Britton.³¹⁸ Furthermore, Graham gave the following explanation as to why one channel for both agencies was inappropriate at Linton:

"I think you said ideally you would do what the multi-agency agreement says, and that is put all, both agencies on the one channel and combine the whole lot together?—Yes.

That's the ideal world. You saw the communications plan that evolved on that day as being a practical way of delivering communications to the field?—That was my best choice on that day. If we had some other choice we would probably have tried the one channel, but we didn't have anyone to control the channel who could hear everybody and control the traffic to use one channel".³¹⁹

18.14.3 CFA officers Messrs Anderson and Britton agreed that they were responsible for overseeing CFA operations, including control of communications functions.³²⁰

18.14.4 The Incident Controller, Mr Leach also indicated that it would not be unusual for agency based communication infrastructures to be used in a multi-agency incident.³²¹

18.14.5 The CFA used a variety of channels, four in particular were relied upon across the fire ground. Region 15 personnel generally operated on 15A (67) and 15B (68). Region 16 personnel made significant use of 16A (72) and 16C (74). Meanwhile, the DNRE used channel 118 early in the fire. From approximately 6.50pm the DNRE operated on channel 126.

18.14.6 The CFA and DNRE did have the capacity to operate on the same channels at Linton. For example, all personnel can operate on the same simplex channel and interact with one another. However, trunking facilities are more limited, in that the system is designed to contact specific numbers. In other words, trunking does not provide the wide ranging shared access that simplex systems can.³²²

18.14.7 The situation at Linton, where communication responsibilities were handled by the individual agencies, was an issue of some significance during the inquest. In particular, there was debate regarding the agencies joint *"Multi Agency Incident Management Agreement"* that was in existence at the time of the fire. This states that:

"The incident communications plan is to be incident based and not agency based".³²³

18.14.8 The CFA indicated that there were valid reasons for segregation of CFA and DNRE communications at Linton. The CFA submitted:

"Although, under the multi-agency incident management agreement (Exhibit 52, clause 12) it was contemplated that the incident communications plan be incident based and not agency based, NRE and CFA appliances were kept on separate channels in order to avoid congestion (Mahoney, statement page 666, T7703: Graham, statement page 524). This plan enabled each agency to utilise its infrastructure to communicate with strike teams".³²⁴

18.14.9 The DNRE submission addressed this dilemma by indicating that at the time of Linton the arrangement of each agency using their own communications processes was *"general practice and hence the agreement between the agencies"*.³²⁵

18.14.10 The other parties made only brief references to this area of communications. The submission lodged on behalf of the United Firefighters Union indicated that communications should have been integrated in line with AIIMS-ICS principles and the Multi Agency Agreement.³²⁶

18.14.11 While the submissions made by the CFA and DNRE seem to accept that separation of communications was appropriate at Linton, it is obvious both agencies view this process as creating a number of dilemmas for fire ground operations.

18.14.12 This is demonstrated by the agencies joint position as of August 2000. This recognises that as at November 2000 the following scenario is an objective:

"CFA and NRE will have a single joint communications plan for all multi-agency incidents".³²⁷

18.14.13 This was also identified as an issue before Linton, with a number of references and recommendations made to joint communications procedures in the 1997 FAI Final Report. For example, the following points formed part of the action statement for Phase One of the report:

- *“Endorse a generic communication planning guidelines for use*
- *at State, Regional and field joint incidents. Regional personnel*
- *develop local joint plans based on guidelines which portray simple*
- *increasingly complex incident types.*
- *Implement common labelling of radios and a common set of*
- *conventional frequencies”.*³²⁸

18.14.14 Mr Britton recognised that many of the FAI principles and recommendations had been taught to Region 15 personnel before the Linton fire, but only a brief overview of FAI had occurred within Region 16.³²⁹ Roche supported this view through his statement, but recognised a limitation regarding the progress of implementing FAI initiatives:

*“The steps taken in response to the recommendations and, in particular, the associated training, had not penetrated far enough in the 12 or so months between the date of the FAI Project recommendations and the time of the Linton fire”.*³³⁰

18.14.15 There is strong evidence to suggest that universal communication principles should be a highly desirable priority for fireground operations. The separation of communications at Linton lead to different methods of dissemination of information to fireground crews. For example, as discussed in earlier chapters of this report, there appeared to be a significant difference between the agencies in the communication of the Wickliffe wind change message. The DNRE, through Mr Graham, took extra measures to ensure this information reached their crews, whilst the CFA, through Anderson and Britton, relied on a general broadcast on CFA channels.

18.14.16 Mr Graham actually contacted his leaders directly to pass on the message. He gave the following account of what occurred:

“Why did you endeavour to contact Mr Scherger direct and speak to him rather than just put out a general message?—Because I wanted to ensure that the two sector commanders had the message and that it was their responsibility to get it to their crew.

Why did you want to ensure that they got that message about the wind change?—Because it was important, an important safety consideration.

Why was it an important safety consideration?—I wanted them to know that there was a wind change coming which was going to affect fire behaviour.

*Is it because the position that they were at on the eastern flank was, with the arrival of that wind change, the most dangerous position on the fire line at that time?—In Mr Fullerton’s case, yes, in Mr Scherger’s case, yes as well”.*³³¹

18.14.17 Meanwhile, the CFA were disseminating the same information via general broadcast on CFA channels. The MCV were not asked to seek acknowledgements and it appears the same attention given to the information by Mr. Graham was not forthcoming from the CFA forward operations point personnel. This discussion demonstrates the danger in operating on different communication infrastructures at fires. One agency, being the agency more experienced in wildfire settings, has taken more precautions in disseminating information than the other agency.

18.14.18 In addition, the responsibilities of a Strike Team Leader include:

- *“Monitor work progress*
- *Co-ordinate activities with adjoining resources”*³³²

18.14.19 At Linton, on the east flank there was a DNRE crew working north from the cemetery and the Geelong Strike Team working South from Possum Gully Road. The two teams were to meet up in the construction of the control line, which at the time was the most critical job to be completed before the predicted south westerly wind change. There was concern whether or not that linking up would be completed before the wind change arrived.

- 18.14.20** In the circumstances it is self evident that liaison and good communication between the two teams working the east flank was essential. Given that:
- There was not a single communication plan for the fire ground;
 - No communications plan incorporating DNRE was given to fireground personnel; and
 - DNRE changed channels in the course of the fire,
- no such liaison and communication was possible. This has the potential to affect the safety of people on the fireground.

18.15 The Communications Plan

- 18.15.1** Issues surrounding the formulation and production of a communications plan, particularly a written communications plan from the IMT, received significant attention during the Inquests. They have been considered in detail in Chapter 15 and other parts of this Report.
- 18.15.2** The evidence in these Inquests demonstrated clearly that a written formal communications plan was never compiled by the Logistics section. Neither did the Planning section play any role in producing such a plan. In fact, such a plan was never produced by anyone in the IMT.
- 18.15.3** The importance of a communication plan had in fact been highlighted some time before Linton, through the 1997 FAII recommendations. A significant point recognised in the FAII report was:

*4.2 A communications plan shall be prepared for each incident where an incident control centre is activated. The format for the presentation of such a plan shall be as laid out on the attachment (Appendix 1)*³³³

Appendix 1 to the FAII Report set-out 10 elements to be contained in this communications plan.³³⁴

- 18.15.4** The Agencies' joint position paper, "Safe Forest Firefighting," further highlights the importance of communication plans. There are various references to this area, including recognition that work is needed on production of written plans and in reinforcing the responsibilities of a communications unit under AIIMS-ICS principles.³³⁵

- 18.15.5** The Agencies' commitment to Safe Forest Firefighting principles is reiterated within their submissions.³³⁶ In particular, the DNRE made the following point:

"V INCIDENT ACTION AND COMMUNICATION PLANS (18.15)

*As set out in Safe Forest Firefighting Agreement both agencies have a strong commitment to both these essential plans being produced in written form and being available to all command personnel (including crew leaders), at the earliest opportunity".*³³⁷

- 18.15.6** Conclusions in relation to the failure to produce a communications plan as required under AIIMS-ICS and its implications to the fire that was Linton have been dealt with in Chapters 14.5 and 15.

18.16 Coverage

- 18.16.1** There was conflicting evidence before the Inquests regarding communications coverage in and around Linton. This section will focus on radio communication coverage around the fire ground. Coverage relating to mobile telephones and fixed telephone lines have been discussed in some detail earlier in this Chapter.
- 18.16.2** Most CFA and DNRE witnesses were questioned regarding communications. The reports regarding coverage and clarity of messages were mixed. It is also evident that problems identified by witnesses relating to coverage may be interlinked with issues of radio congestion. The lack of clarity or lack of response to transmissions may be caused by radio over use. As was recognised in section 18.8 of this Chapter, personnel may not hear transmissions at all, or only hear them in part, if another two-way conversation is occurring on their radio frequency.

- 18.16.3** A number of fireground personnel indicated that they encountered no significant problems relating to radio coverage and reception. Among those witnesses to acknowledge this were Ms Foy, Ms Knight, Messrs Millar, Searby, Pitcher and Parker.³³⁸
- 18.16.4** An example of the evidence of these witnesses is that of DGO Parker regarding Region 16 channels he was monitoring:
- “Do you recall having any difficulty hearing messages over either of those channels?— I didn’t have any radio communications problems at all”.*³³⁹
- 18.16.5** However, there were also a significant number of firefighters who indicated they experienced problems with coverage or in receiving radio transmissions. They included Messrs Millar, Smithers, Chirnside, Carter, Stewart, and Kavanagh.³⁴⁰
- 18.16.6** By way of example, lack of coverage linked to topography was raised as an issue by CFA volunteer Mr.Simon Chirnside:
- “The point I am making is you assumed other people were having success in communications but you don’t know for certain?—I am sure their radios were functional.*
- What you are unable to say, of course, is whether or not they were functional at all times and at all places?—I understand. I mean, there were certain areas within the terrain where the radios did not function properly but it seemed to be apparent in our area the DGO in his mobile and the Pura tanker and the various other tankers around there had good reception, they were able to work, maybe because they were working on the western side of the hill and they had good communication to Westmere base, but if they went over the brow of the hill the communication may have dropped off”.*³⁴¹
- 18.16.7** There were clearly problems relating to trunking coverage and DNRE channel 118 in the earlier stages of the fire. These issues have been adequately covered earlier in this Chapter.
- 18.16.8** There is clear evidence that problems with communications coverage are commonly encountered in wildfire settings. A number of experienced and key firefighting personnel provided evidence about this.
- 18.16.9** CFA Chief Officer Trevor Roche identified the problems that can be encountered regarding coverage during his evidence:
- “Even if you have an area, a physical area which could be described as a black or brown spot, it would be within that area that some tankers will still receive a message whereas others are affected by the black spot and don’t?—Absolutely. I mean VHF communication in – VHF spectrum, that is one of the things that happens with it.*
- You can be in a location where you can receive information, you can shift a foot and not receive that information, or vice versa. That is one of the peculiarities, I guess, of that spectrum”.*³⁴²
- 18.16.10** Similar difficulties had been encountered by Messrs Leach, Graham, and Ferguson at wildfires prior to Linton.³⁴³
- 18.16.11** Concerns with radio coverage at Linton led the CFA to conduct a series of tests in the area after the fire. Mr Roche described the background to the first of these tests:
- “As a result of concerns raised about problems with radio reception in some areas of the fireground on the day of the Linton fire, I commissioned a report from CFA’s communications department on reception in the area. The testing was done on 19 December 1999 by Ian Powell, Manager Major Projects, Communications, under the supervision of CFA’s communications manager, Doug Booth. The report was completed in May of this year”.*³⁴⁴
- 18.16.12** This report, along with an explanatory statement from Mr Booth, was tendered during the Inquests.³⁴⁵ Booth provided an outline of the reports produced regarding communication testing:

“The CFA Communications Department has prepared or commissioned reports commenting on issues arising in relation to the Linton fire as follows:

- (a) CFA COMM-REP-012-I Radio Coverage Report dated 30 May 2000 (being the report already provided to the parties in the Linton Inquest);*
- (b) CFA COMM-REP-009-1, the Test Plan for the testing in the report referred to in (a) above;*
- (c) Report by Mingara Services entitled “CFA Radio Testing – Linton Area Radio Coverage Report Review” dated 4 July 2000. This is a review by a firm of independent communications consultants into the CFA’s Radio Coverage Report(referred to in (a) above);*
- (d) CFA COMM-REP-029-2 Test Report Summary – Linton Radio Testing. This report summarises the results of CFA’s Radio Coverage Report (referred to in (a) above) and also contains an Annex that refers to some of the theories on the effects of smoke and fire on radio reception”.³⁴⁶*

18.16.13 The tests involved base, mobile, and portable radios. A brief outline of the specific tests are as follows:

- *“Grenville Group base radio to/from mobile radio*
- *Grenville Group base radio to/from portable radio*
- *MCV to/from mobile radio*
- *MCV to/from portable radio*
- *Mobile radio to/from mobile radio*
- *Portable radio to/from portable radio: and*
- *Mobile radio to/from portable radio”³⁴⁷*

18.16.14 The location of the tests were listed and identified on a map of the fire area contained within the Test Plan.³⁴⁸ The majority of the test locations were located within the fire perimeter from the Pittong Snake Valley Road to an area just south of the Possum Gully Road.

18.16.15 The testing took place on 14 December 1999. Comprehensive test results were provided within the Radio Coverage Report.³⁴⁹ In summary, the results indicated that radio coverage within the test areas was generally good:

“The testing indited no significant radio communications problems resulting from coverage deficiencies from radio bases for receiving test locations relevant to this incident The tests also indicated that radio communication between mobile and handheld radios was generally reliable – providing appropriate radio equipment was used for the relevant operational task, and account taken of the known effects of terrain. The overall effectiveness of radio communications may have been enhanced by the involvement at the incident of CFA Communications personnel – to advise on relevant communications issues. This would have minimised any desensitisation of MCV radios and provided the most effective coverage over the fire ground possible on the greatest number of relevant channels”.³⁵⁰

18.16.16 Evidence was provided by several witnesses as to the effectiveness of the MCV in providing improved radio coverage across the fire ground.³⁵¹

18.16.17 Likewise, the role of aircraft in improving communications coverage was recognised.³⁵² An example of this was demonstrated in the evidence of DGO Chapman, when asked about a wind change message broadcast from aircraft:

“How is it that you are so confident that those 10 other tankers heard this wind change message?—You have an aircraft 4000 feet in the air, he boomed into where I was, he would boom into every tanker, no question, and reports have shown since that that was the case.

The Coroner: When you say “boomed into”?—A very good signal, Your Worship”.³⁵³

18.16.18 The submission of the CFA indicated that the following three communication mediums in particular provided good communications throughout the fire ground:

- “The mobile communications van
- The Grenville Group sub-station
- Snake Valley sub-station”³⁵⁴

18.16.19 Additional communications testing was undertaken at Linton on 3 August 2000. This testing focussed on Sludge Gully, the area in which the Geelong Strike Team was working on the night of the tragedy. Mr Booth provided a brief outline of the testing and subsequent report produced:

- (f) *CFA COMM-REP-031-I Supplementary Radio Testing – Sludge Gully Area. This report summarises the test procedures and the results of the recent testing of radio reception every 10 metres down the dozer trail, from the point where the trail intersects Possum Gully Road to close to the entrapment site, as requested by Counsel Assisting the Coroner in this Inquest. The spreadsheets appended to this report have already been provided to the Coroner and all of the parties in the Inquest.*
- (g) *The Test Plan for this testing, CFA COMM-REP-030-I Linton Radio Coverage (Supplementary Tests) explains the test process and equipment configurations in detail.*³⁵⁵

18.16.20 The testing involved 52 locations along the eastern flank dozer line beginning from Possum Gully Road and heading south to the entrapment site.³⁵⁶ A general outline of the testing procedure was as follows:

- “MCV in the Linton township to/from a mobile radio in a vehicle on the bulldozer track between Possum Gully Road and the Sludge Gully entrapment site:
- MCV in the Linton township to/from a hand-held radio on the bulldozer track
- between Possum Gully Road and the Sludge Gully entrapment site: and
- Various mobile radio positions on the bulldozer track south of Possum Gully Road to a mobile radio at the Sludge Gully entrapment site”.³⁵⁷

18.16.21 Tests were conducted with two different types of antenna fitted to the mobile communications van. The antennas utilised were as follows:

*“radio with 3dBd antenna mounted on a 5.2 m mast on roof of MCV (best case); and radio with unity gain antenna on roof of MCV (worst case)”.*³⁵⁸

These antennas were fixed to the MCV on the day of the fire, but it is unclear which antenna transmitted important messages such as the Wickliffe wind change message.³⁵⁹

18.16.22 Generally, the results indicate that coverage along the dozer track in relation to a vehicle radio was reliable, with adequate to good reception. In relation to hand-held radios, the results generally indicated transmissions were perfectly readable or readable with practically no difficulty.³⁶⁰

18.16.23 However, analysis of the results in accordance with antenna configuration and the medium of hardware transmitted to indicate some significant problem areas (in terms of receiving reliable radio signals) along the Sludge Gully eastern flank region. The following is a summary of these problem areas:

“3dBd Antenna to Test Vehicle

<i>Test No.</i>	<i>Approximate Location</i>
<i>C56</i>	<i>Five metres south of intersecting track at 465 metre mark</i>
<i>C49</i>	<i>South-eastern extremity of turn-around point at 400 metre mark</i>
<i>C26</i>	<i>On dozer track about 10 metres south of Police ‘150’ metre mark</i>

Unity Gain Antenna to Test Vehicle

<i>Test No.</i>	<i>Approximate Location</i>
<i>C54</i>	<i>At or near junction with intersecting track at 465 metre mark</i>
<i>C49</i>	<i>South-eastern extremity of turn-around point at 400 metre mark</i>
<i>C50</i>	<i>Ten metres south east of turn-around point</i>

C29 On dozer track about 5 metres south of Police '200' marker
C15 Sixty metres south of Possum Gully Road, just below rise

3dBd Antenna to Hand-held Radio

No major problem areas

Unity Gain Antenna to Hand-held Radio

Test No. Approximate Location

C44 On dozer track about 5 metres south of Police '350' marker

C37 On dozer track about 16 metres north of Police '300' marker³⁶¹

Note:

Inbound Test Results (transmissions from the dozer track to the MCV) were not included in this report.

References to metres indicate the number of metres south of the commencement of the dozer track from Possum Gully Road.

*References to Police markers refer to cards placed on the track by police during their investigations (these can be seen on the police photographs and video re-enactments)."*³⁶²

18.16.24 It is also to be noted that there were a number of other areas in relation to the Unity Gain Antenna transmissions to both forms of radio where there was marginal or poor quality radio reception.³⁶³ However, these areas were not considered significant enough by the CFA to be identified as locations problematic for reliable radio signals.

18.16.25 While the tests undertaken by the CFA provide an indication of the coverage in and around the Linton area, there are a number of limitations evident regarding the test conditions. These include:

- Different weather/atmospheric conditions during the tests compared to that experienced during the fire. For example, the testing can not account for the possible effect that smoke can have on radio reception. A number of witnesses were of the opinion that the effectiveness of transmissions can be affected by smoke and fire.³⁶⁴ However, Booth indicated that the scientific evidence in this regard was inconclusive, and was of the opinion that *"there is no basis for suggesting that the atmospheric conditions apparently present on the fireground near Linton after about 6.00 pm on December 1998 could have adversely affected radio reception in the area."*³⁶⁵
- Furthermore, testing could not reflect other factors experienced at Linton. As discussed in section 18.8 and 18.10, radio transmissions can be affected by radio discipline and excessive transmission of messages. For example, a transmission sent from control may not be heard by certain crews if a two way conversation is occurring between tankers on the same channel.

18.16.26 Such limitations were recognised in the submission lodged on behalf of the Volunteer Associations. Whilst indicating that radio coverage at Linton was generally of an acceptable standard, the submission indicated that the appropriate way of conducting testing such as that organised by the CFA was under fireground conditions.³⁶⁶

18.16.27 The CFA submission made the following observation regarding coverage around the fireground:

*"It is apparent from the evidence referred to in those sections, among other things, that the CFA permanent infrastructure in place at Linton achieved good VHF coverage across most of the fire area. This is consistent with the Cherry Tree Hill and Snake Valley radio coverage maps at appendix K to the first of the radio coverage reports (COMM-REP-012-1) referred to in the first statement of Mr Booth (paragraph 6(a)). Thus messages transmitted from the Snake Valley and Linton sub-bases were generally well received across the relevant Group areas."*³⁶⁷

18.16.28 The DNRE made no significant submissions regarding communications coverage, but indicated the testing conducted by the CFA supports the proposition that the Wickliffe transmission reached Mr Scharf's command utility.³⁶⁸

- 18.16.29** This is a view supported in the submission of Messrs Lightfoot and Phelan, which states “the conclusions reached by Booth support the submission that it is highly unlikely technical difficulties were the reason certain messages were not heard by the Geelong strike team.”³⁶⁹

18.17 Operation at Linton

- 18.17.1** In summary, it is evident that the operation of the various forms of communications at Linton experienced a number of problems and did not allow for the high level of communications effectiveness needed on a fire ground. These problems were apparent from an organisational level through to the fire ground where many crew experienced complications with hardware operation and coverage.
- 18.17.2** In terms of party submissions regarding communications operation at Linton, these have also been adequately covered throughout this Chapter. The overall theme from the CFA and Volunteer Associations is that communications at Linton were generally effective.³⁷⁰ A similar view is held by the DNRE in regard to their communications set-up and operation, with a recognition of some problems in the CFA operation on the day.³⁷¹
- 18.17.3** The other parties’ submissions have recognised a number of shortcomings in the operation of communications at Linton, which have been covered in the relevant sections of this Chapter.

18.18 Conclusions

- 18.18.1** The personnel in the various communication infrastructures in place at Linton were *provided* with inadequate information concerning resources, communication channels, and fireground strategies.
- 18.18.2** Given these limitations, the MCV, Grenville Group, Westmere Base and Snake Valley sub-base personnel generally performed their duties to a high standard, but their efforts were disjointed and not part of a single communication system specific to the Linton fire.
- 18.18.3** In future fires such communication support bodies should be supplied with detailed information regarding resources and communication channels being utilised on the fire ground. The fire agencies also need to address resourcing levels within these areas, ensuring appropriate numbers of personnel are available for all communications duties to be performed to a high level. Furthermore, all communication structures used should be specific to the fire and centralised through AIIMS-ICS principles.
- 18.18.4** Training of staff fulfilling key communication support roles needs to be addressed, particularly where volunteers are filling such roles in communication bases and sub-bases. Such staff need to have an overview of AIIMS-ICS which is sufficient for them to effectively coordinate and oversee communications.
- 18.18.5** The aircraft at Linton provided some valuable observations and communications relating to the fire. This is particularly true in the case of Region 16 pilot Mr. Peter O’Rorke, who relayed some valuable information regarding the wind change to the fire ground. The early call out of this aircraft at Linton was commendable. It should be noted, however, that such aircraft can play a critical role in giving information about the fire at early stages that can lead to appropriate strategies of firefighting being adopted. The agencies should examine this with a view to producing protocols and teaching materials to encourage such use of aircraft in the early stages of a fire.
- 18.18.6** There were a wide range of problems experienced at Linton with communications. Evidence suggests that such problems are not unusual at wildfires and consequently should be carefully addressed by the fire agencies.
- 18.18.7** A summary of the most significant problems encountered at Linton is:
- No formalised, written communications plan was produced and distributed to fireground personnel. This increased the chances of confusion among personnel of what radio channels are to be used by whom;

- There were many personnel at Linton, both at management level and on the fireground, who misunderstood what channels were being used at Linton;
- While radio coverage was generally good, there were various dead spots around the fireground;
- The DNRE also experienced significant coverage problems for a significant period of the fire. These difficulties were overcome with the aid of a repeater;
- There were also significant problems encountered with coverage relating to certain forms of communication equipment, particularly mobile telephones and trunking radio;
- It was apparent that radio congestion caused difficulties at various times of the fire. There were witnesses who indicated some radio messages were unnecessary or that they had difficulty in transmitting messages due to radio traffic;
- Inappropriate call signs were used throughout the fire;
- Various messages contained inadequate detail and clarity. For example, the fact that the important Wickliffe wind change message did not contain details of the estimated time of arrival of the wind change highlights the fact that firefighters on the eastern flank should take extra caution; and
- As a consequence of the various problems discussed above, such as dead spots, congestion, and misunderstanding or lack of information provided to personnel regarding radio channels, fireground crews were receiving different information. For example, only those personnel on channels 15A or 16C would have heard the Skipton wind change conversation between Ms Alice Knight and Peter O'Rorke.

18.18.8 The evidence from the Inquests indicates there was confusion within the IMT as to who was to produce the written communications plan. This role is of vital importance and needs to be clarified within the fire agencies.

18.18.9 This fact has been recognised by the DNRE and is being addressed. The DNRE and CFA should continue to ensure that personnel being trained for AIIMS-ICS roles are fully aware of the responsibilities that role entails.

18.18.10 Evidence also suggests there was no official communications policy in place within the CFA governing the transmission of important radio messages. In this respect, it appears the CFA relied upon a general message system under which acknowledgment of important messages was not required.

18.18.11 This should not be regarded as an appropriate system for the transmission of messages containing information that have consequences for firefighter safety.

18.18.12 The CFA's attempt to address this problem in part through the introduction of the "*Red Flag*" warning system is inadequate and is but a general message system by another name. Important safety messages must also be delivered by supervisors in accordance with chain of command principles inherent in AIIMS-ICS.

Weather

19.1 Introduction

19.1.1 The Factors that Influence Fire Behaviour

19.1.2 Weather, topography and fuel load are the three factors that influence the behaviour of fire. Of these three factors, topography and fuel load are capable of being properly assessed by a firefighter who has had sufficient training and experience in these areas.

19.1.3 It is the combination of these three factors, or any of them, that can cause significant changes in fire behaviour capable of jeopardizing the fire fight and putting at risk the safety of firefighters.

19.1.4 Although it is at the local level where the three factors impact upon the safety of any particular firefighter, the broader picture needs to be looked at to properly assess and anticipate the impact that the three factors will have on the behaviour of the fire, at any given point of place and time. It is for this reason that divisions within the Incident Management Team are specifically tasked to obtain, analyse and disseminate information regarding these three factors to those on the fire ground. Having an analysis of this information is necessary in the formulation of safe tactics for suppressing the fire.

19.1.5 Factors such as previous “controlled”, “prescribed” or “fuel reduction” burns that have occurred at or near the vicinity of the fire are recorded. They of course have a most significant impact upon the fuel load in the areas where they have been undertaken. There are at least two examples of the impact of reduced fuel loadings caused by previous controlled burns on the Linton fire. The first example was when the fire front effectively stopped because of the reduction of fuel on the outskirts of the township of Linton at around 5.00 to 5.30pm on 2 December 1998.¹ The second, and the most dramatic example, at about 8.45pm was after the wind change when the eastern flank became the raging head of the fire. The fire front then burnt east towards Kelly Road.² There had been a fuel reduction burn on the eastern side of Kelly Road and the fire effectively stopped at Kelly Road because of the lack of suitable ground and low level fuels on the eastern side of Kelly Road.³

19.1.6 These factors when known and properly analysed and assessed allow firefighters to accurately predict the likely behaviour of the fire at any particular point. Notwithstanding the numerous examples of witnesses, during the course of the Inquests, giving evidence of “sudden and unexpected” change in fire behaviour, the panel of experts opined, accurately, that the fire in fact behaved predictably if the three critical factors, weather topography and fuel load had been properly and accurately analysed and assessed.⁴

19.1.7 Some examples of where firefighters were surprised by fire behaviour and dangerous incidents occurred are referred to in detail in other parts of this report. The “line up” of tankers on Pittong-Snake Valley Road to stop the fire by attacking the head as it approached the road is one example. On that occasion, even firefighters regarded as experienced by the CFA, entirely misjudged the behaviour of the fire as it approached the road. They watched the fire “creep” slowly down a down slope on the leeward side of a hill which was facing the

south, only to reach a level patch of ground and then a short uphill north facing run to the road. The docile behaviour of the fire changed dramatically, and unexpectedly (in the eyes of the firefighters lined up upon the road) when it reached the change in topography, to an uphill slope and conditions of fuel and was more exposed to the wind. The panel of experts reported that:

“... Fuels in a mixed stringy bark forest may look deceptively innocuous and to an untrained/inexperienced observer the fuels may appear as though they of the firefighters may have underestimated the fuel hazard because of the lack of a shrub layer, which allowed relatively good visibility through the forest.”⁵

19.1.8 In relation to topography, the experts noted that:

“Topography was rated as undulating with some short pitches of steep slopes to 20 degrees. The topography was of sufficient relief to have significant influence on the speed and direction of the wind in the forest. Generally the length of slope was relatively short, however slope had a major influence on the behaviour of fire over the short distances. There is likely to have been small differences in the moisture levels of the surface litter on different aspects, but these differences would have been less than in a normal season due to the prolonged dry period preceding the fire. The surface fuels were very dry, probably in the rang 4 to 6 %, which means that the fire behaviour could escalate relatively quickly with changes in wind or topography.”⁶

19.1.9 The panel expressed the opinion that:

“Before the fire crossed the Pittong-Snake Valley Road it was burning on the lee slope of the ridge to the north. Although the surface fire on the lee slope involved the coalescence of spot fires (possibly up slope under the influence of an eddy wind) the speed of the fire and flame heights was very much reduced. The relatively mild behaviour of the surface fire as it approached the bottom of the slope might have influenced firefighters to consider it was possible to hold the fire on the Pittong-Snake Valley Road.”⁷

19.1.10 The burns lit by Messrs Hadler and Lightfoot, which are dealt with in Chapters 11, 12 and 13, were also influenced by local topography, the fuel loads and weather, and in particular a short term local wind shift for a short period.

19.1.11 In relation to the Lightfoot burn from Possum Gully Road south down the extension of Madden Flat Road, the experts observed that:

“The forest in this area did not appear to have received any particular silvicultural treatment and fuel hazard was rated high to very high as described in the report (the Joint Review). When the fire crossed Possum Gully Road it also crossed the major east-west ridge through the forest. The topography south of the ridge had a general southerly or easterly aspect into the Nuggety and Sludge Gullies. It was also more steeply divided by the creeks at the head of these two gullies than the slopes with a north-westerly aspect north of Possum Gully Road.”⁸

19.1.12 In its report the panel examined *“The effect of short distance spotting on fire behaviour and control”*:

“The expert panel considers that short distance spotting is the main mechanism that enables a forest fire to overcome discontinuities in the fuel bed (such as a road or fire break) and negative slopes in the topography in relation to the direction of the prevailing wind. Firebrands, which are mainly pieces of burning bark, are carried up in the convection column and carried forward by the prevailing wind. If the firebrand is large enough to remain burning for some time, and is still alight when it falls to the ground, it may start a spot fire. When a fire is burning up slope and has a strongly developed convection column most of the firebrands are burnt out high above the ground and only the largest of the firebrands are capable of remaining alight for long enough to start a spot fire when they eventually fall to ground down wind. Firebrands created by intense burning may cause isolated spot fires several kilometres down wind of the main fire.

As the fire burns onto a fire break the surface fire runs out of fuel. The reduced fire intensity causes the convection column to collapse, the prevailing wind blows directly through the trees on the edge of the break. A mass of small firebrands is blown from the stems and upper branches of fibrous bark trees across the break starting a number of spot fires, generally in a triangular pattern with the apex of the triangle directly down wind of the centre of the head fire. These spot fires can rapidly burn together or coalesce and quickly reform the head fire in much the same shape and size that it had before it reached the break. This process can occur very quickly, especially under warm, dry and windy conditions, and the head fire can reform in a matter of minutes after the fire reaches the break.

Much the same process occurs if a fire burns over a ridge. When a fire reaches the ridge line and starts to burn down the other side, the rate of spread of the surface fire slows dramatically on the lee slope. The convection column collapses due to the reduced activity of the surface fire and, again, a mass of small firebrands can be blown from the trees along the ridge line and start numerous spot fires on the lee slope. The spot fires will again coalesce rapidly so that the perimeter of the fire is established down the slope.

The delay in the spread of the main fire will depend on the length of the lee slope and the distance the spot fires are ignited down wind. The delay may be substantial if all spot fires start on the lee slope and burn back up slope under the influence of an eddy wind and against the direction of the prevailing wind. The delay may be relatively short lived if numerous spot fires are thrown on to the next windward slope.

An intense fire which develops a strong convection column will block the prevailing wind and create a zone of light and variable winds immediately down wind of the convective column. Spot fires that start in this zone also come under the influence of light and variable winds and are often circular and spread slowly. The main fire generally overruns the spot fires before they develop to any extent. Where the spot fires down wind are numerous their activity may accelerate the main fire over them and increase the overall rate of fire spread. Likewise, a backburn lit immediately down wind of an approaching fire will not be drawn back towards the head fire but rather the convection above the backburn will accelerate the main fire towards it.”⁹

19.1.13 The expert panel warned that:

“Firefighters should be extremely cautious when suppressing spot fires immediately down wind of the major fire. Often the spot fires will appear to be spreading slowly and appear easy to suppress. If firefighters are not aware of their position in relation to the main fire they are likely to be overrun by a fast moving head fire such as occurred in the Snake Valley A entrapment.”¹⁰

19.1.14 In relation to the effect of the fuel reduction burn east of Kelly Road, the expert panel observed:

“The two year old fuel reduction burn east of Kelly Road stopped the spread of the head fire that developed after the wind change. This burn would have stopped the spread of a more intense surface fire burning under extreme fire conditions, although such a fire could throw firebrands more than 1000 metres across the burn to start new fires.”¹¹

19.1.15 Although it is important to understand the interaction between the weather, topography and fuel loads on the behaviour of fire, this chapter is concerned with the weather, and especially the wind.

19.1.16 The expert panel made some observations as to the effect of a change in wind direction on fire behaviour:

“On the Linton fire there were three types of wind changes: short term shifts in wind direction generally less than 5 minutes duration associated with turbulence near the ground; longer term shifts in wind direction of up to 30 minutes duration probably associated with local pressure changes caused by pre-frontal troughs; and the change associated with the passage of a cold front.

Short term wind shifts.

These wind shifts are generally short duration and are important in the early stages of the development of a fire because they increase the width of the head fire and determine the time that the fire takes to reach its potential rate of spread for the prevailing weather conditions. The frequency and duration of wind shifts is very variable and so it is difficult to predict the time that a fire, starting from a point, will take to reach its potential rate of spread.

A fire lit along a line at right angles to the wind direction, or moving away from an established line after a wind change, does not go through a growth period and is immediately travelling at its potential rate of spread.

Longer term wind shifts.

In Victoria the wind direction preceding a frontal change will generally veer in a counter-clockwise direction with a series of wind shifts from the north towards the west. Occasionally the wind will back in a clockwise direction. On the Linton fire there was evidence of a major shift in wind direction when the wind backed from NNW to NNE between 1515 hours and 1545 hours. The major effect of these wind shifts is to increase the intensity along the down wind flank of the fire and decrease the intensity on the windward flank of the fire. As the wind shift alternates between NNW and NNE, the increase in fire intensity alternates between the eastern and the western flank. In a very uniform forest such as a pine plantation, the alternating intensity along the flank is reflected as bands of severe scorch or defoliation and bands of lesser scorch. These bands can clearly delineate the shape of the flank fire. In a eucalypt forest these bands are not formed as readily and may not show up unless the wind shift persists for some time (20 minutes or more).

Frontal wind changes.

In Southern Australia, the expected pattern of wind shift as a cold front passes is a sudden change in wind direction in an anti-clockwise direction. In extreme cases the wind may change through 180° from north to south (eg. Longwood fire, January 1965), but more commonly the wind will turn through about 90° from NW to SW.

If the change occurs late in the day there is normally a significant reduction in the strength of the northerly wind before the change. However, if the front passes in the middle of the day there may be no perceptible drop in wind speed (eg. Ash Wednesday fires, South Australia, 1983) prior to the change.

When the wind shifts through 90° an established line fire (such as an eastern flank of a fire) will move away on a wide front without delay. If the wind takes some time to build up to its full strength then the fire will also take some time to build to its potential rate of spread. If, however, the wind change occurs without a drop in wind speed or builds up in a matter of seconds, the fire will reach its potential rate of spread within a similar time period. The height of the flames will take a little longer to build up. Initially the flames are flattened across the surface of the litter bed, but as the convection of the fire builds up, the flame angle will increase and more elevated fuels will burn. The air mass behind the change is cooler and more humid than the air mass before the change. The immediate effect on the fire ground is that the smoke will persist closer to the ground after the change and may seriously impair visibility ahead of the fire. As the fuel absorbs moisture from the air mass, the intensity and rate of spread of the fire will gradually reduce. Grass fuel absorbs moisture quite rapidly and may reach a moisture content where spread is stopped within an hour or two after the change. Forest fuel absorbs moisture slowly and may continue to burn intensely hours after the change and at a time when grassland is too moist to support combustion.

As previously noted, a firefighter on the fire ground has little prospect of anticipating a wind change from the west unless provided that information from the Incident Management team.”¹² (Emphasis added)

19.1.17 The expert panel addressed the issue of predictability of wind change on the fire line. They said:

“The expert panel considered that people on the fire line could not predict the time of the wind change without a continual flow of information about the change as it approached from the west. The best source of information and most accurate prediction of the time of arrival and strength of the wind change should come from the Bureau of Meteorology, assisted by data and information from the fire agencies in the fire area.”¹³

19.1.18 In relation to the predictability of fire behaviour the experts said:

“The panel considered that the mean direction and mean rate of spread of the fire and general spotting behaviour was reasonably predictable. It is not possible to predict exactly when veering (clockwise) and backing (anti-clockwise) shifts of wind direction will occur, but it is reasonable to expect that they will occur over the course of the fire.

By the time the fire had reached the ridge north of the Pittong-Snake Valley Road, it should have been apparent that the potential fire behaviour for the day was quite severe and that the fire would continue to spread on average at 1 to 1.5 kilometres per hour. The rates of spread and fire behaviour on lee slopes would be less and would occur mainly through the coalescence of spot fires.

The experts consider that there was nothing unusual about the fire behaviour but recognition of the potential changes according to changes in wind direction, wind strength and topography required that firefighters had been trained and were experienced in forest fire behaviour.”¹⁴ (Emphasis added)

19.1.19 Examples of the Impact of Weather on Behaviour of the Linton Fire

19.1.20 The expert panel made the following comments on a number of the incidents that have been dealt with in greater detail earlier in this Report.¹⁵ They will be referred to briefly because of the impact of the weather, in particular the wind, on the behaviour of the fire and how that behaviour was not anticipated even by firefighters who were regarded as experienced, and on occasions local residents.

Attack on head fire at Pittong-Snake Valley Road.

19.1.21 *“Under the prevailing conditions this tactic was never going to succeed. Suppression in a stringy bark forest fails when the fire intensity exceeds 2000 to 2500 kw/m, due mainly to the intensity of spotting. The head fire was burning with an intensity of between 4000 and 8000 kw/m. The spotting behaviour of the fire was obvious and firefighters with any experience in forest fire suppression would have known that the fire could not be stopped on a narrow road, regardless of the fire tanker resources available.*

The reduction of the spread on the lee slopes to the north of the Pittong-Snake Valley Road may have provided firefighters with a false sense of security. This may have been increased by the narrow paddock of green grass along the creek line north of the road. An experienced forest firefighter would have appreciated that, even if they could contain the spot fires while the main fire was backing down slope, the fire would burn around this paddock onto positive windward slope below the road and make a strong up slope run. Although this slope up to the road was only about 50 metres long, it was long enough for the fire to rapidly develop again before reaching the road. An inexperienced forest firefighter may not have appreciated the importance of this short uphill run to the road in the context of the long downhill run (about 500 metres) of the fire from the ridge.”¹⁶

The Snake Valley A Tanker.

19.1.22 *“The action of the Snake Valley A tanker in attempting to suppress spot fires on a windward slope, down wind of a head fire, under the prevailing conditions was unwise. The panel finds it difficult to understand how local firefighters did not appreciate the potential fire behaviour in stringy bark forest. However, the incident*

does highlight the difficulties that firefighters can have in understanding and appreciating the potential for forest fires to change behaviour.

When spot fires ignite immediately down wind of the head fire, they may develop slowly in the lighter and variable winds caused because the prevailing wind is 'blocked' by the convection of the main fire. In this zone spot fires can develop in a circular pattern and this can give the firefighter an impression that the prevailing wind speed has dropped. If firefighters become engrossed with suppressing the spot fires and neglect to monitor the position and behaviour of the head fire, they can easily be overrun with little warning, as occurred in this instance.

Suppression of spot fires ahead of the main fire must be recognised as the most hazardous task in forest fire fighting and should not be undertaken by inexperienced people or without good intelligence (usually from air observation) about the position of the head fire and other spot fires. In this situation (Snake Valley A) this operation was made even more hazardous by difficult access and by old mine shafts scattered throughout the forest."¹⁷

Possum Gully/Madden Flat Road Burn

- 19.1.23** The wind also had an impact on the burning out operation conducted by Mr Lightfoot, south of Possum Gully Road down the Madden Flat Road extension. In relation to that incident the expert panel said:

"This was a highly dangerous operation, with no tactical benefits, that could easily have resulted in fatal entrapment. The burn was not started from an anchor point and was always going to be outflanked and overrun by the main fire.

*In this case this operation contributed little to the behaviour of the main fire, however, burning out while the head fire is spreading strongly is always counter-productive. It can only serve to create another major fire that increases the width of the head fire, increases the potential rate of speed, and reduces the chance of a narrow head fire being slowed by a break in the fuel or the topography."*¹⁸

Madden Flat Road Burn

- 19.1.24** In relation to the Hadler burn along Madden Flat Road:

"This was also a highly dangerous operation that was poorly planned and had no chance of success. The burning operation was not initially linked into the main fire and was not part of the overall suppression strategy. It did, however, in conjunction with some burning out conducted later along the Pittong-Snake Valley Road, prevent any post wind change spread east of Madden Flat Road. The shift of wind towards the NNE between 1515 and 1545 hours allowed the firefighters to commence this operation and hold it for some 10 to 15 minutes. However, they were always going to lose control of the operation and increase the potential of the main fire as soon as the wind switched back towards the NNW. If the prevailing wind at the time had been NNW the firefighters would have lost control of the burning out operation as soon as they reached the section of Madden Flat Road where the road deviated towards the south west.

The operation was dangerous because there were firefighters down wind. Any escape from burning out had the potential to trap these firefighters between the escaped fire and the main fire.

In undulating topography the local wind direction around forest fires can be very different to the prevailing wind direction. Fire suppression operations need to be planned, systematic, and supervised by firefighters with a good understanding of forest fire behaviour. Firefighters need information about activities on other parts of the fire line and about weather conditions outside the fire area.

As a general rule back burning, ie. setting fire immediately down wind of a running head fire, will not succeed if the head fire is too intense to attack directly. Quite simply, if the firefighters cannot control the spotting from the head fire, they are not going to

be able to control the spotting from their back fire. The commonly held belief that the back fire will be drawn towards the head fire is a myth. If there is any interaction, it is to draw the main fire towards the back fire and increase the intensity of the head fire.”¹⁹

Eastern Flank Strategy

- 19.1.25** On the issue of construction of a control line down the eastern flank south of Possum Gully Road, the experts said that:

“Direct attack on the eastern flank when a westerly change is expected later in the day is considered by the experts to be an acceptable risk when suppressing forest fires with experienced forest firefighters.

The practice of constructing the fire line away from the fire edge to shorten the fire line between fingers of fire is acceptable provided the distance between the fingers is not too great, the fire edges visible at all times, and is associated with close burning out. Care must be taken to ensure that line construction does not get too far ahead of the burning out operation. Firefighters involved in both line construction and mopping up must be trained to take refuge on burnt ground at the first sign of a wind change.”²⁰

- 19.1.26** The starkest, and most tragic example at the Linton fire, of the impact of a change in wind conditions upon fire behaviour was the fatal entrapment of the Geelong West tanker crew.

- 19.1.27** It is sufficient, for the purposes of this Chapter to note that the Geelong Strike Team Leader, Mr Scharf, had no appreciation of what in fact was the predictable impact of the wind change on the behaviour of the fire on the eastern flank, taking into account the local topography and fuel load.²¹

- 19.1.28** In this regard the comments of the expert panel are apposite:

“Forest fire fighting requires a significantly higher degree of training and practical experience than grassland fire fighting. The issue here is not that volunteers cannot be trained, but that it is difficult to obtain the level of experience required to appreciate the complexity of forest fire behaviour.

Practical experience is absolutely essential before firefighters are allowed on to the fire ground of a forest fire. It is recommended that specific training areas are established in forests and arrangements made such that practical suppression exercises can be carried out on forest fires under reasonably severe conditions. Volunteer and professional firefighters should be encouraged to participate in the prescribed burning operation undertaken in forests and accreditation given for this experience.”²²

19.2 Fire Agencies’ Material on Weather Information

- 19.2.1** This brief overview demonstrates the critical importance and responsibility of those managing a wildfire fight to ensure that all information is obtained regarding the weather and potential wind changes. That information must be analysed and relayed quickly and clearly, along with appropriate instructions as to any necessary modifications to tactics or strategies, to firefighters on the fire ground. Put simply, a firefighter on the ground cannot be expected to work this sort of information out for him or herself. It is the function of the IMT, in particular the Incident Controller and Operations and Planning Sections to obtain, analyse and disseminate this type of information and instruction.²³

- 19.2.2** The CFA Operations Guidelines²⁴ contain sections entitled “Ten Standard Fire Orders” and “Watchout on the Fire Line When.” These principles have been expanded on and were released in 1997 as a pamphlet entitled “Wildfire Safety and Survival.”²⁵ A number of these “watchouts” relate to the weather.

Watchout No. 3 reads:

“The wind changes speed or direction. A change in wind direction will mean a change in how the fire burns, how it needs to be controlled and how much it threatens

*your safety. A wind change could change the direction of fire spread or it could turn the flank of a fire into the fire head. An increase in wind speed will lead to an increase in fire spread and intensity. A drop in wind speed may be the forerunner of a dramatic weather change.”*²⁶

Watchout No. 4 reads:

*“The weather gets hotter or dryer. This leads to a decrease in fuel moisture and therefore more intense fire behaviour. A fire that was mild and easy to control at the start of the day can become a major threat as the fuel dries out.”*²⁷

Watchout No. 8 reads:

*“Unfamiliar with weather and local fire behaviour. Different parts of the State have very different topography and fuel types. In these circumstances fire behaviour can be very different to what an ‘outsider’ might predict from looking at a map, but should be familiar to local people. Steep terrain can cause unexpected wind channeling and unpredictable wind changes, not necessarily the same as the prevailing winds on the ‘main fire’.”*²⁸

Also, the Operations Guidelines provide, under the chapters on “Wildfire Strategy and Tactics.”:

*“Changes in wind direction can increase the area burnt and be a safety hazard for firefighters and it is vital to carry warnings of the actual or estimated wind change to ALL PERSONNEL involved in the firefighting operation. This includes all firefighters as well as incident management team personnel. The safety and security of firefighters and equipment will be a priority concern during and immediately after the wind change. In some cases it may be necessary to suspend firefighting operations temporarily during the change until the new wind direction and strength has been established.”*²⁹

- 19.2.3** The booklet “Wildfire Safety and Survival” has a summary dealing with the Watchouts. The summary reads:

*“Teach yourself to observe. Observe fire and environment around you. Understand how fire may behave, and what the hazards and threats are. Think about how you will react to life threatening situations.”*³⁰

- 19.2.4** The booklet then goes on to state – “Remember the Watchouts” and reads – “W” “Weather dominates fire behaviour so keep informed” and “O” “Observe – changes in wind speed or direction, temperature, humidity and cloud.”³¹

- 19.2.5** When looking at the importance of weather information and how that information should be dealt with and disseminated under the AIIMS system, the specific paragraphs referred to below must be read in the context of page 16.5 of Exhibit 20U referred to above and in the context of the fundamental “Principles of the Incident Control System” which provide, in part under “Span of Control:”

“At emergency incidents, the environment in which supervision is required can rapidly change and be dangerous. A maximum of (5) reporting groups or individuals is considered to be the optimum, as this maintains a supervisor’s ability to effectively task, monitor and evaluate performance.”

*The supervising officer needs to be able to quickly receive reports, evaluate information, communicate orders, and mobilise and redeploy crews at the same time as overseeing their safety and welfare. Responsibility for more than 5 teams or persons begins to jeopardise the safety of personnel and effectiveness of the operation.”*³²

- 19.2.6** Exhibit 21U – “Incident Control System, the Operating System of AIIMS” details the Incident Controller’s principal responsibilities which are to assume control, appoint staff, review (and approve) the Incident Action Plan, assess the incident, plan combat of the incident and review the plan, allocate tasks and ensure the safety of all personnel (to name but a few). The document notes that the Incident Controller is responsible for the “safety of combating crews, supporting personnel and the public who may be involved in the incident.” The Incident Controller has power to delegate responsibilities like operations, planning and logistics functions to other officers.³³

- 19.2.7** The manual for the Incident Control System also deals with the role and function of the Operations Section of the IMT under:
- “(ii) *Details of Operations Officer’s Responsibilities*” –
“Development of an operations portion of Incident Action Plan.
... Review control of operations based on information provided by Planning
Section related to
... incident behaviour prediction
*– weather.”*³⁴
- 19.2.8** The Operations Officer’s responsibilities and functions are dealt with in detail in Exhibit 21U.³⁵ These are:
- the briefing and allocation of operations personnel in accordance with the Incident Action Plan;
 - managing and supervising operations at the incident;
 - establishing and maintaining assembly or staging areas;
 - determining the need for and request for additional resources;
 - assembling strike teams and task forces from single available resources;
 - reallocating or relieving strike teams and task forces allocated to the operation section; initiating recommendations for release of resources; and
 - reporting on special incidents/accidents and maintaining a log of activities.
- 19.2.9** It is obvious that current and predicted weather information is of central importance to enable the Operations Section to carry out its functions, including that of preparing an Incident Action Plan for the purposes of tasking, supervising and ensuring the safety of operational forces.
- 19.2.10** The Planning Section is divided into a number of units, namely Situation, Resources, Management Support, Information Services and possibly Technical Specialists.³⁶
- 19.2.11** The Situation Unit is used to:
- develop the incident action plans
 - brief the incident management team
 - brief the information officer and
 - prepare the incident situation analysis.³⁷
- 19.2.12** The components of the situation function as:
- Weather service: *“Arranging Special forecasts for the incident area and coordinating weather observations.”*
 - Collecting, Processing and Organizing Situation Information: *“Establishing field observers, aerial reconnaissance and infra-red line scans and transferring this information onto maps and situation summaries for use by the incident management team.”*
 - Mapping: *“In a large incident maps with additional notes are important for summarizing and describing the incident situation.”*
 - Incident Prediction: *“Using knowledge of the current situation and existing models (eg. McArthur’s fire danger meters to predict incident behaviour).”*
 - Technical Specialists: *“The situation unit may include groups of specialists such as experts from the Bureau of Meteorology.”*³⁸
- 19.2.13** Thus the *“Incident Control System – the Operating System of AIIMS”*,³⁹ recognises the necessity for the Planning Section of the IMT to obtain, and analyse information regarding the weather and to fully inform the Operations Section, so that those matters can be taken into account when framing the Incident Action Plan, which is disseminated to those on the fire line. In addition, those on the fireground could not be properly tasked to carry out their part of the Incident Action Plan in a safe and efficient manner without information regarding the weather and instructions on what to do if a significant change in conditions occurs. Indeed, this is one of the means of ensuring the safety of firefighters on the fireground.

19.2.14 The Planning Section is also responsible for conducting the fire situation analysis which:

“Uses the following process:

- Description of the situation*
- Consideration of alternatives*
- Analysis of effects of each alternative, and recommendation review and approval of the decision.”⁴⁰*

19.2.15 Under the heading “(i) Description of the situation” the analysis:

“... includes a review of the current and predicted situation.” ... For example, the important fire behaviour characteristics of rate of spread and flame height can be predicted using a fire danger meter. The predicted fire area and the likely intensity of fire over different periods can then be calculated.”⁴¹

The weather, in particular the wind, and any possible changes to those conditions would, of course, be central to any such calculation or prediction.

19.2.16 Current and future weather analysis and prediction is also central to the other sub-headings of the Planning Section’s responsibility for “Fire Situation Analysis”:

“Considering alternatives”, “Analysing Alternatives and Recommending the Selected Alternative” states:

“The planning officer’s two major responsibilities in action plan preparation are:

- conducting the planning meeting, and*
- coordinating the preparation of the Incident Action Plan.”⁴²*

19.2.17 The Planning Officer should ensure that a number of matters can be addressed, including:

- “What is the current incident situation.”*
- “What is the predicted incident situation for one hour, two hours, four hours, eight hours, one day or one week.”⁴³*

19.2.18 The Planning and Operations Sections are required to consider the current incident situation, current control operations and **weather and predicted incident behaviour**.⁴⁴

19.2.19 With this background it is now necessary to consider the system that was in place to provide the fire agencies with timely information about the weather as it applied to their work.

19.3 Reporting Systems on Weather – the Bureau and the Agencies

19.3.1 In providing advice on the weather to fire agencies the Bureau provided forecasts of the main weather elements affecting bushfire risk, namely temperature, wind and relative humidity.

19.3.2 By agreement with Australian Fire Authorities, the concept of “fire danger” had been adopted as a means of combining the most significant meteorological and fuel state influences into a single parameter known as the “Fire Danger Index” Forecast values of the index give fire fighting agencies an indication of the likely difficulty of suppressing fires so that the agencies are able to set their level of preparedness for fire detection and suppression operations.

19.3.3 Separate fire danger rating systems are used for forests and grasslands. The systems are based on the work of A.G. McArthur, a Canberra based fire behaviour researcher in the 1960’s and 70’s. For forest areas, the McArthur Mark V forest fire danger rating system is used to calculate a numerical forest fire danger index. This enables a forest fire danger rating of low, moderate, high, very high, and extreme to be calculated.

19.3.4 According to the Bureau’s “Report on Meteorological Aspects of the Linton Fire”,⁴⁵ the rating system was designed to operate on a circular slide rule. In the Bureau’s operational system, the meter device has been converted to a computer algorithm for ease and speed of routine daily computations.

- 19.3.5** The forest fire danger index is calculated by the Bureau using mean wind speed, temperature, relative humidity and long and short term drought effects. The first three elements are meteorological parameters that can be measured or forecast. The effects of drought are indirectly represented in the fire danger calculation by the “*drought factor*.” The “*drought factor*” is determined as a function of two components, namely (a) the Keetch-Byram Drought Index which tracks the cumulative effect of rainfall and temperature over a season, and significant rainfall amounts in the past 20 days.
- 19.3.6** The drought factor ranges from zero, indicating that the forest fuel is very wet, to 10 which indicates that the forest fuel is extremely dry, and therefore more susceptible to ignition.
- 19.3.7** The Bureau calculates the Keetch-Byram Drought Index and the drought factor for selected sites considered broadly representative of wider geographical districts. These are then combined with forecasts of the weather elements at the sites to arrive at fire danger ratings. In Victoria, routine daily operations through the fire season include the Bureau calculating an estimate of the fire danger indices for 26 separate sites in Victoria.
- 19.3.8** The forest fire danger index at a specific location may differ from that of the broader district due to local variations in wind speed, temperature, relative humidity and drought factor.
- 19.3.9** Other local influences on the actual fire danger may be caused by factors such as slope and aspect. For running fires and at the request of fire agencies, the Bureau issues spot fire forecasts for specific locations that aim to forecast local values of wind speed, temperature and relative humidity. Drought factor is not included in these forecasts because it is best judged, according to the Bureau, on site and so it is expressly left for fire agency personnel to determine the local factor, along with other local factors such as slope and aspect that are relevant to assessing the fire danger at a particular location.
- 19.3.10** In its Report on the Linton fire the Bureau noted that a further feature of fire weather forecasting that is not fully captured within the concept of fire danger ratings, is the significance of changes in wind direction. The Bureau stated:
- “A fire generally spreads along a long narrow path in the direction that the wind is blowing, having a narrow fire front at its head where the fire is most intense and long flanks where the fire is less intense. A major change in wind direction can cause a flank to become the new head of the fire, resulting in a much broader fire front, a bigger area being burnt more rapidly, and a greater threat to firefighter safety (particularly if they are attacking the fire from the flanks).”*⁴⁶
- 19.3.11** It should be noted that it is standard and accepted practice in fighting a running fire to mount a direct attack on the flanks of the fire, with a view to containing the spread of the fire should a wind change occur.⁴⁷
- 19.3.12** The Bureau correctly observed that:
- “Predictions of summer time cool changes over South Eastern Australia thus represent an important component of fire weather forecasts. Computer based numerical weather prediction models have helped to ensure that the occurrence of such cool changes can be fairly reliably predicted in broad terms.”*⁴⁸
- 19.3.13** As will become apparent later in this Chapter, this statement, although general in terms, cannot either be confirmed or disproved. Somewhat surprisingly, evidence given to the Inquests demonstrated that there is no record kept of the accuracy of the prediction of the time of arrival of “*summertime cool changes*.” Neither is there a record capable of being audited to determine the accuracy of the various numerical models used by the Bureau (which will be described in greater detail later in this Chapter), or the capacity to accurately predict south westerly wind changes.
- 19.3.14** It must be noted that the Bureau’s Report stated:
- “However, detailed prediction of the movement and strength of the cool change remains a difficult challenge. It is often not simply a matter of observing the location, strength and speed of the movement of the cool change, than extrapolating forward*

*in time. The structure of the cool change can evolve resulting in strengthening or weakening and acceleration or deceleration.”*⁴⁹

19.3.15 The Bureau cited for example, that:

*“In Victoria it is common for changes to slow down once they move over land and especially as they encounter mountain ranges such as the Otways or the ranges in north east Victoria. There are a number of different types of cool change structure and patterns of evolution and these are not yet fully documented or understood. A forecaster must utilise experience combined with monitoring of the actual behaviour of the cool change as it evolves.”*⁵⁰

19.3.16 The Bureau stated that the difficulty of accurately predicting the timing of south westerly wind changes is reflected in the *“degree of uncertainty incorporated into the framing of forecasts.”*⁵¹ Routine daily forecasts provided by the Bureau utilise four hour time windows to predict when wind changes will occur. The spot fire forecasts provided in Victoria usually have three hour time windows.

19.3.17 Automatic Weather Stations (AWS) are used to monitor the timing, direction and strength of wind changes. The stations can be monitored remotely and now by utilisation of computer systems. The Bureau noted that:

*“Once the change has crossed land and can be tracked over a period of time by successive AWS observation, projection of its movement on the basis of historical movement can be applied, though, as described above, is not necessarily accurate.”*⁵²

19.3.18 As will be discussed in detail later in this Chapter, when dealing with the performance of the Bureau, the expert witness Dr Reeder noted that, had the AWS data been relied upon by Bureau forecasters as accurately showing the time of the movement of the change, they would have predicted the arrival of the cool change at Linton to within about 10 or 15 minutes of actual arrival, by simply extrapolating the identified speed of movement of the change across south western Victoria.

19.3.19 The Bureau contended that:

*“The AWS information is simultaneously displayed at bushfire agencies in Victoria. The agencies can then use the Bureau forecast advice and the real time data, along with their own local information to decide strategy and tactics at the fire site.”*⁵³

19.3.20 It should be noted some sites of the AWS network in Western Victoria are owned and operated by the Bureau and some by the fire agencies. Differences in computer systems and in the method of relaying the information collected by the AWS system ought be capable of delivering real time weather conditions to the Bureau and to the fire agencies. This is a necessity on days when there are running fires, which are likely to be affected by a south westerly wind change. Delays of 15 or 20 minutes or even more for information that is being accessed by the Bureau is not satisfactory. Modern technology is clearly capable of delivering information as the AWS network gathers it. Any delay in access equates to delays for the results of analysis being made available to those who need it most, the firefighters on the fireground.

19.3.21 In its Report, the Bureau set out the composition of *“The Fire Weather Service in Victoria.”* What follows below is largely based on that Report.⁵⁴ This material was effectively confirmed in evidence by both Bureau and CFA officers.

19.3.22 The Bureau provides fire weather services in Victoria as part of a national framework for provision of services in accordance with the provisions of the *Meteorology Act 1955*. The Bureau stated that the broad objectives of the fire weather service are:

“(a) To provide the public with:

- Routine forecasts of fire danger during the fire season;*
- Fire weather warnings when the fire danger is expected to exceed a certain critical level; and*

- (b) *To provide fire management authorities, civil defence organisations,*
- *police and other emergency services with;*
 - *Detailed routine forecasts during the fire season;*
 - *Fire weather warnings when the fire danger is expected to exceed a Certain critical level;*
 - *Operational forecasts to assist in combating ongoing fires;*
 - *Special forecasts for hazard reduction burns;*
 - *Advice regarding installation and operation of special meteorological stations operated by fire authorities;*
 - *Consultative advice and climatological information to assist with the assessment of risk development of fire prevention strategy and other aspects of fire management.”*⁵⁵

19.3.23 The Bureau's “routine service” during the fire season in Victoria (normally November through to April) involves the Bureau's Victorian Regional Forecasting Centre providing the CFA and DNRE with:

- A forecast issued at 6.30am of weather and forest and grass fire dangers for the current day for the 26 Victorian centres plus border areas.
- A text fire weather briefing at 10.45am that concentrates on current day conditions and how the situation described in the 6.30am forecast is actually evolving.
- Four day forecast issued at 4.45pm consisting of a forecast of weather and forest and grass fire danger ratings for the next day, outlook forecast for forecast day 2 (both forecasts for the 26 sites around Victoria) and at 5.15pm a forecast of weather and fire danger ratings for forecast days 3 and 4 for 9 sites.
- An outlook chart that includes weather maps and a general description of conditions out to 4 days issued at 5.15pm.

19.3.24 According to the Bureau, routine fire weather forecasting and advisory services are said to be provided through the Bureau's Regional Forecasting Centre, which is staffed on a 24 hour basis. The usual staffing complement is a senior forecaster and three other forecasters during the day and a senior forecaster and one other forecaster overnight. An additional dedicated fire weather forecaster can be rostered on, if necessary.

19.3.25 The Bureau described when warnings and special fire services occur.⁵⁶ Variations on the daily routine service occur when the Bureau:

- Issues public fire weather warnings on a district basis via the media and to the CFA and DNRE and other clients when the fire danger is expected to reach the extreme rating range on the McArthur meter.
- Faxes special non-routine operational weather forecast, such as wind change charts on critical days and spot fire forecasts to assist in combating ongoing fires, to bushfire agencies. These services can also include telephone briefings.

19.3.26 Fire weather warnings are the main basis on which to determine the need to impose total fire bans for districts or the whole State. These are issued by the CFA in consultation with DNRE.

19.3.27 In the case of running fires, the spot fire forecasts are provided by the Bureau to the incident controller at the fire agency managing the fire and are also sent to the central fire control centres of the CFA and DNRE. These contain the latest short range weather forecast for the fire location. They give information on the expected wind, temperature, relative humidity and other meteorological factors such as the timing of any wind change.

19.3.28 The presentation of the first 9 hours of the forecast period appears in the spot fire forecast as a table divided into 3 hour blocks. Temperature and relative humidity forecasts are given for the start and end of each of the periods. Average wind speed and direction is given for each 3 hour period and any significant wind change expected during that period is indicated.

- 19.3.29** The spot fire forecast also includes:
- Comments on timing and wind change, stability of the atmosphere and general weather;
 - A brief forecast for the next 12 hours;
 - Space for the actual weather observed by the fire agency in order to give feedback to the fire weather forecaster on the local evolution of the weather; and
 - A contact number for the bush fire agencies to use to obtain further weather information.
- 19.3.30** On request the Bureau can provide a forecaster at CFA headquarters on critical days and for large ongoing fires a forecaster to support the incident management team.
- 19.3.31** The Bureau described the AWS network as – “*The key feature of the weather monitoring systems in Victoria used for fire weather purposes.*”⁵⁷ It noted that the network is primarily funded and operated by the Bureau as part of a national weather and climate monitoring network, but that the Bureau collaborates with the bush fire agencies in relation to the AWS network and is assisted by the agencies to supplement the network. For example, DNRE has provided capital for six stations in the Bureau network that are specifically situated in forest locations and the CFA has installed eight stations, mostly in western Victoria. AWS data is also available from South Australia. A portion of the national AWS network from eastern South Australia to West Gippsland is shown in Figure 19.1. which shows the position of the AWS’s and for reference purposes Linton.
- 19.3.32** The Bureau, CFA and DNRE have access to the data from the network of AWS’s. The Bureau-operated stations report to the Bureau at half hour intervals and also when a sudden change in the weather is detected. These reports are relayed electronically to the CFA and DNRE.
- 19.3.33** The CFA-operated stations have the real time data going directly to the CFA every 10 minutes and the data is then transferred to the Bureau during half hourly automated “*dial ups.*” The CFA has also implemented a display system for the real time display of the AWS network data. The purpose of the data sharing is to enable the bush fire agencies to monitor the actual weather in real time so they can add this information to local intelligence for use in decision making.
- 19.3.34** Each AWS in the network reports mean wind direction and speed (averaged over a 10 minute period), the maximum wind gust in the 10 minute period, the temperature, the dew point and any rainfall amount.
- 19.3.35** During the fire weather season, AWS data is received in the Bureau’s Regional Forecasting Centre every half hour and graphically displayed on the forecasters’ computer screens. When there is a significant change in wind or temperature conditions at the AWS site, a special (SPECI) report is sent.
- 19.3.36** The Bureau also maintains a dedicated website providing current data and forecasts.
- 19.3.37** Mr Williams, Supervisor of Weather Services Victoria for the Bureau of Meteorology, gave evidence of the arrangements between the fire agencies and the Bureau:
- “Every year we produce a fire weather directive, which articulates what the working arrangements will be in the Bureau for the provision of fire weather services, and twice each year we have a meeting at high level with the CFA and the NRE fire management branch to work out what the arrangements will be for the year. The first one is prior to the fire season when we make sure everything is in place before the coming fire season, and the second one is following the fire season in which we look at any things that need addressing and refining before putting out next year’s version of the fire weather directive.”*⁵⁸
- 19.3.38** The “*Fire Weather Directive 1998/1999*” dated 2 November 1998,⁵⁹ applied to the Linton fire and it provided for the following services:
- a fire weather forecast;
 - a fire weather briefing;
 - a fire weather outlook;

Figure 19.1



- spot forecast for wild fires and prescribed burns to be provided on request;
- a Wind Change Chart on critical days;
- fire weather warnings, on a district basis;
- the provision of an out posted fire weather forecast if so requested by the DNRE; and
- verbal briefings when sought by the fire fighting agencies.

19.3.39 The “Fire Weather Directive 1989/1999” also set out:

- The form in which information is to be presented;
- The operational data to be collected;
- The monitoring and amendment of forecasts;
- Operational procedure for the dissemination of forecasts; and
- Meteorological elements to be forecast.

19.3.40 Paragraph 6.3 of the Fire Weather Directive calls on the Bureau to “Indicate whether other less likely scenario than that shown on the forecast might occur.” This clause is important because, even if the Bureau’s primary forecast did not reflect the actual time of arrival of the wind change, the 8.45pm arrival was “a less likely scenario” that, based on the speed with which the wind change was moving across Western Victoria should have been identified as such. Mr Williams was questioned about the Bureau’s compliance with this clause in the directive and acknowledged that “... it wasn’t followed as closely as it could have been.”⁶⁰

19.3.41 Following the Linton fire, the CFA appointed a “fire weather specialist”⁶¹ to collate information and deal with the Weather Bureau. Mr Williams described this as:

“An excellent idea and, as I have said, this is actually, this happened or is currently happening just this fire season and it has assisted the flow of information both ways between the CFA and the Bureau. There are many calls each day which occur between us and that person. That person is being brought into the Bureau early this year to get to know the people on a first name basis so as to make that communication as easy as possible and it has worked very well.”⁶²

19.3.42 Consideration will now turn to the weather affecting the Linton fire and the performance of the Bureau at forecasting.

19.4 Wind Change Arrival at Linton

19.4.1 The Bureau’s Report described “The Broadscale Synoptic Pattern” on 1 December 1998, the day before the Linton fire.⁶³

19.4.2 There was a high-pressure system centred over Tasmania and a low-pressure system and cold front approaching the Great Australian Bight. The high-pressure system over Tasmania was directing light, mainly easterly winds over Victoria.

19.4.3 During 1 December 1998 the cold front and a pre-frontal trough moved from a location in the western part of the Bight to near the West Australian-South Australian border. Meanwhile the low-pressure system began to slip away to the south-east.

19.4.4 By the late morning of 2 December 1998 the cold front and associated pre-frontal trough were approaching the Eyre Peninsula in South Australia and there were indications that the pre-frontal trough was strengthening to become the main wind change line, while the cold front was weakening.

19.4.5 The development or strengthening of such pre-frontal wind change lines is often seen associated with cold fronts, particularly during summer. The pre-frontal wind change line can be 2 to 3 hundred kilometres ahead of the cold front and usually strengthens around the south-east coast of South Australia where a marked thermal boundary develops between the high continental temperatures of the northerly airflow and the cooler air over the sea. When the wind change line moves across south-eastern Australia and the wind turns from north-westerly to south-westerly, it brings the “cool change.” On occasions the main front to the west weakens or completely fades away, leaving the pre-frontal trough as the change.

- 19.4.6** Apart from gusty winds, the cool change that moved through south-eastern Australia on 2 December 1998 produced little or no weather. In the satellite image depicting the evening of 2 December an extensive area of high level cloud but no significant rain areas were reported or observed on radar.
- 19.4.7** The Bureau prepared an analysis of the successive positions of the wind change line from 3.00pm to midnight on 2 December 1998.
- 19.4.8** The wind change line had moved through Adelaide about 3.00pm; the temperature in Adelaide had reached 34° in the northerly airflow ahead of the change but dropped to 23° Celsius with the arrival of the south-westerly winds.
- 19.4.9** By 5.00pm the wind change had reached the south-western corner of Victoria and had passed through Portland. North to north-west winds ahead of the wind change line had eased to about 30 kilometres an hour but winds behind the change were stronger and temperatures were lower by some 8 to 10 degrees Celsius.
- 19.4.10** By 6.00pm the change was aligned on a slightly curved path from Edenhope to Casterton to Port Fairy. The bend in the wind change line became more apparent the further it moved over land.
- 19.4.11** By 7.00pm the change was approaching Mortlake, and by 8.00pm it was on a line from Longerenong to a point between Cape Otway and Aireys Inlet. The 9.00pm position was from a point west of Mildura then south-south-eastwards to near Lookout Hill and then to a point west of Grovedale near Geelong.
- 19.4.12** The Bureau accepted the evidence of Dr Reeder that the change moved at a relatively constant speed across Victoria.⁶⁴ The Bureau suggested the average speed was approximately 60kph.
- 19.4.13** The weather pattern on 2 December 1998 in the Linton-Ballarat area was similar to that experienced on the broader scale pattern set out above. Temperatures reached into the low 30's by mid-afternoon. This is considered by the Bureau to be very warm for early summer, but not extreme.
- 19.4.14** Winds were mostly north-westerly, moderate in strength and gusty through the afternoon.
- 19.4.15** The AWS at Hamilton, which is used by the Bureau to routinely calculate the fire danger rating, recorded that at 4.30pm, the maximum temperature reached 32°, the relative humidity was 16% and the wind was north-north-west at 43kph.
- 19.4.16** There was no AWS installed at Ballarat or Linton, so the Bureau's evidence of conditions before and after the change as it moved through the area, was constructed by using wind and temperature data for Portland, Hamilton, Mortlake, Lookout Hill and Sheoaks, before and after the change. That data showed 65 that between 4.30pm and 5.00pm at Portland the temperature dropped from 30.4° Celsius to 22.2° and the wind had changed from north-north-west to westerly, 45kph gusting to 59. At Hamilton the weather had changed from north-westerly winds at 29.2° Celsius at 6.00pm to westerly winds at 6.45pm gusting to 56kph, and by 7.00pm west-south-westerly winds gusting to 61kph, and by then the temperature had dropped to 22.2° Celsius.
- 19.4.17** At Mortlake, at 7.00pm, there was a north-west wind and temperature 30.1° Celsius. At 7.04pm there was a westerly wind gusting to 61kph and the temperature had dropped to 24.7° Celsius. By 7.09pm the wind was west-south-west gusting to 63kph and the temperature 21.2° Celsius, and by 7.30pm a south-westerly wind gusting to 56kph and the temperature dropping to 18.9° Celsius. At Lookout Hill, the closest AWS to Linton, at 8.00pm the north-north-westerly wind was gusting to 32kph and the temperature was 22.2° Celsius. By 9.00pm the wind was westerly gusting to 69kph and a temperature of 17° Celsius, and at 9.04pm a south-westerly wind gusting to 69kph and a temperature of 14.9°.
- 19.4.18** According to the Bureau, this data showed that the wind change passed through Portland at 4.49pm and through Hamilton at 6.45pm. At Mortlake, 80km to the west-south-west of

Linton, the wind swung round to the west with increased gusts at 7.04pm. At Lookout Hill, the AWS approximately 50 kilometres to the north-west of Linton and on high ground at an elevation of 965 metres above sea level, indicated at 8.00pm the wind turned westerly, and at 9.04pm turned abruptly south-west with gusts to 69kph.

19.4.19 The Bureau contended that:

*"Judging from the orientation of the wind change line as it moved through western and central Victoria, the arrival time of the wind change at Lookout Hill AWS at 9.00pm is probably broadly representative for the Linton area, though extrapolation of the movement of the change from the time it passed through Mortlake would suggest a time of arrival at Linton between 8.30 and 9.00pm."*⁶⁶

19.4.20 The fatal wind change arrived at the Linton fire ground at around 8.45pm.

19.4.21 In respect of the fire danger rating for 2 December 1998 at Linton, the nearest station to Linton is Ballarat. The nearest station to the west, Hamilton. The Bureau's calculated values of the Keetch-Byram drought index for Ballarat and Hamilton on 2 December 1998 was 6 for both.

19.4.22 Using the actual weather standard procedures for calculating the Keetch -Byram drought index and drought factor and applying the McArthur Mark V forest fire danger meter, the calculated fire danger indices for Hamilton and Ballarat on 2 December 1998 was 34 for Hamilton and 14 at Ballarat. These figures translate to fire danger ratings of very high at Hamilton but only high at Ballarat.

19.5 Operation of Systems at Linton

19.5.1 The Role of the Bureau

19.5.2 The Bureau suggested that the:

"Actions by Bureau forecasting staff on 2 December followed the usual routine plus the following additional actions because of assessed increased risk and then outbreak of fire:

- The senior forecaster in Victorian Regional Forecasting Centre consulted with the CFA early on 2 December about the Bureau's intention to issue a fire weather warning for the Mallee due to winds expected to be stronger than initially forecast the previous afternoon. This was issued at 6.01am.*
- The dedicated fire weather forecaster commenced early at 9.30am.*
- Starting at 6.00am a series of special wind change charts was issued due to an expected wind change later in the day.*
- Starting at 2.12pm a series of spot fire forecasts was issued for Snake Valley, and then Linton. These forecasts were sent by fax to both CFA and NRE State fire control centres, as well as the incident control centre for the Linton fire; and*
- At 6.45pm the fire weather forecaster consulted the NRE on the status of the Linton fire before handing over to the incoming senior forecaster and completing his shift."*⁶⁷

19.5.3 The fire weather outlook issued on the afternoon of Sunday 29 November 1998 showed the broad scale synoptic weather pattern expected from Monday 30 November to the evening of Thursday 3 December. It also gave a brief day by day description of the expected weather. This forecast indicated a cool change passing through Victoria on the evening of 2 December 1998 and described the weather in the following terms:

*"Freshening north to north-west wind ahead of a weakening cold front expected in the south-west early afternoon."*⁶⁸

19.5.4 The first detailed fire weather forecast for Wednesday 2 December was issued at 5.05pm on Tuesday 1 December 1998. This forecast predicted maximum temperature of around 30° Celsius in the Western District, low relative humidity, north north-westerly winds of 40 to

45kph, with a south-westerly change in the afternoon or evening. The wind change column of the forecast shows the expected direction and speed after the change and gives an estimated time of the change in a four hour time slot. At Hamilton, the change was forecast to be south-westerly at 25kph, arriving between 2.00 and 6.00pm. At Ballarat the wind direction and speed were predicted to be the same after the change as at Hamilton, but the arrival of the change was predicted between 7.00pm and 11.00pm. The forest fire danger index was 28 for both Hamilton and Ballarat. This index value translates to a fire danger rating of very high.

- 19.5.5** It is notable that the fire weather outlook issued at 1700 on 29 November⁶⁹ in relation to Wednesday 2 December accurately predicted the timing of the wind change and noted:

*"All computer models reasonably similar in the timing of the change. Today's run of the models is slightly faster than yesterday."*⁷⁰

- 19.5.6** On Wednesday 2 December 1998 Mr Ray Kollmorgen, a technical officer with the Weather Bureau, commenced duty at 7.30am. This was earlier than his normal starting time of 9.00am. He had been contacted the night before by the duty senior forecaster who requested that he start early because of the forecast of extreme fire weather in the Mallee district. In his statement Kollmorgen said:

*"As there was no forecaster available for the convective (thunderstorm assessment) shift, I was required for thunder storm forecasting as well as fire weather."*⁷¹

- 19.5.7** On arrival at work, Mr Kollmorgen was briefed by the senior forecaster, Geoff Kitchen, on the current forecast policy. Kollmorgen described forecast policy as being a broad statement of expected weather conditions. In his statement he said that:

*"In this case the policy was that the day was to be warm to hot with northerly wind increasing ahead of a west to south-west change, reaching the far south-west of the State, which is the area of the South Australian and Victorian border, later in the afternoon. This change was expected to progress slower over the land and higher elevated areas than along the coast. This was reflected in the 0630 hours fire weather forecast produced by the overnight SMFW and was consistent with aviation and public weather products."*⁷²

- 19.5.8** When cross-examined Mr Kollmorgen said that the policy for 2 December was:

*"... that the trough would move in accordance with the LAPS and be through Melbourne in the early hours of 3 December."*⁷³

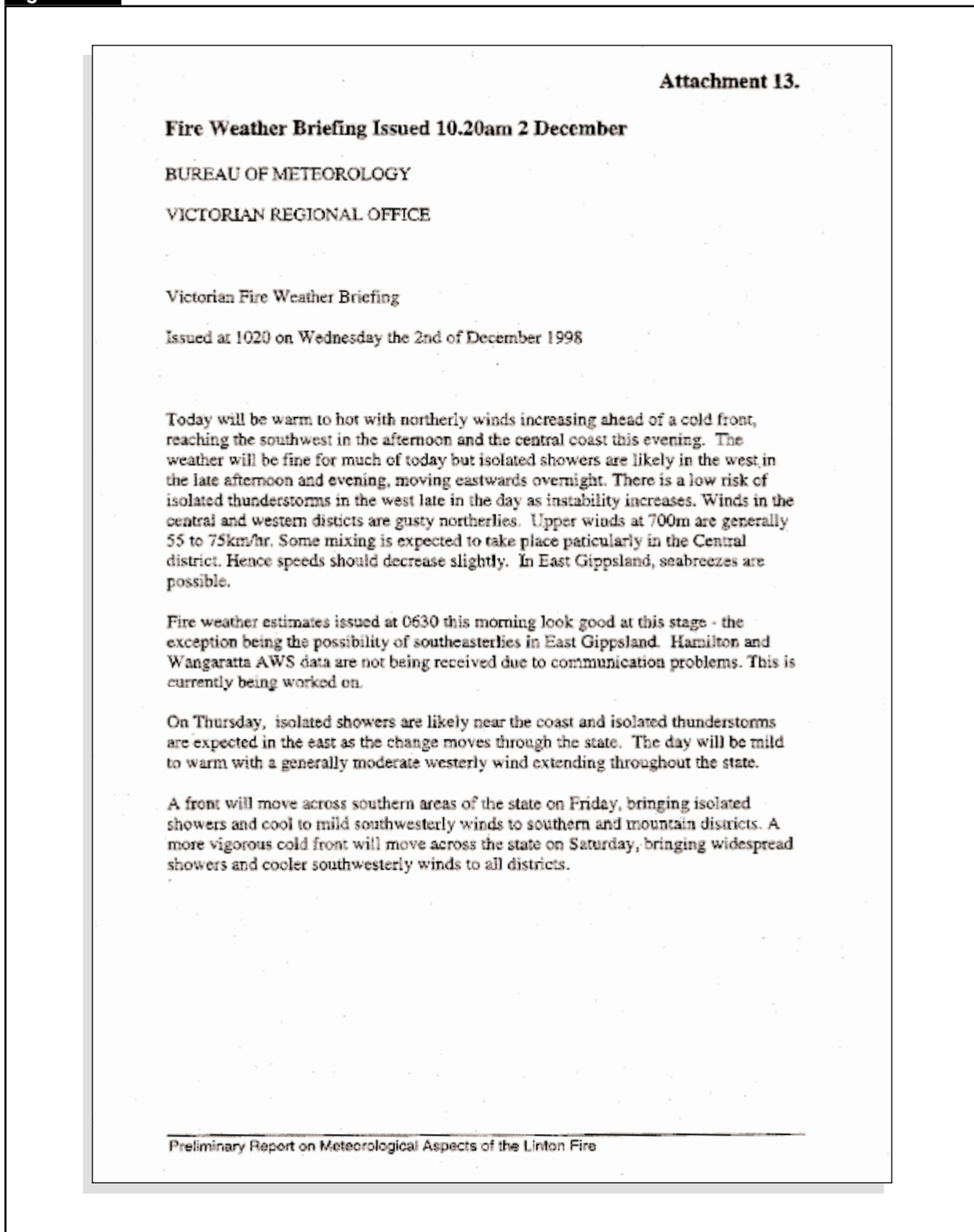
- 19.5.9** Mr Kollmorgen also said that it was his obligation to forecast in accordance with the policy set by the senior forecaster. He agreed that the computer model known as the European model upon which the ultimately accurate forecast of 29 November had been prepared and the US computer model was predicting a faster movement of the cool change than the local LAPS and MESO LAPS computer models.⁷⁴ Kollmorgen stated that the forecast policy at the time was based on LAPS and he would have had to have a sound reason to argue the case against the use of that system.⁷⁵ He confirmed that the European model is regularly relied upon by the Bureau for longer range forecasts.

- 19.5.10** Dr Michael Reeder prepared a report entitled *"Linton Fires: Independent Meteorological Report for the Office of Public Prosecutions"* dated January 2001. Reeder gave evidence in accordance with the evidence of the Weather Bureau officers, that numerical weather prediction models are important tools used by weather forecasters in Australia and overseas. The Bureau predictions relied very heavily on the output from these models. In his report Reeder conducted a brief review of how some numerical models are constructed and work.⁷⁶

- 19.5.11** The atmosphere behaves according to a fixed set of physical laws, which can be expressed mathematically and can be solved approximately, using computers to predict the future state of the atmosphere from a specified initial state. Physical processes such as radiation, clouds and precipitation, and surface exchanges are represented in the mathematical description.

- 19.5.12** The computer solution involves dividing the atmosphere into a number of vertical layers and dividing the surface of the earth into a grid of horizontal boxes. Alternatively, the solution may proceed by dividing the atmosphere into its constituent waves instead of grid boxes. In either case, such computer representations of the atmosphere give numerical models and the use of these models to forecast the weather is known as numerical weather prediction (NWP).
- 19.5.13** Small errors in the observed initial state of the atmosphere amplify as the numerical forecast proceeds so that the difference between the predicted atmospheric conditions and the true conditions grow with time. These errors grow at a rate that makes reliable NWP model forecasting feasible for up to about 5 days only.
- 19.5.14** The size and speed of high performance computers limit the number of vertical layers and the number of horizontal boxes or constituent waves possible in an NWP model. This in turn limits the resolution of the model. In general, the accuracy of the forecast increases as the resolution increases. For this reason, regional or limited area NWP models are used with higher resolution over a smaller area such as over south-eastern Australia.
- 19.5.15** Forecasters at the Bureau have access to at least 6 NWP models.
- 19.5.16** Computer models known as LAPS (Limited Area Prediction System) and MESO LAPS which is a higher resolution version of LAPS, are the two most used computer models by the Victorian Regional Forecasting Centre of the Bureau. This is because of all the computer models available these models provide the highest resolution and most detailed climatic information of computer models available. On 2 December 1998 the LAPS and MESO LAPS models being used were based on information as at 11.00am. The computer models are not continuously updated because of the time they take to run and the amount of data that must be analysed. They are done at certain designated times.⁷⁷ LAPS and MESO LAPS were relied on by the Bureau forecasters on 2 December 1998 and those computer models consistently under-predicted the movement of the trough and wind change across southern Australia. The higher resolution and greater detail of information provided by LAPS and MESO LAPS models, particularly in relation to the European computer model, which will be discussed below, appears in the evidence of Mr Williams.⁷⁸
- 19.5.17** Mr Williams was asked:
- "Is there a preference by the forecaster towards using the LAPS and MESO LAPS models?—Yes.*
- What is the reason for that?—Because it's updated, it is more up to date than the overseas models, they understand the model, they don't understand the mathematics of it, but they understand the performance of it through experience, they have a sort of working knowledge of how well it performs. They also have the opportunity of providing feedback to the developers..."⁷⁹*
- 19.5.18** The numerical model known as the "European Model" is the model utilised by the European Centre for medium range weather forecasts. It is widely considered to be the world leader in numerical weather prediction models.⁸⁰ The resolution of the ECMWF model is similar to LAPS but, unlike LAPS, it covers the entire globe. The ECMWF model had correctly forecast the passage of the trough for at least two days prior to the 2 December 1998. The ECMWF model was relied upon by the Bureau in the fire weather outlook issued at 5.00pm on 29 November 1998.⁸¹ The forecast contained in that fire weather outlook for Wednesday 2 December as at 9.00pm, correctly forecast the arrival and passage of the wind change through southern Australia. Dr Reeder also examined the NWP model from the US National Weather Service and the UK Meteorological Office and commented that those models correctly forecast the trough to be lying close to Melbourne at 11.00pm on 2 December 1998.⁸²
- 19.5.19** At around 10.20am on Wednesday 2 December 1998 Kollmorgen produced the fire weather briefing (Figure 19.2)⁸³. He prepared this in accordance with the policy, namely to prefer the LAPS and MESO LAPS models than the European model.

Figure 19.2



- 19.5.20** Mr Kollmorgen continued performing his duties throughout the day. At about 2.00pm Ray Mason based in CFA Region 16 sent Kollmorgen a facsimile requesting a spot weather forecast. In the facsimile he made reference to an incident west of Snake Valley and provided information from the AWS at Lookout Hill.
- 19.1.21** At 2.12pm Mr Kollmorgen issued a spot fire weather forecast (Figure 19.3) which indicated a northerly wind at 35 to 40kph with gusts to 55kph.⁸⁴ In Section 3 of the spot fire weather forecast form, which is headed "*Forecast for the subsequent 12 hours*" he indicated that the west to south-west change was expected at around 2.00am Thursday, 3 December 1998. Kollmorgen said that this forecast was based on the 2200 hours daylight saving time

Figure 19.3

Attachment 18.



**BUREAU OF METEOROLOGY
VICTORIAN REGIONAL OFFICE**

Spot Fire Weather Forecast
Issued at 1412 on Wednesday the 2nd of December 1998 for CFA

Forecast No: 1
Incident Name: West of Snake Valley
Elevation above sea level: m
Map reference: 1982 438 335 200
Forecaster reference: SPOT FIRE FORM 1

1. Request from CFA Incident Controller at Region 16
Fax No: 5352 5517

2. Forecast for first 9 hours

Time period	1500-1800		1800-2100		2100-2400	
	forecast	observed*	forecast	observed*	forecast	observed*
Temperature (C)	31-26		28-24		24-19	
Relative Humidity (%)	25-30		30-40		40-50	
10m wind (km/h)	N 35 Gusts 55		N 35 Gusts 50		NNW 40 Gusts 55	
1000m wind (km/h)	N 55		NNW 50		NW 70	
Drought factor*						
Forest FDI*						
Gross FDI*						

* these fields are for firefighters' use

a) Details of major wind change: Little change for the next 9 hours.
b) Comments on stability: Becoming unstable.
c) Weather and other details: Fine, cloud increasing.

3. Forecast for subsequent 12 hours
a) Temperature: Min 17 Max 22
b) Humidity: Max overnight 80%
c) Wind: A west to southwest change of around 30/35km/hr is expected at around 0200 Thursday morning.
d) Stability: Stable after the change.
e) Weather and other details: Chance of a thunderstorm/shower the change.

Firefighters' note: Observed weather conditions may be entered on this form and faxed to the fire weather forecaster on (03) 9663 2055 to assist in forecast verification.

For further information, or if the forecast differs significantly from observed conditions, contact the fire weather forecaster, Ray Kollmorgen, on (03) 9662 1650.

1440 - advised by phone that wind change could be around midnight.

Preliminary Report on Meteorological Aspects of the Linton Fire

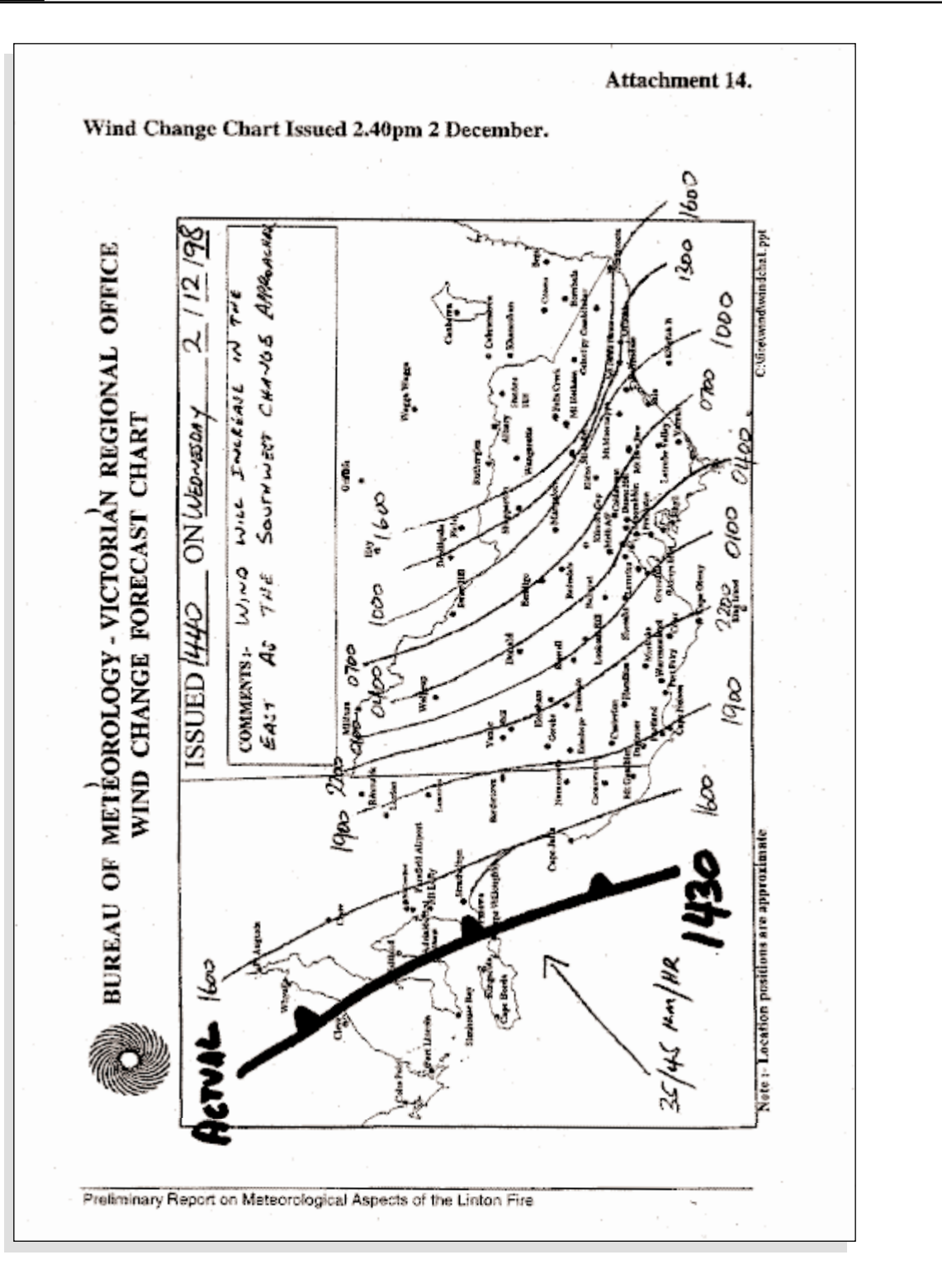
computer model run.⁸⁵ He also said that because the computer model is not instantaneous and information comes out in stages, at 2.00pm he still did not have enough information to use the 10.00am computer model.

19.5.22 Mr Kollmorgen stated that around 2.30pm he briefed the duty officer from the DNRE Fire Management Branch by phone on the current weather situation in western Victoria.⁸⁶

19.5.23 At 2.40pm Mr Kollmorgen issued a wind change chart ⁸⁷ (Figure 19.4) which recorded the actual position of the change along a line from Cleve to Cape Willoughby in South Australia. He said that the forecast positions shown on the remainder of the chart were consistent with

the forecast policy and numerical guidance.⁸⁸ He then rang CFA Region 16 using the name and number provided on the spot weather forecast request and advised a person there that it was possible the change could come through around midnight.⁸⁹ The reason for the alteration of time was the fact that the change was a little further advanced in South Australia than indicated by the computer model, which was based on the Tuesday evening.⁹⁰ As an added service Kollmorgen sent the 2.20pm wind change chart to Region 16 at about 3.45pm. He said that this was done informally as the normal procedure is for CFA Headquarters to re-transmit wind change charts to the regions.

Figure 19.4



19.5.24 At 5.00pm Mr Kollmorgen issued a spot weather forecast for Linton,⁹¹ (Figure 19.5). This spot weather forecast form is in time blocks of three hours and it forecast the wind to move from the north-west to the south-west to the north-west, at between 11.00pm and 2.00am. It contained the following reference:

"Details of major wind change: south-west change due around 1.00am Thursday."

Figure 19.5

Attachment 19.



BUREAU OF METEOROLOGY
VICTORIAN REGIONAL OFFICE

Spot Fire Weather Forecast
Issued at 1700 on Wednesday the 2nd of December 1998 for CFA

Forecast No: 1
Incident Name: Linton
Elevation above sea level: m.
Map reference:
Forecaster reference: SPOT FIRE FORM 2

1. Request from CFA Incident Controller - Peter Loader at
Fax No: 5331 5509

2. Forecast for first 9 hours

Time period	1700-2000		2000-2300		2300-0200	
	forecast	observed*	forecast	observed*	forecast	observed*
Temperature (C)	30-25	27-4	25-21		21-18	
Relative Humidity (%)	15-25	27	35-40		40-45	
10m wind (km/h)	NW 45 Gusts 60	N 20 3-5	NW 45 Gusts 60		NW 40 SW 40	
1000m wind (km/h)	NW 65		NW 65		NW 65	
Drought factor*						
Forest FDI*						
Grass FDI*						

* these fields are for firefighters' use

a) Details of major wind change: Southwest change due around 1am Thursday.
b) Comments on stability: Unstable
c) Weather and other details: Fine. Low risk of a storm with the change.

3. Forecast for subsequent 12 hours
a) Temperature: dec to 16 overnight.
b) Humidity: 45% inc to 80%.
c) Wind: Sw 30-40
d) Stability: Becoming stable.
e) Weather and other details: Isolated showers

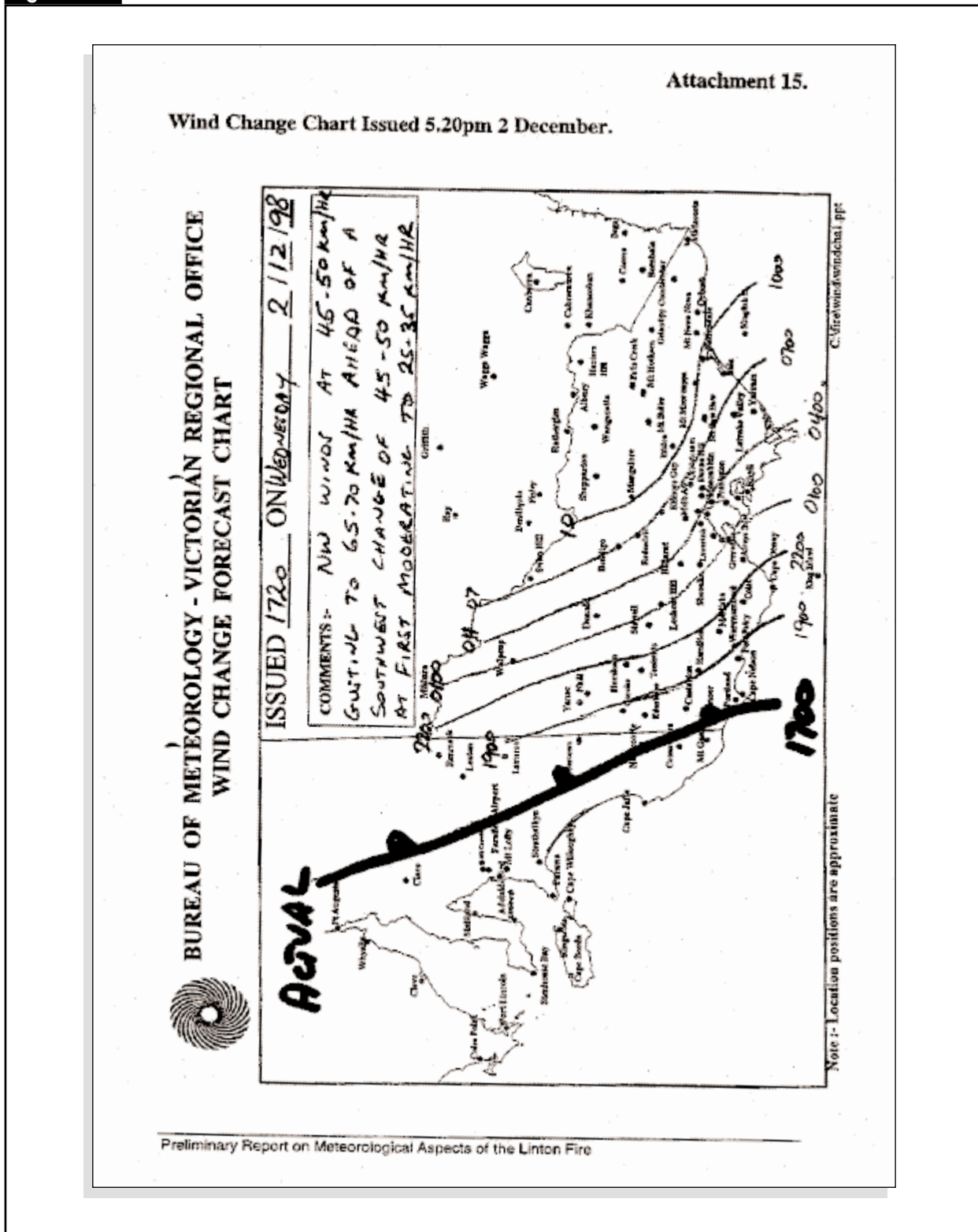
Firefighters' note: Observed weather conditions may be entered on this form and faxed to the fire weather forecaster on (03) 9663 2058 to assist in forecast verification.

For further information, or if the forecast differs significantly from observed conditions, contact the fire weather forecaster, Ray Kollmorgen, on (03) 9662 1650.

Preliminary Report on Meteorological Aspects of the Linton Fire

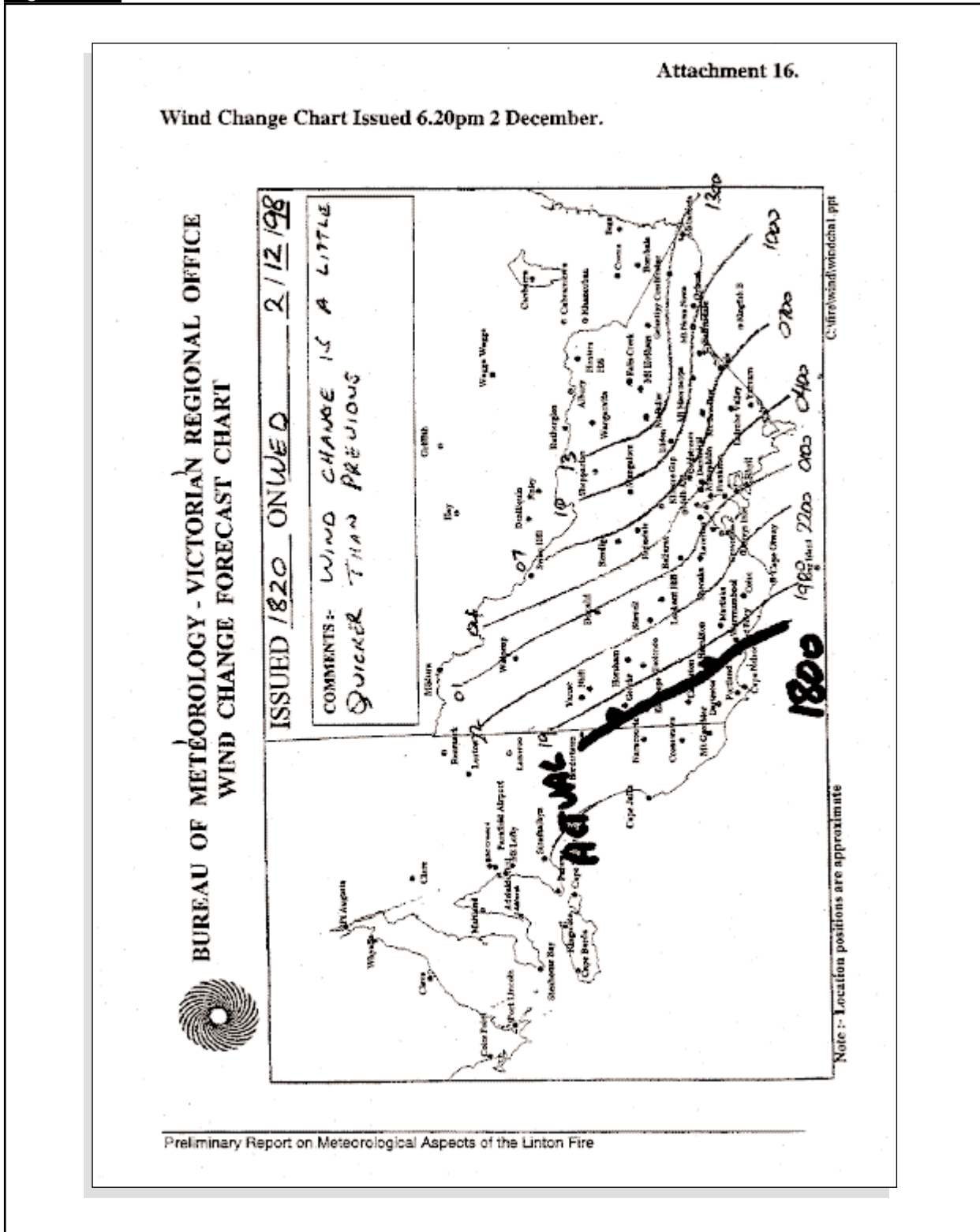
- 19.5.25** Mr Kollmorgen interpreted the computer model as indicating a change at around 2.00am but thought it would be a little earlier, perhaps 1.00am. He used the 10.00am computer model, which was available by then, and it was similar to the previous issue. Because of this the senior forecaster did not change the forecast policy.⁹²
- 19.5.26** At 5.20pm Mr Kollmorgen issued a wind change chart⁹³ (Figure 19.6). At 5.30pm he received a telephone call from Peter Tange which queried the forecast time of arrival of the wind change.⁹⁴ Kollmorgen confirmed his forecast.

Figure 19.6



19.5.27 At 6.20pm Mr Kollmorgen issued another wind change chart ⁹⁵ (Figure 19.7), which was transmitted to CFA Region 16 and the DNRE and CFA Headquarters. It noted that – “wind change is a little quicker than previous.” According to Kollmorgen, “All of the forecasters were still confident that the change would slow down over the elevated areas on land and hence there was no change to the forecast at Linton.” ⁹⁶ At 6.45pm Kollmorgen rang DNRE Headquarters and spoke to the duty officer regarding the status of the fire. His intention was to determine if there was a need for him to stay on duty past the end of his shift at 1900. ⁹⁷ He said that the “NRE duty officer told me the fire was fairly well contained.” Kollmorgen stated ⁹⁸ that the DNRE person said that the northerly wind was lighter than forecast, which indicated that there was

Figure 19.7



no need to amend the forecast. Kollmorgen said he told the DNRE person that with the approaching change the wind should strengthen to forecast values. He stated that he then *"briefed the incoming SMFW, Ward Rooney, on the current situation."*⁹⁹ He said he logged off the computer system and left just after 7.00pm.

19.5.28 Importantly, Mr Kollmorgen stated that the wind change had gone through Yanac, an observation that was received at 5.54pm. He stated that he did not see the Hamilton observation recorded by the AWS at 6.45pm, which showed that the change had reached there.

19.5.29 Mr Kollmorgen observed that:

*"There is a time lag between the AWS sending the observation and it being displayed on our system."*¹⁰⁰

19.5.30 Mr Kollmorgen also said:

*"Forecasting wind changes are difficult and as they approach a critical location. It is vitally important that the forecaster has access to all available information, including supplementary observations, particularly to the west. I received only two supplementary observations and these were not at critical times or locations."*¹⁰¹

19.5.31 Mr Williams gave evidence that had the Bureau been provided with the information from the Westmere Group to the CFA about the timing of the wind change passing through Dunkeld and Wickliffe, it would have improved the accuracy of the Bureau forecast.¹⁰² Rooney gave similar evidence.¹⁰³

19.5.32 Clause 6.5 of the Fire Weather Directive stated:

"It is essential that the requesting officers send weather data in the vicinity of the fire the RFC as frequently as possible, preferably every 3 hours. Fire agencies are encouraged to fill in the appropriate columns with on site observations and fax this back to the Bureau. This will also assist forecast verification."

Mr Peter Tange followed this procedure in relation to the 5.00pm spot fire weather forecast.¹⁰⁴

19.5.33 Mr Ward Rooney, a senior weather forecaster, gave evidence that on commencing work at 7.00pm, Kollmorgen the outgoing fire weather forecaster and Geoff Kitchen, the outgoing shift supervisor, briefed him that there was an ongoing fire at Linton but that it was fairly well contained. Rooney said that he started logging on to the computer system, which at that time required each application separately, and was slow to load. He stated *"So the logging on was slow and tedious due to the combined use of computer resources."*¹⁰⁵

19.5.34 Mr Rooney stated that at some time between 7.15pm and 7.30pm the fact that a wind change had taken place at Mortlake became apparent due to a report received from the AWS, and that wind gusts associated with it were high. The wind change in fact went through Mortlake at 7.04pm.

19.5.35 Mr Rooney said that he discussed the situation with the aviation forecaster:

*"... as the Mortlake observation and the 1800 hours analysis indicated a faster movement of the approaching wind change and importantly, stronger gusts associated with the change."*¹⁰⁶

19.5.36 Mr Rooney also said – *"Importantly, at 1800 hours the change had yet to go through Port Fairy and Casterton."*¹⁰⁷ In fact, the wind change went through Port Fairy at 5.51pm and went through Casterton at about 5.35pm. On the wind change forecast chart issued at 6.20pm¹⁰⁸ Kollmorgen had accurately drawn the actual position of the wind change as being through Casterton at 6.00pm.

19.5.37 Also significant is that by 6.00pm the wind change had gone through Lameroo, an AWS situated a considerable distance inland. Mr Rooney stated that:

*"If the conclusion was a faster movement and more gusty wind, it meant that amendments needed to be made, not only to the fire forecast, but potentially to aviation, marine and public weather forecast."*¹⁰⁹

19.5.38 Mr Rooney indicated the model output was again examined.¹¹⁰ His decision was that a faster movement of the wind change was required and that “*amendments were needed immediately.*”¹¹¹ He prepared an amended wind change chart issued at 7.45pm¹¹² (Fig.19.8) and stated that he telephoned the CFA at 7.52pm passed on the wind change information and said he was sending an amended wind change chart through. Rooney issued an amended spot fire forecast for the Linton fire which he said was written at 7.53pm and sent at 8.11pm (Figure 19.9).¹¹³ He stated that he has since discovered that the 7.45pm wind chart was not in fact transmitted and “*I don’t know the reason why.*”¹¹⁴ He said that he went to the fax as was his normal procedure, but that it must have failed to transmit. Rooney also said that the aviation forecaster made the necessary changes to the aviation forecast.

Figure 19.8

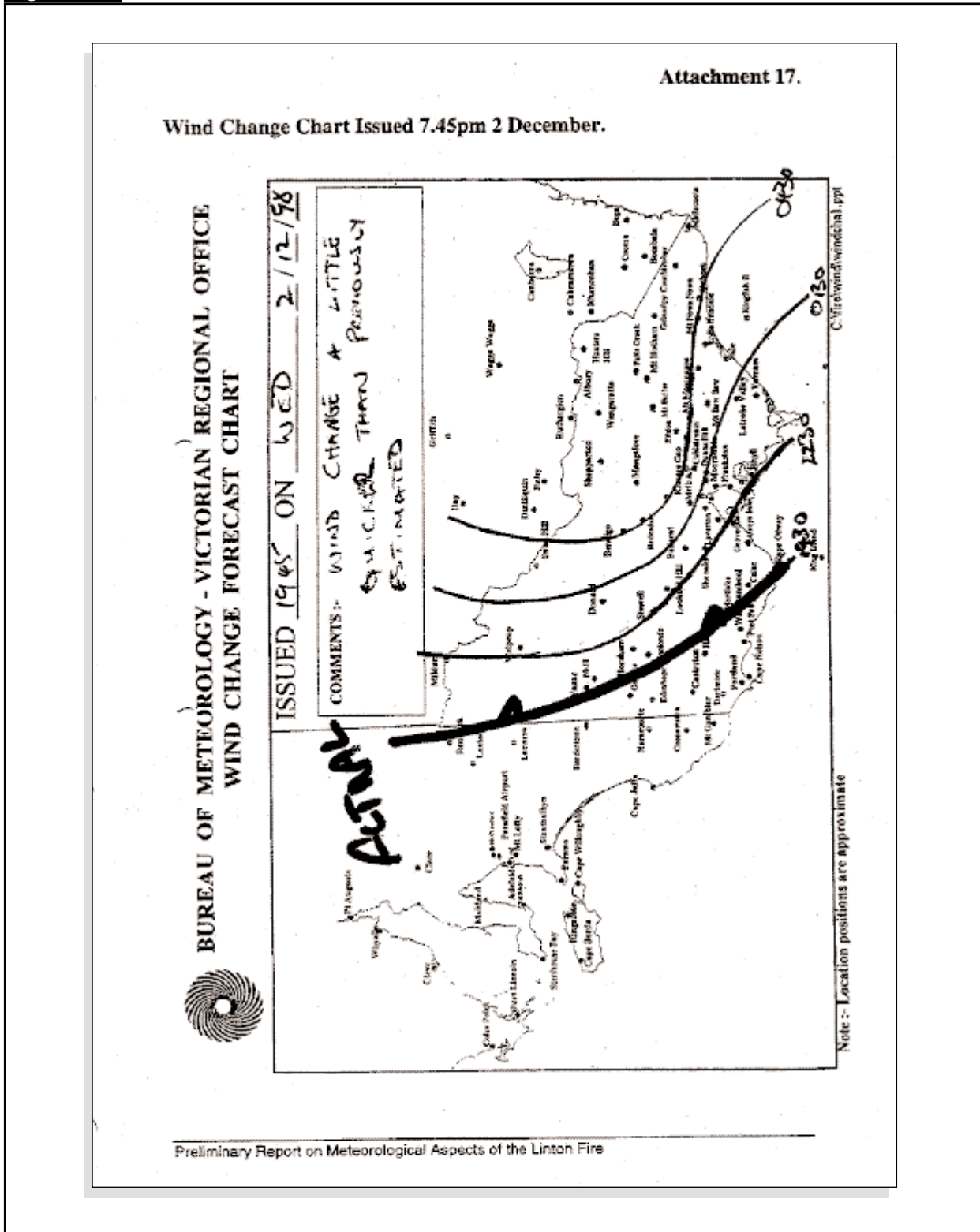


Figure 19.9

Attachment 20.



**BUREAU OF METEOROLOGY
VICTORIAN REGIONAL OFFICE**

Spot Fire Weather Forecast
Issued at 1953 on Wednesday the 2nd of December 1998 for CFA

Forecast No: 2
Incident Name: Linton
Elevation above sea level: m.
Map reference:
Forecaster reference: SPOT FIRE FORM 2

1. Request from CFA Incident Controller - Peter Loader at
Fax No: 5331 5509

2. Forecast for first 9 hours

Time period	2000-2300		2300-0200		0200-0500	
	forecast	observed*	forecast	observed*	forecast	observed*
Temperature (C)	25-19		19-17		17-15	
Relative Humidity (%)	30-45		45-75		75-80	
10m wind (km/h)	N 35 then W/SW 45		W/SW 45 dec 30		W/SW 30	
1000m winds (km/h)	NW 65		NW 65		W 45	
Drought factor*						
Forest FDI*						
Grass FDI*						

* these fields are for firefighters' use

a) Details of major wind change: Southwest change due around 11pm Wednesday. Gusts to 60 Kph possible in W/SW winds
b) Comments on stability: Unstable
c) Weather and other details: Fine ahead. Low risk of a storm with the change. Shower or two following change

3. Forecast for subsequent 12 hours
a) Temperature: inc to 23 tomorrow.
b) Humidity: 80% dec 40%.
c) Wind: W 30
d) Stability: Becoming stable.
e) Weather and other details: Isolated showers

Firefighters' note: Observed weather conditions may be entered on this form and faxed to the fire weather forecaster on (03) 9663 2059 to assist in forecast verification.

For further information, or if the forecast differs significantly from observed conditions, contact the fire weather forecaster, Ward Rooney, on (03) 9662 1650.

Preliminary Report on Meteorological Aspects of the Linton Fire

19.5.39 The wind change chart carried the following comment *"Wind change a little quicker than previously estimated."*¹¹⁵

19.5.40 The spot fire weather forecast predicted the wind to turn south-west during the 3 hour period from 2000 to 2300. In the narrative, at paragraph (A) *"Details of Major Wind Change"; "South west change due around 11.00pm Wednesday. Gusts to 60kph possible in west south-west winds."*¹¹⁶

19.5.41 The wind change forecast chart issued at 7.45pm contained a line drawn by Mr Rooney purporting to reflect the actual position of the wind change at 7.30pm. There are a number of significant errors in the “actual” line. The wind change went through Yanac at 6.45pm and Rooney’s actual line as at 7.30pm has not reached Yanac. Likewise, the wind change went through Toolondo at 7.01pm and the 7.30pm line has not reached Toolondo. The wind change went through Horsham at 7.32pm and the 7.30pm line is far short of Horsham. The wind change went through Hamilton at 6.45pm and the 7.30pm line is drawn barely past Hamilton. The wind change went through Mortlake at 7.04pm and the actual 7.30pm line encompasses Mortlake. On the coast the wind change went through Cape Otway at 7.11pm and Rooney’s line for actual at 7.30pm had just reached Cape Otway.¹¹⁷

19.5.42 Mr Rooney was questioned about the inaccuracies in the 7.45pm wind change forecast chart. He was asked by the Coroner:

*“Doesn’t that ring alarm bells, that your line might be wrong?—Again, Your Worship, it is a case of there – in the forecasting process there’s a lot of uncertainties at the time with the material and certainly with that particular observation site (Toolondo) because leading up it was at odds with the ones surrounding it east and northerly. I was concerned about the fact that there was something actually wrong with the observation.”*¹¹⁸

19.5.43 Mr Rooney defended this chart, querying the reception time of reports from various AWS’s including Goroke, Edenhope, Toolondo, Horsham and others.¹¹⁹ During his evidence Mr Williams presented a series of diagrams showing the movement of the change across Victoria,¹²⁰ and the time the AWS information was available to the Bureau. Those diagrams graphically illustrate the uniformity of the speed of movement of the wind change line across the land mass of Victoria, confirming the evidence of Dr Reeder.

19.5.44 The roles of the CFA and DNRE

General understanding of wind change information for the fire-ground

19.5.45 The following paragraphs trace the general and disparate understanding of CFA and DNRE officers in command roles at the Linton fire of the expected time of arrival of a wind change on the fire-ground. The officers in command range from the Incident Controller, the Officer in charge of the Operations Point to the Sector Commander. The evidence also discloses a general lack of positive action, by those responsible, to ensure that the message about the time of arrival of the wind-change was actually delivered in an understandable form. Also there was a lack of attention paid to appropriate operational and safety instructions for the Geelong Strike Team on actual arrival of the change.

19.5.46 Mr Kevin Brown, the CFA Region 15 Risk Manager, was on duty on 2 December 1998. At about 2.00pm, he received a telephone call from Brad Mahoney of the DNRE advising him of a fire near Pittong Road, in the Linton area. He contacted Leach and advised him of the fire. Brown knew that Leach was going to the Glasshouse to establish an IMT jointly with the DNRE. Brown also contacted other officers and assisted in establishing the IMT. He assisted the IMT from the Region 15 Headquarters at Ballarat.

19.5.47 Mr Brown made the following observations about the weather information:

*“Later on in the evening around 6 o’clock, after consultation with John Anderson, we decided to get as many weather updates as we could to monitor the change. A phonecall was made to the Weather Bureau to request regular updates on the progress of the change. As these arrived at Ballarat they were faxed direct to John Anderson at Linton. In addition to this I appointed Kylie Lampard to access the RAWs information and fax down to John Anderson weather relating to Lookout Hill, Hamilton, Lismore and I think Casterton. This was complied with and done about every 15 minutes, and this was done to provide any additional information which may assist in identifying the wind change. ... As we got updates from the Weather Bureau we faxed them down to Linton, Greg Leach was advised this was happening.”*¹²¹

- 19.5.48** Mr John Anderson stated that, at the Forward Operations Point at Linton, he received regular faxes of the RAWS print-outs and Bureau information. In addition, he recalled receiving a telephone call to the effect that the wind had gusted to west or north-westerly at 61kph at Casterton and said he recalled later receiving a phone call to say that it had actually gone round to the south-west. On receiving this information, Anderson was of the view that the wind change was going to come much earlier than the Bureau was predicting.¹²²
- 19.5.49** The information received by Mr Anderson included facsimiles, sent by Kylie Lampard at Region 15 Headquarters, including the data for Casterton, Hamilton and Mortlake.¹²³
- 19.5.50** The Region 15 Log of Communications for 2 December 1998 recorded Mr Anderson being advised of the wind change at Casterton at 5.44pm. It states:
- "Casterton weather turned to west south-west relayed to J. Anderson"* ¹²⁴
- 19.5.51** Ms Lampard had no training in fire weather analysis. Her job was simply to down-load material from the RAWS system and fax it, as directed.
- 19.5.52** Mr Brown telephoned Anderson at the Operations Point, probably twice, to confirm that he was receiving the weather information.¹²⁵
- 19.5.53** Mr Brown was asked:
- "Would it be fair to summarise the position of the Region 15 headquarters in relation to Exhibit 164 (collection of faxes of Weather Bureau and other material) as this, Mr Brown, that during the course of the afternoon at your instigation and by arrangement with Mr Anderson a series of Bureau Meteorology reports and forecasts and RAWS data screen prints of computer screens, were sent principally to the Linton fire office, being the operations point?—That's correct."* ¹²⁶
- 19.5.54** Mr Tange was in charge of the Situation Division of the Planning Unit at the IMT in Ballarat. Tange stated, at about 5.20pm, he had a discussion with the Bureau relating to the accuracy of the Bureau's timing of the likely arrival of the wind change. Kollmorgen was questioned about this and said:
- "I don't recall that conversation and I'm not saying he didn't call, he most likely did, there were several phonecalls during the day. I don't recall that particular phonecall, but if he said he did I am riding comfortable with that, but I don't recall a conversation.*
- You said there were several calls, do you recall how many contacts you had from Mr Tange?—No I don't I'm sorry.*
- Are you prepared to accept that it was at least two?—I'm prepared to accept that, yes, I have no reason not to accept it."*¹²⁷
- 19.5.55** Interestingly, in terms of communications with the Operations Point, Mr Tange could only recall having conversations with Gerard Stewart and later in the evening, Marcia Johns.¹²⁸ Tange was asked:
- "Were you getting information from people in the field at the forward operations point or Westmere base or other places of the passage of the wind change?—No."* ¹²⁹
- Mr Tange referred to his log, which recorded a telephone conversation at 5.20pm with Kollmorgen at the Bureau *"Told MET stands by forecast."*¹³⁰
- 19.5.56** Later Mr Tange was asked:
- "Did you try to get information from Mr Phelan or Mr Graham about what time it would arrive – at what time they were working towards I should say?—No, I was unaware they had made an estimate."* ¹³¹
- Mr Tange also referred to an entry in his log at 8.15pm recording that Marcia Johns, who was at the Linton Forward Operations Point, advised:
- "... the wind change was at Wickliffe about 45 minutes south-west up to 35km. ... M. Johns to pass on to Bob Graham – informed that CFA crews were aware of change.*

There is a trail joined east edge.” 132 Tange gave evidence that he thought he crossed out the letters NRE in the entry and wrote ‘Bob Graham’, adding “It would have been probably at the time I wrote it, but I can’t be certain but I’m pretty sure it would have been at the time I wrote it.” 133

19.5.57 Counsel for DNRE produced a version of the log, which contained an entry – “South-south-west up to 35kph. No rain.” ¹³⁴ How different copies of the same log came to contain different entries was never satisfactorily explained.¹³⁵

19.5.58 Mr Tange was asked, in respect of the arrangements at the IMT:

“Was there any one person that was in charge of the weather or was that a group effort as well?—I had the main oversight on the weather information.

In terms of what happened to the information after you gathered it, how was it disseminated within the unit, the IMT?—It would have been, the weather we got, I think we would have attached it to the situation reports, and also, it would have also been attached to the spot forecasts we would have requested, or when we requested additional spot forecasts, if we got more updated weather from the fire line, we would have put that onto the request forms, and I would have discussed the weather with the planning officer as well.

We went through the weather yesterday afternoon. Did you have an understanding of the positions that were held by different people in the structure of this fire?—I had a broad understanding of the people in the main positions in the IMT, yes.” ¹³⁶

19.5.59 DNRE officer Ms Karen Chatto was a fire research scientist within the Centre for Forest Tree Technology at Creswick. On Wednesday 2 December 1998 she received a telephone call at about 6.50pm from Peter Boadle, the Planning Officer at the IMT. She was told that a change in the weather was due at approximately 1.00am the following morning and the IMT wanted someone south of the fire to watch out for the change so that the firefighters would have sufficient warning.¹³⁷

19.5.60 Ms Chatto was advised by Boadle there was “no urgency” but said she “didn’t dally around.” ¹³⁸ She finished having her dinner, packed a few items, and went to Creswick to collect the portable automatic weather station and other equipment, which she put into a 4-wheel drive vehicle. Chatto then travelled to Ballarat to the IMT and met up with Boadle at about 8.00pm. She was briefed by Boadle and then travelled directly to Lismore via the Glenelg Highway. When she was 5 to 10 minutes out of Lismore her vehicle was buffeted by the wind, and at this point – “I became aware that the wind direction was not what was expected.” ¹³⁹ She stated that – “I recall thinking that it couldn’t have been the wind change as it was much earlier than predicted.” ¹⁴⁰ She did not report this observation to the Incident Control Centre.

19.5.61 On arrival at Lismore Ms Chato went to the football oval and took her first reading from the automatic weather station at 8.56pm.¹⁴¹ She observed a wind direction of west to west-south-west which she had not expected. She radioed these observations back to the planning unit in Ballarat, using the trunk radio. Boadle’s log noted the first information from Chatto was logged at 9.00pm. He did not receive any information from Chatto about the wind change until after the wind change had arrived at Linton.¹⁴²

19.5.62 Mr Anderson gave evidence that after he received the information about the wind change being at Casterton, he anticipated that it would arrive much earlier than predicted by the Bureau. At the time he heard the Wickliffe message he was of the belief that the wind change would arrive at Linton at about 9.00pm.¹⁴³

19.5.63 Mr Neville Britton, also at the Forward Operation Point, said:

“I can’t recall Mr Anderson’s view of the timing of the wind change and my views were different. I didn’t particularly worry myself about it. He was suggesting the wind change was coming a little bit sooner and therefore speeding up the tactics, my view happened to be different, but I wasn’t going to suggest that the tactics, or the changes in the tactics they were proposing were wrong. They wanted to move the speed at

*which they were doing the work forward to be completed at a quicker time, or to concentrate on that, I wasn't going to argue with them, but obviously that would be the desired situation anyway."*¹⁴⁴

19.5.64 Mr Britton was asked:

"You tell me if this is not an appropriate summary of what occurred at the forward operations point: all that happened as a result of updates about the wind change was that it was decided, having regard to the possibility or probability that the wind change might come earlier than the Weather Bureau had been forecasting, that the strategy would be implemented, if possible and completed within 2 hours?—That's correct.

*Isn't that the only difference that emerged as a result of the continuing information as a result of the RAWs data, that there was a greater sense of urgency to complete the strategy within a given time period? —That is correct."*¹⁴⁵

19.5.65 Mr Bob Graham, the DNRE Officer in Charge of the Operations Point, gave evidence as follows:

"We know from looking at the AWS information that the change went through Casterton at about 5.35 in the afternoon. Now does that accord with your recollection that at about 5.35, or about that time of the afternoon that you would have put in place the 3 hour safety margin?—I'm not sure of the time, but Mr Anderson showed me a fax with the automatic weather station information on it which came from Region 15 headquarters.

Was that the AWS information in relation to Casterton, was it?—That was.

That Mr Anderson showed you?—That's correct.

From the time that you were given this information from Mr Anderson and making the estimate of the 3 hour safety zone, is it from that time onwards that you were working to that arrival – to the arrival of the wind change in about 3 hours time, rather than the estimate of the Bureau?—No, at that stage I had given myself that safety margin but I was still working at that stage to the Bureau's forecast.

So is it not until later in the afternoon again that you then worked to your arrival of the wind change when you get the Wickliffe information?—That is correct. The Wickliffe information ...

Was the determining factor?—That's right. It gave me a chance to put an accurate time on what was going on, hopefully an accurate time.

*We know that information came through around about 10 to 8, 8 o'clock, that accords with your recollection?—It is in the time line somewhere about that, yes I think so."*¹⁴⁶

19.5.66 The Planning Officer, Mr Peter Boadle (stationed at the IMT) stated:

*"I want to ask you some questions about your knowledge of the wind change. You have identified the weather as being an important issue and you have set out in your statement the way of keeping tabs on the weather change. When was it that you actually found out that the wind change was due to arrive much sooner than what the Weather Bureau was forecasting?—The information we got was again there was two sources, one was through Brad Mahoney who advised me that the operations point had heard that the wind change was at Wickliffe, and the second source of information was from Peter Tange who had been on the phone to Marcia Johns at the operations point and Marcia advised Peter that the operations point had estimated, or made an estimate as to when the wind change would arrive at the fire, and that was far earlier than anything we had considered previously on the other information that we had."*¹⁴⁷

19.5.67 Mr Boadle was also asked:

"What I am asking is if you are sure about whether that Wickliffe message was the first time you became aware that the wind change was arriving much earlier than forecast by the Bureau?—Yes I am sure about that.

You are confident about that?—Yes.

Did you have much to do with Mr Leach during the afternoon. Did you speak to him very often?—He was controller, we obviously communicated at the incident management meetings and occasionally perhaps at other times.

Perhaps if I can ask you this. Did you become aware at around 5.00, between 5.00pm and 5.30pm, that the wind change had reached Portland?—Yes, yes, I did. That was when Peter Tange queried the Weather Bureau as to the expected time of arrival of the wind change I believe.

And the Weather Bureau stuck with the forecast?—That's right.

Did you become aware at about 6.00pm that the wind change was through Hamilton during the finding out about that on the day?—No.

The information about the wind change going through Portland you are saying that following the Bureau confirming it was sticking to its original forecast, you didn't change your view as to the likely arrival time of the wind change, is that a fair assessment?—Yes, that's right.

As far as the planning unit were concerned, up until the news of that Wickliffe wind change around 8 o'clock, you were operating on the wind change arriving at about what time?—Half past 12–1 o'clock in the morning.

Have you seen video footage of Mr Leach conducting a media interview at around 5.30pm when he says that he expects the wind change to arrive within a few hours?—Yes I did see that.

You have seen it?—Since it obviously, yes.

That wasn't your understanding on the night?—No.”¹⁴⁸

19.5.68 Mr Euan Ferguson, the Deputy Planning Officer (stationed at the IMT), gave the following evidence:

“Now, in this situation where there was some issue as to the time of the arrival of the wind change at the fire ground itself, would that be one of the responsibilities, or would that give rise to a special forecast having to be obtained by the situation unit?—Your Worship, I don't agree that there was an issue with the timing of the wind change. At the time of this particular incident my recollection is that there was a clear perception in the incident management team that the wind change was expected early the next morning, round about 1.00 to 1.30. Whilst there had been some discussions about the strength of that wind change, the timing of the wind change wasn't identified as an issue.

THE CORONER: Mr Ferguson, in fairness to you, are you trying to say to me that the whole of the IMT didn't consider that there was any issue about the wind change beyond the 1.30 issue?—Your Worship, I can only ...

Or is it only your knowledge that the IMT didn't think the wind change was going to come until about 1.30?—I can only tell you what my knowledge is, Your Worship.”¹⁴⁹

19.5.69 Mr Ferguson was asked:

“Well around that time and on the radio programme prior to that between 5.00 and 6.00 Mr Leach indicated his thinking at that time was the wind change would arrive in 2 hours. Did you have any knowledge of that?—No.

At that meeting at 1802 hours was anything like that discussed, the wind change was coming faster and that it could be there within 2 hours?—The wind change at Portland was discussed.

Yes?—And as I recollect the concern was the strength of the wind change at Portland ... “¹⁵⁰

19.5.70 Mr Ferguson summed up his evidence: *“Your Worship, my understanding with respect to this particular fire, that wind change was expected around 1.30 the following morning.”¹⁵¹*

19.5.71 Mr Ferguson also said:

*"If you are asking me to speculate if we knew the information was coming, sorry if we knew the wind change was coming a lot earlier, say in 2 hours, in response to that request to speculate, yes, it would be reasonable that a warning would then be sent out or **additional instructions would be sent out alerting people on the fire ground to that new timing, and to any particular actions that they should take as a result of that wind change coming through.** (Emphasis added).*

Quite apart from the safety issue, it is a question of management of the fire, you are preparing them for a change in direction of the fire, change in the tactics or the way that they manage the fire?—Yes, you are talking about this particular fire or generally?

I am really talking about this particular fire?—With respect, Your Worship, we weren't preparing for a change in the direction of the fire because the expectation was by the time the wind change or when the wind change came through, not only would the eastern flank control line be completed, but it would also be in my terms consolidated, that means all the potential threats ..." ¹⁵²

19.5.72 Mr Ferguson referred to a note in his log of the 6.02pm IMT meeting, which he stated reflected the expectation of a 0130 wind change.¹⁵³ He stated that it was his clear recollection that there was "no mention at that meeting at all about the wind change coming in 2 hours."¹⁵⁴

19.5.73 Later Mr Ferguson said:

*"Your Worship ... for many years we have had a custom and practice that when a wind change is evident that it is going to impact on a particular fire, that information about the wind change is conveyed to people on the fire ground, generally by means of a radio broadcast, **if necessary supported by a face to face briefing.** That has been general custom and practice up until about 12 months ago when we implemented a more rigorous process for it that has worked well in the past. There has been no reason up until this particular fire to question the effectiveness of it."* ¹⁵⁵ (Emphasis added).

This answer must be read in light of Mr Ferguson's evidence referred to in paragraph 19.5.71.

19.5.74 The Geelong Strike Team was not advised of the likely time of arrival of the wind change and was not given any instructions as to what action to take when the wind change arrived.

19.5.75 This was the case notwithstanding that Mr Leach made the following public statements on 3LO at about 5.00pm on 2 December 1998:

COMPERE: *How's the winds up there at the moment? The Weather Bureau told us they might moderate a bit ahead of the change.*

LEECH: *Yes, still north-westerly at this stage, at 40kms. The temperature is starting to drop and the RH, the humidity, is going up — which will certainly assist us.*

We've got some quite active fire behaviour on the east flank, which is a concern to us.

We've just been made aware that the wind change has come through Portland which means that it's probably a couple of hours from hitting us here.

And at Portland there was 70kms winds from the west, which means that if we don't get the east flank secured within the next couple of hours we're going to have, you know, some significant fire movement from the east flank.

COMPERE: *Currently, Linton itself not directly threatened by the front?*

LEECH: *A lot of spotting activity into the township. We've got an unconfirmed report of one house being damaged or burnt, haven't been able to confirm that.*

*But certainly a lot of spotting activity which is of course making the residents of Linton quite anxious. But we're actually doorknocking the area out there and talking to people about the situation and keeping the local residents informed."*¹⁵⁶

- 19.5.76** Mr Brad Mahoney, Fire Management Officer DNRE, was initially the Deputy Incident Controller and then the Operations Officer at the IMT. He gave evidence of a conversation with Graham, at about 8.00pm in which Graham told him that the wind change was at Wickliffe.¹⁵⁷ He noted the fact in his log. He was asked:

*"Before you got that phone call from Mr Graham, what was your state of mind as to the likely arrival of the south-westerly wind change?—We had been advised that it was to come later in the night, but as part of operational planning **you do always keep the crews alert that there is the possibility of the change coming early.**"*¹⁵⁸ (Emphasis added).

- 19.5.77** In relation to the "Wickliffe" wind change message, Mr Mahoney gave evidence that he understood Graham would "act on it." He was asked:¹⁵⁹

*"When you say 'act on it' was there any discussion about what he would do?—I expected he would inform all crews down through the operational command."*¹⁶⁰

- 19.5.78** Mr Mahoney gave evidence that he could not remember seeing any Bureau spot forecasts but: *"I just think I was advised that it was expected later that night or early the next morning."*¹⁶¹

- 19.5.79** Mr Mahoney was also questioned about why it was important for Graham to notify the crews on the line of the impending wind change. He said:

"It affects the fire behaviour, it will change the current fire behaviour. It affects burning out operations, it affects the burning out and fire intensity that the people may be exposed to in different parts. It just affects the fire behaviour.

Does that have any anything to do with safety?—Yes.

Why?—Because of that fact, that it does change fire behaviour.

Why would you want crews to know about it ahead of time?—It is just a standard practice and, yes, as one who has been on the fire line a lot of times, it is important information to know.

*Why do you need to know, I just want to get a bit more information from you?—Well the fire will be burning under a certain pattern. Once you get the wind change it will change and sections of line that are held may come under pressure. There will be an amount of burning embers that will go over lines that previously had been quite secure, no spotting over, just routine patrol would be fine, but once that wind change comes in the eastern flank of the fire comes under a lot of pressure for escaped embers and spotting, and there is a lot of potential for the fire to escape on that eastern flank, so there needs to be a lot more patrol and blacking out on the eastern flank."*¹⁶²

- 19.5.80** Mr Mahoney was asked:

*"... when you deliver the message about the wind change at Wickliffe via the radio, do you expect in the normal course of events that it ought be acknowledged by those who are receiving it, in other words the crews?—Not directly from the operations officer, **he would pass it on to sector commanders and then they would both verbally and via the radio pass that message on and around the fire ground.**"*¹⁶³ (Emphasis added)

This did not happen with the Geelong Strike Team.

- 19.5.81** Mr Mahoney was also asked:

"At the time was there any system in place to ensure that messages given in relation to wind change information were in fact received?—No.

Do you think there should have been?—For crucial pieces of information often we do seek acknowledgment, but on this occasion I didn't hear anyone seeking acknowledgments. If you have a critical piece of information you will state in your

transmissions that you are seeking acknowledgments and this didn't happen on that occasion.

That is not quite right in the sense that one officer did seek acknowledgments?—I may not have heard that ...

You knew that there were crews working down the eastern flank, didn't you?—On the eastern flank of the fire?

Yes?—Yes.

And you knew that the eastern flank was the vulnerable flank if there was a south west wind change?—Yes.

What can happen to the eastern flank if there is a south west wind change?—Any unchecked sections of the fire can become the head of the fire and there is a lot more pressure in terms of spotting and burning embers going across the held line, so there is a lot of potential for that to break out on the eastern flank.

So the issue of an impending wind change, I suggest to you, is vital information for a crew working on the eastern flank of a fire?—If you know there is a wind change in the area, like, in the next half hour or so, it is important that that information is conveyed around the fireground.

In particular, it is vital to crews working on the eastern flank, is it not, that they get that information?—Yes, it is, but it also can be important to other parts of the fireground as well, it might have an effect”¹⁶⁴

19.5.82 Mr Michael Harris, a CFA Officer who fulfilled the role of Deputy Operations Officer at the IMT, said he had a conversation with Anderson in which Anderson expressed the opinion that the wind change would arrive at the fire line at about 9.00pm. Harris relayed that information to others in the IMT, in particular Leach and Mahoney.¹⁶⁵

19.5.83 Mr Harris was asked:

“Mr Anderson certainly seemed to express the view that he conveyed that information closer to 6 o'clock, that is some hours before the time of the expected arrival?—Again, that seems to me to my recollection to be too early. I am just not prepared to under oath say he is wrong because I just can't do that. I don't have a good enough recollection to dispute what Mr Anderson is saying, but I certainly feel that it was later than that.”¹⁶⁶

19.5.84 Mr Harris was questioned as to whether fire crews on the ground should rely on weather information which has been disseminated from the IMT in accordance with the AIIMS system or information provided to them independently of that structure. He answered: *“They should rely on both and if there is a difference they should question it.”¹⁶⁷*

19.5.85 Mr Harris gave evidence that he was *“positive in my own mind that it was later than 6 o'clock”* that he had a conversation with Anderson about the earlier than expected arrival of the wind change.¹⁶⁸

19.5.86 Mr John Sanders, a DNRE Officer and the Deputy Incident Controller (stationed at the IMT), stated he learnt about the wind change at Portland via the Regional fire coordinator who had been talking to a fire management officer at Portland.¹⁶⁹ He said that he found out that the wind change was approaching Hamilton, somewhere between Casterton and Hamilton, and he advised Leach accordingly. Saunders was asked:

“Did that lead you to believe that the wind change would arrive at or around any particular time?—No, all it alerted to myself was there was discrepancy between the wind change chart and the actual readings and the discrepancy sort of indicated that perhaps it was coming through quicker, but I don't have the expertise to predict when it might come through.”¹⁷⁰

19.5.87 Mr Sanders was also asked:

“When you found out about the Portland information did you have any expectation as to the likely timing of the wind change?—No, I was still basing the timing on the

*Bureau's wind change charts, we were receiving spot forecasts, updated wind change charts, and it wasn't until round about 7 o'clock that the, there was a re-advised wind change chart indicating 2300, I think it was, which indicated that the wind might be coming through a bit quicker, but I was certainly aware there was a discrepancy and that was part of the reason for the planning team seeking information from the Bureau, and also part of the decision of placing someone to the south-west of the fire."*¹⁷¹

- 19.5.88** Mr Sanders was questioned about the remark in his statement that: *"Around 1900 hours we were confident that the strategy to control the fire was going to be successful in spite of the anticipated early arrival of the forecast wind change."*¹⁷² He was referring to the Bureau revising its forecast arrival of the wind change to 11.00pm. It is noted that this revision by the Bureau occurred in the 7.53pm spot fire report.¹⁷³

- 19.5.89** Mr Sanders was asked:

"Do you recall Mr Leach expressing to you a belief that the wind change was going to arrive substantially earlier than the Bureau had forecast?—No, I can't recall that.

*Did you become aware of his media report at about 6 o'clock?—I only became aware of that through the process of this Court, Your Worship, I wasn't present during that interview."*¹⁷⁴

- 19.5.90** The Deputy Incident Controller was also asked:

"So he didn't discuss with you the fact that he had just given a media interview indicating the wind change would arrive in a couple of hours? —I can't recall him having done that ...

That would be important information wouldn't it for you as deputy and the incident controller to have between yourselves?—Well, it would have stimulated some discussion but what that was based on I can't recall.

*To your evidence you had a different view about that time as to when the wind change would arrive ...?—That's correct."*¹⁷⁵

- 19.5.91** Later Mr Sanders was asked:

"We have heard from Mr Mahoney and Mr Boadle that they became aware that the wind change was at Wickliffe some time between 10 to 8 and 8 o'clock?—Right.

And that engendered an expectation it would arrive within the hour on the fire ground, you have no doubt heard that evidence?—Yes I have, yes.

Is it your position that you didn't know about that on the day?—Even at the time I took the statement I couldn't recall whether I had heard or hadn't heard.

It would be a fairly unsatisfactory state of affairs, would it not, if various people within the IMT were operating on substantially different expectations as to the timing of an important wind change?—That is one of the purposes we have IMT meetings for, it is to exchange information, talk about different concepts, different ideas, and there may be discrepancies in information, that is one of the purposes and part of it.

I gather from the fact that you don't have any specific recollection of hearing the Wickliffe message that you didn't have any role in ensuring that personnel on the fire ground be made aware of the likely early arrival of the wind changes, that right?—That's correct.

*And I further suggest to you that you weren't aware of what anyone else was doing in terms of disseminating that information at the time?—No, I would be working on the assumption that information held of such a nature at the operations point would have been disseminated."*¹⁷⁶

- 19.5.92** Mr Phelan gave evidence that he heard the "Wickliffe" message on Channel 15A. He was asked:

"What did it mean to you when you heard that message?—Wickliffe would, you know, like it is probably about an hour or so away wind-wise from Linton, so I would say that it would probably be in an hour or an hour and a half that the wind would change.

Did you do anything with that information when you heard it? Did you tell anyone about it?—It went out over the MCV, I don't know whether I acknowledged that wind change or not. I would have – well, I would have assumed that it would have gone out over 15B and 16B and that people would have heard it out on the fire line.”¹⁷⁷

19.5.93 Mr Phelan was questioned about his estimate of the expected time of arrival of the wind change:

“You are pretty much on your own as far as the evidence shows about an hour and a half estimate Mr Phelan. What makes you say an hour and a half?—Well, from my memory of Wickliffe, where Wickliffe is to the fire ground, I would have thought it was an hour to an hour and a half.

Is that what you thought on the night?—That's what I would have thought, yes.

THE CORONER: Is that a reconstruction of what you would have thought you thought?—No, I would have thought it was about an hour to an hour and as half away just knowing where Wickliffe is in relation to Linton, Your Worship.

And you still think that now?—Yeah, I've no evidence – the wind may have come earlier but I would have thought that was about the time span of the wind to come there.”¹⁷⁸

19.5.94 Mr Graham, when questioned on this issue, said:

“When you received the information about the wind change being at Wickliffe what did you do to ensure that that information was disseminated to people on the fire ground who needed to know that information?—I put the information into the CFA's communication structure via John Anderson and Neville Britton to put out and I made sure that NRE personnel were acquainted with it by contacting the sector commanders, then I notified the incident management team of the impending wind change.”¹⁷⁹

19.5.95 Mr Graham was asked:

“Why did you endeavour to contact Mr Scherger direct and speak to him rather than just put out a general message?—Because I wanted to ensure that the two sector commanders had the message and that it was their responsibility to get it to their crew.

Why did you want to ensure that they got that message about the wind change?—Because it was important, an important safety consideration.

Why was it an important safety consideration?—I wanted them to know that there was a wind change coming which was going to affect fire behaviour.

Is it because the position that they were at on the eastern flank was, with the arrival of that wind change, the most dangerous position on the fire line at that time?—In Mr Fullerton's case, yes, in Mr Scherger's case, yes as well.

Likewise the CFA Strike Team that was working down towards Mr Scherger's team?—Certainly.

Did you ask for confirmation from Mr Britton or Mr Anderson that the CFA Strike Team working down the eastern flank had been advised of the impending wind change?—No I didn't.

Why didn't you do that?—Because I passed that message into the CFA chain of command and expected that would go down.

Was it your expectation that the strike team would be contacted direct, or was it your expectation that merely a general message would be broadcast?—I am working from memory here, but I think I was advised that a general message was going out, with a request for confirmation, but I am only working from memory.

...

Was it your understanding on the day that a general message had gone out, or that the strike team had been contacted directly. What was your understanding on the day?—My understanding on the day was that a general message went out, I believe.

Why didn't you say to Mr Britton or Mr Anderson, 'Look, this is important information, I need to know that that strike team knows, make sure they know'. Why didn't you say something like that to them?—The message was important to everyone on the eastern flank. Just to say one strike team, I wouldn't have done that.

Well, you only had two, the two crews, if I can suggest this to you, in the most vulnerable position on the eastern flank, Mr Scherger's crew was working one way. Is that right?—Mr Scherger is working one way, yes.

And you endeavoured to contact him directly?—Yes.

And the other crew was the Geelong Strike Team coming the other way? —And there was another strike team north, who were, needed to be informed because they would have got the wind change which would have affected their line, and Murray Fullerton at the top ...

It wouldn't have been that difficult, would it, to ensure that each of those strike teams knew about the impending arrival of the wind change? —No.

It is not that difficult, is it, four strike teams?—No, I did two and I left the other two to the CFA command structure.”¹⁸⁰

19.5.96 Mr Lightfoot was questioned:

“We have heard evidence, Mr Lightfoot, from Mr Anderson – you knew Mr Anderson from Region 15 headquarters?—Yes.

And Mr Graham of the NRE?—Yes.

Based on their prior experience of the movement of wind changes across south-western Victoria, the message that they got from knowing that the wind change was at Wickliffe was that it was likely to be arriving at the fire ground within an hour?—I wasn't informed of their opinion of that, no.

You have answered my next question, that wasn't drawn to your attention at all, is that what you are saying?—That's right.

I take it that your local experience and knowledge wasn't telling you the same thing, is that essentially the evidence you have given?—It is my experience in wind changes that they don't come through when – if I had said, I think the best way to explain it, is if I had said to myself as obviously others did, it is due in about an hour, as far as – past experience is that could mean two hours, or it could mean an hour and a half, and I am not prepared to put a time limit on it, tell people it is due to come here at such and such a time, say 8 o'clock, and it comes at 1/4 to 8 and someone gets into trouble because I said it was 8 o'clock. In my opinion it is better to say, unless you know specifically when the wind change is, someone tells you specifically when the wind change is due, it is better to say that the wind change is expected and treat it as the wind change is coming all the time.”¹⁸¹

19.5.97 Mr Lightfoot gave evidence he overheard the “Skipton” wind change conversation between O'Rorke and Alice Knight and that he asked either Graham or Johns whether or not the wind-change message had gone over all channels.¹⁸² He was asked:

“Can you recall whether or not Mr Graham said anything to you about that matter?—No, I am not sure who answered me, but one of them did. I'm not sure, it could have been Neville Britton. One of them, I'm not sure who.

What did they say?—They said they were putting it over all channels, or they had put it over all channels.

So you were told at the operations point that the Skipton information had been broadcast over all channels, is that right?—That it was, I'm not sure as I just said, it had been put over or was going to be put over.

The people who were present when you say that conversation occurred were Mr Graham, is that right?—Yes.

Mr Anderson?—Or Mr Britton.

Yes, and Ms Johns from the NRE?—That's correct.”¹⁸³

The radio logs evidence that the “*Skipton*” wind change information, relayed by O’Rorke at 8.28pm, was not re-broadcast, but rather simply repeated by Alice Knight to O’Rorke.¹⁸⁴

19.5.98 Mr Greg Leach gave evidence:¹⁸⁵

“After your discussion with Mr Laidler, did your state of mind as to the potential arrival time of the wind change change in any way?—After I did the two media interviews, the one with Mr Laidler and then the one with WIN Television, it was around that time, I think it was around 17.30 thereabouts, that information came from the planning unit that they had been in contact with the Bureau and the Bureau was still sticking to their forecast. Whilst at 1700 based on the Portland information I believed there was a potential for it to come through earlier, we had advice from the Bureau around 1730 that they were sticking to their forecast.

Did that information from the Bureau slow down in any way your response to the information that you had received earlier. Did you think that the likelihood of the wind change arriving earlier had changed?—Well, we were working on two scenarios. As I said, I had my experience of wind change information through working in Ballarat for a number of years and as I said the other day, I believe there were two possible scenarios and I was working to the worst case scenario, and that is the wind change would come through much earlier than predicted.

As far as you were concerned, the information the planning unit had received from the Bureau of Meteorology did not alter your state of mind as far as the potential weather conditions at the fire?—That’s right, I believed the planning unit were in possession of the same information as I was and were grappling with these two possible scenarios to the same extent that I was.

*Can I ask you this: what consideration, if any, did you give to the need to deploy appropriately experienced resources on the eastern flank with the knowledge that this wind change may arrive whilst they were there?—Well that’s not something that the incident controller would have been able to make a judgment of, because whilst I knew the names of the strike teams there, I wasn’t aware of the personnel on the strike teams or their level of experience, that’s a judgement that would be made at the operations point based on the information that they had.”*¹⁸⁶

19.5.99 Later Mr Leach was asked:

“You heard the evidence of Mr Mahoney and Mr Boadle, you were in court?—I believe I did, yes.

Were you surprised about the evidence they gave, the basis upon which they were operating in terms of the wind change arrival?—I was surprised by the evidence. I have a memory of the 1800 hours IMT meeting and an IMT meeting follows a particular structure. ... I have a memory of Peter Boadle starting off the planning meeting and some discussion around the table, I also recall Mr Boadle and Mr Ferguson and perhaps Mr Mahoney, leaving that meeting around 1830 hours to talk to the operations point. I can recall discussion on the differences in the wind change information, the wind change information. Maybe that occurred after they left the meeting, I thought it occurred prior to them leaving.

*THE CORONER: Certainly Mr Ferguson wasn’t aware of the wind change issue?—That certainly appears to be the case.”*¹⁸⁷

19.5.100 Mr Leach was taken to Ferguson’s situation report at 8.00pm where, under the heading “*Critical Issues*” it states: “*Wind change ETA 0130 south west 15–30kph.*”¹⁸⁸ Mr Leach was asked:

“You signed off on this situation report?—I did.

It is clear from your evidence, however, that you weren’t working on the arrival of a wind change at 0130 as of 2000 hours were you?—No, that’s right.

*In fact, from around 1800 you were working on the arrival of the wind change at about the time that it actually arrived, is that fair or not?—Yes, somewhere around that, yes.”*¹⁸⁹

19.5.101 Mr Leach was then asked:

"Why was it that you signed off on it with that wind change information?—This was a situation report that was prepared for the State Emergency Coordination Centres. It wasn't a document that was going down in the chain of command, this was a situation report. There was some pressure being put on the IMT to give an updated report to State Headquarters. Euan prepared this document ..." ¹⁹⁰

19.5.102 Mr Leach was questioned about the need to notify crews on the eastern flank about the likely arrival of the wind change. He said:

"I can recall being involved in I think two teleconferences with the operations point where a number of operational issues were discussed regarding strategy and tactics, and of course weather was part of the discussion. I didn't issue any directives as such.

Did you make any suggestions or did you just regard that as being a role of others?—I was part of the general discussion and put forward my views about a number of things like appropriateness of the strategy and tactics and the like.

I suppose what I am getting at is did you say anything to anyone under your command – 'Look, make sure those crews on the eastern flank know about this early wind change'?—Well, I satisfied myself that there was discussion about the wind change and that the personnel at the operations point understood that issue as well as I did. No I didn't direct them, I mean, we had some very experienced people at the operations point and I knew that they were as aware as I was of the importance of that information.

Now, is it your assumption that they would simply put out a general message or was it your assumption that they would take whatever action was needed to ensure that the people on the eastern flank knew about that information?—Well, standard practice at the time was that a general message go out. I didn't do anything over and above that, no.

Did you actually give any thought to it, because we have already explored this issue about it being not reasonable to expect that a general message will be received by anyone. Did you have any thought processes on the afternoon about ensuring that they got the message?—No I didn't ..."

Mr. Leach went on to say that he thought there was "good knowledge" at the operations point about the fire and "I just saw that that information would be part of the flow of intelligence back out to the fire ground." ¹⁹¹

19.5.103 When questioned further Mr Leach said:

"In your statement you said that Mr Lightfoot was in charge of the eastern flank sector south of Possum Gully Road to the head of the fire. Whose responsibility was it to ensure that Mr Lightfoot knew that he was in charge of the eastern flank sector south of Possum Gully Road, Mr Leach?—The chain of command, as I understood it, was Mr Graham at the Operations Point, being assisted by Mr Britton, and later in the afternoon Mr Phelan assumed a role as a Divisional Commander on the east flank, and then below Mr Phelan were a number of sector commanders, and I believe Mr Lightfoot was one of those.

Whose responsibility was it to ensure that Mr Lightfoot had available to him sufficient information to safely supervise the crews deployed on the eastern flank?—Well, via the chain of command, the East Division Commander.

So Mr Phelan's responsibility was to ensure that Mr Lightfoot knew that he had those responsibilities; is that right?—Correct.

In turn, the Operations Point were responsible for ensuring that Mr Phelan knew that he had those responsibilities?—That's correct.

Otherwise, the crews on the eastern flank wouldn't be supervised at all, would they?—Well, there would be potential for that, yes." ¹⁹²

Potential safety and operational instructions for the Strike Team with delivery of wind change information

19.5.104 The evidence summarised in following paragraphs is illustrative of the type of instruction that should have been given to the Geelong Strike Team along with the wind-change message.

19.5.105 Mr Lightfoot was asked what steps he took to ensure that the Geelong Strike Team received the information regarding likely early arrival of the wind change. He was asked:

“And at the time that you received the message on 15A you were a short walk from where the Geelong Strike Team was on the control line, weren’t you?—About 200 metres.

200 metres. And you had available to you Mr Byrne’s vehicle, is that right?—That’s correct.

That was a four wheel drive, he has told us?—That’s correct.

And Mr Phelan was there as well, was he?—Yeah, in the vicinity, yes.

Also in a four wheel drive vehicle?—Yes.

And none of you took any steps to ensure that that strike team had received that information, did you?—I believe they received it on 15A.

*THE CORONER: Just listen to the question, Mr Lightfoot. You took no steps to ensure, to check to see they got the message, did you? —No.”*¹⁹³

19.5.106 In his statement Mr Graham said:

*“Des Phelan and Daryl Scherger were advised that if the wind change came through before they linked up they were to continue to follow the flanks of the fire on to Kelly Road. This was the only way to safely control the fire if the wind change arrived before they had linked up. We didn’t consider removing any of the members because at that time the fire intensity was low and they were operating on a dozer line with the fire blacked out to it. The strategy was conveyed to Phelan and Scherger directly.”*¹⁹⁴

19.5.107 Mr Graham confirmed his statement in his evidence.¹⁹⁵ In relation to this topic Graham was asked:

“Given that you told Mr Scherger and Mr Phelan that this was what was to occur in the event of the wind change impacting on the eastern flank in this manner, would you have expected them to have in turn explained that to the crews that they were supervising?—Yes I would.

It would be necessary, wouldn’t it, for the crews that were carrying out that task of constructing a control line to know exactly what they were to do in the event that the fire changed direction?—Yes, I believe that would be in their basic training.

*Would you expect their supervisors to alert them to this eventually, or this possible eventuality and as to what to do?—As part of a briefing, yes, I would.”*¹⁹⁶

19.5.108 Mr Graham had earlier given evidence that:

*“When the wind changes or when something happens on the fire line ... it is a Grahamism, I am afraid, that comes out of the fire line supervisors book at NRE where the principles are laid out, it is what to do in those sort of situations. If the fire behaviour alters in any way you stop, regroup, reassess and then re-deploy, so that’s where the three “R’s” come from.”*¹⁹⁷

19.5.109 On the same topic Mr Graham was asked:

“Once the fire changed direction as a result of a wind change on the eastern flank, at the Linton fire, what would you have expected the CFA crew that was there to do. You’ve already said they would regroup and follow the flank, what would you have expected to happen then as they were following the flank?—They would work their way out to Kelly Road.

What would happen at Kelly Road?—Because there was a fuel reduction burn on Kelly Road, once the fire moved away from the influence of the radiant heat caused by the unburnt fuel, it would slow down in the recently fuel reduced area and could be put out easily.

Isn't that a reason for actually going and telling them about this tactic as a result of the change, potential wind change coming through, because that is effectively telling them, giving them advance warning of precisely what they are to do, precisely what will happen and what the likelihood of stopping the fire is because of the reduction burn at Kelly Road?—Yes.

Isn't that another reason for actually going and making sure that the crew, the Geelong crew, or the ... NRE crew are fully aware of the tactics, quite apart from the wind change?—That information went down the chain of command through the radio channels to my belief. I know it went to NRE.

Do you know if it went to the CFA?—I know that it went to Des Phelan, or I believe it went to Des Phelan because I gave it to him. ... We all knew of the existence of the reduction burn, both Des and myself, Neville Britton, John Anderson.

Would you expect that sort of information to be given to a Strike Team Leader?—As part of a briefing, yes.”¹⁹⁸

19.5.110 Mr Graham was later asked:

“A south-westerly wind change impacting on a crew that was working in a southerly direction could potentially expose them to quite a high degree of danger, couldn't it?—They would be back close to the black, they would be taking the black along with them. As long as they had the fire trail and 20 metres of solid black, my experience tells me they would be OK.”¹⁹⁹

19.5.111 In an interview with police Mr Phelan was asked:

“Bob Graham states in his statement that he – he gave you a safety message that if the fire broke out on the eastern flank, the dozers were to flank into Kelly Road?—That's right.

You recall receiving that message?—Yes, yes.

Did you pass it on to anybody?—I spoke with the NRE guy at – I think, that was taking them up – a fellow going north, from Linton and ...

Scherger?—That's the guy, yeah. ... And there was another DGO guy there, I don't know what he was too, he was somewhere else. ... And they were told if the fire came, well, from the bottom side it was going to be easier to go out than it was from the top side. ... The blokes that were coming south, they probably wouldn't have known but they – it would have been fairly hard for them to track out anyhow, because the fire was gonna blow over them, wasn't it, really, so when the wind went around, the bottom dozer was really gonna be the one that was going to be going – it was easier for them to go with the fire than it was from the fellows on the north.”²⁰⁰

19.5.112 He was then asked in relation to instructions given to Mr Lightfoot:

“Did you actually physically give any instructions to either Ian Lightfoot to pass that information on there to those?—No, I didn't, no, no. I didn't, no.”²⁰¹

19.5.113 Mr Phelan gave evidence that:

“When the wind changed and the lines were not hooked up, the team that was coming from the north was under more threat than the team coming up the line when the wind went round the south-west and followed the flank out. When the team going south, when the wind changed, the fire would then blow over them, so it was a really difficult job for them, they couldn't push the fire out, we would have to have a look at what we were going to do and that might have been withdraw back to the road or whatever. There would have had to have been another strategy implemented because of the fact that the wind, when it went around that far, they couldn't push the dozer down that line because the fire would be blowing over them and they wouldn't be able to go straight, they would have to track it, they couldn't manage to do that.”²⁰²

19.5.114 Mr Phelan was asked a question by the Coroner:

*"What do you mean by 'get out'?—Well, just bunker down on the line and then come back out along the line and we would have – as at – what we did do was we burnt it out from the other road and stopped it."*²⁰³

19.5.115 Mr Phelan was again asked a question regarding whether or not the Geelong Strike Team could have tracked the flank of the fire to Kelly Road after the wind change:

"But I understood you to be saying that the decision that they inevitably would make nine times out of ten would be not to do it, because of the risk of the fire coming over them?—That's right.

*So one thing the person tasking them in that position would have to tell them would be that if the control line wasn't completed that they weren't to try and flank the fire?—Yes, I suppose that would be a fair comment."*²⁰⁴

19.5.116 On the same issue Mr Lightfoot was asked:

"I want to ask you about something that Mr Phelan said when he was interviewed by the police and he was talking about whether what's been described as a safety instruction given to the crews, the crews working north and the crew working south on the eastern flank, that if the wind change arrived, to flank the fire out to Kelly Road. Did Mr Phelan talk to you about that strategy that if the wind change arrived before the dozers had met, that that was the strategy that should be employed, to flank the fire to Kelly Road?—No.

Were you told that by anyone?—No.

*And I gather from that that you didn't tell the strike team that either?—No."*²⁰⁵

19.5.117 Mr Lightfoot was questioned on whether the Geelong Strike Team could have tracked the flank of the fire to Kelly Road after the wind change:

"... That because the wind from the south-west is more likely to push the fire towards and across the crew working south, whereas it's going to blow the fire more or less away from the ones working in the north, is that right?—That's right, yes.

So it would be easier for the crew working from the north to change direction and track the flank of the fire to Kelly Road?—That's correct.

Easier for them to do that and quite difficult for the crew from the south where it may be difficult?—Yes. If there hadn't been entrapment, Your Worship, they would have the people coming from the north with the dozer, would have had to come back. There wouldn't be any point in tracking from where they were because it was in places – there was only a small area between the burnt area that got away and the dozed line because there was also a road, Possum Gully, it would have been pulling right back to Possum Gully Road if that was the case, but no one expected them to do that after the circumstances.

So if you had been delivering a message to the two crews working towards each other as to what they should do if the wind change arrived before they joined, would your instruction to the crew working from the north to the south to have been to withdraw towards Possum Gully Road up the dozer line?—No, I probably would have said just stay where they were on the dozed line and the burnt ground until we reassessed it and had a look at where they should – which is a safe area.

*And what about the crew working from the other end, would your instruction to them have been to try and flank the fire towards Kelly Road?—Yes."*²⁰⁶

The Role of the Grimmers (Westmere Group) and the pilot O'Rorke

19.5.118 At the time of the Linton fire, CFA Officer Mr Gary Grimmer and his wife Sue operated the Westmere Group Communications for Region 16 at a property just north of Wickliffe. He produced a log²⁰⁷ that recorded some of the communications to and from the base on the day of the Linton fire. He was involved in alerting Region 16 groups to attend the Linton fire and stayed on Channel 16C, the primary channel for the Westmere Group for most of

the day. Grimmer and his wife communicated with O'Rorke in the Region 16 aircraft. On one occasion, at pilot O'Rorke's request, he changed to Channel 67 to put over a report to him.

- 19.5.119** Mr Grimmer's log records an entry at 3.55pm where he telephoned the Bureau of Meteorology at Mount Gambier. He did this because his Group had 11 units committed to the Linton fire and he wanted to try and keep them as up to date as he could with information that might assist them. This was so, even though Grimmer had no formal role in the management of the fire. He was asked:

"The note you have made there, what does that mean?—That is the Bureau of Meteorology's weather and it is saying the change is 2 hours away there, which means approximately another 4 hours before it got to our location and there was isolated light rain with the change.

What did you do with that information?—I probably would have put it out over out network and left it at that.

*A general message over ... 16C?—That is correct."*²⁰⁸

- 19.5.120** Later Mr Grimmer was asked:

*"This method of trying to keep track of the approaching weather, was that a course that you often followed, contacting Mount Gambier?—Yes I guess with our job it is not only being on the radio side of it, it was to monitor weather as much as possible to assist those out on the fire front, no matter where. The weather is one of the most critical things to keep an eye on in the fire. I think to forewarn them as much as possible is the responsible thing to do. We would try and chase up wind changes for those in the fire, no matter what fire it was."*²⁰⁹

- 19.5.121** Mr Grimmer was referred to an entry in the log at 6.05pm and was asked what it represented. He said:

*"Yes, that again is a message going in and out. I haven't logged it down but there must have been a call again to the Bureau of Meteorology asking what the weather is doing, and they are anticipating the change to be at Mount Gambier at 1700, being a south-westerly, therefore the ETA at Ballarat being at 2200 to 2300 hours."*²¹⁰

- 19.5.122** Mr Grimmer was also asked about an entry in the log at 6.30pm in his wife's handwriting.²¹¹ Later he was asked about an entry at 3.50pm regarding Mount Gambier, north-north west at 32kph gusting to 61 with a temperature of 31.9.²¹² He said that was the weather at Mount Gambier as at 3.50pm Victorian time.

- 19.5.123** At 6.13pm there was a radio communication involving a number of people including Mr Phelan talking to Taylor and then O'Rorke. He was endeavouring to contact Lightfoot with a message to get the dozer through as quickly as possible, as there was about an hour to the wind change.²¹³

- 19.5.124** At 6.15pm there was a further radio transmission referring to the wind going north-north-west in an hour.²¹⁴ Also at 6.15pm Ms Alice Knight logged a call from O'Rorke.

- 19.5.125** At 6.24pm there was a radio communication about relief crews and Ms Knight indicating a wind change about within an hour and – *"they expect 60 knots."*²¹⁵ At 6.26pm there was a message involving O'Rorke saying that he will stay around to see what the wind change does.²¹⁶ At 6.38pm there was a message from O'Rorke to Phelan or Lightfoot stating, in general terms, that whilst the wind remains in its current direction it should do no harm but *"... it depends upon what happens with the wind change."*²¹⁷ At 6.40pm there was a radio message from O'Rorke to Ms Knight advising that Westmere will call when the wind change reached them.²¹⁸

- 19.5.126** Mr Grimmer gave evidence that from time to time during the day Peter O'Rorke contacted him on Channel 16C – *"To ask us periodically what the weather is doing."*²¹⁹

- 19.5.127** Mr Grimmer was asked about a 7.15pm entry in the log. He said:

*"We had a telephone call coming in from John Woodburn stating that the wind has just changed south of Dunkeld at 1910, that it went stronger for 5 minutes or so then the wind died down."*²²⁰

- 19.5.128** Approximately four minutes later a message was sent out relaying that information to Mr O'Rorke.²²¹
- 19.5.129** Mr Grimmer gave evidence that John Woodburn had been part of the CFA radio network from "when radios were first introduced":
- "... he has a network of individuals going right across to Kangaroo Island that talk to each other and have somewhat similar concerns about weather, and just keep an eye on what the weather is doing and report back, and don't ask me why it is called 'Packet radio', it is just a name that has developed just like ham radios. It is a very good network of on the ground information coming back to us, it is real fact weather."*²²²
- 19.5.130** As well as transmitting the information through to Mr O'Rorke, Grimmer gave a "90% chance at least" of putting over a general message on 16C "... for the benefit of listening sets through our group area."²²³
- 19.5.131** Mr Grimmer was referred to an entry at 7.45pm in his log. He was asked:
- "The detail of that message, what is that?—It was to Mr O'Rorke of the Westmere aircraft stating that there is a south-west change here, came in about 5 minutes, went about 1945, the wind went south-west gusting at 40kph, tailing southerly at times. There was no rain associated with that change."*²²⁴
- 19.5.132** At 7.51pm Mr O'Rorke repeated the message of the change being at Westmere base.²²⁵
- 19.5.133** At 7.53pm a message was put out on 15B that the wind change was at Wickliffe.²²⁶ At 7.59pm a general message was put out on 15A calling for acknowledgments that the wind change was at Wickliffe.²²⁷
- 19.5.134** At 8.28pm Mr O'Rorke radioed Alice Knight advising that he had just gone through the front 2 miles east of Skipton and that it was "very, very rough."²²⁸
- 19.5.135** Mr Grimmer had no knowledge of the structure that was established to fight the Linton fire. He engaged in gathering weather information purely because of his interest in the weather and his desire to keep tankers from his region as informed as possible about the weather.²²⁹
- 19.5.136** Mr Grimmer was referred to an entry in the log at 8.28pm. This was a message from Peter O'Rorke:
- "Stating he was on his way home. He went through the front, it was very rough, it threw everything about in the cabin, and just as well he had his seat belt on or he would have went through the roof. He was over at Charlie Weatherly's at that time.*
- Where is that?—Carranballac.*
- Where is that?—Approximately half way between Skipton and Lake Bolac ..."*²³⁰

The role of the MCV and the broadcast of the 'Wickliffe' message

- 19.5.137** Messrs Trevor Roberts and Tony Balm attended the Linton fire with the Mobile Communications Vehicle (MCV) that was stationed at Belmont, Geelong. They were both met by Anderson, who they believed was the Incident Controller. He told them where to set up the vehicle. They believed the incident control centre was at the Shire Office at Linton. Roberts was advised by Anderson to monitor Channels 15B and 16A. He was told that in the Linton Fire Station a local radio operator (Alice Knight) was operating on 15A. The MCV used the call sign of "Linton Control."
- 19.5.138** At about 7.30pm Mr Roberts received some requests for strike teams, which the MCV had been passing on to the staging area.
- "I was not comfortable with the way the requests were coming into the MCV. It seemed to me that the incident management team was being bypassed. I then went down to the Shire of Grenville Office and spoke to John Anderson, requesting that an operations officer or deputy come to the NCV to make overall decisions in the vehicle. At that time no one was available."*²³¹

19.5.139 At 7.53pm Mr Roberts answered a telephone call from John Anderson who told him to do a general message that the wind change was at Wickliffe, a south-westerly wind change 35kph maximum with no rain. He did the first broadcast on 15B to show the other operators what to do.²³² The only acknowledgment received was Deputy Group Officer Sinclair.²³³

19.5.140 A message was then broadcast on Channel 16A, which was acknowledged by the Snake Valley sub-base.²³⁴ The sub-base then broadcast the message on Channel 15A. Roberts did not know who was on what channel – “... or in fact who was there, I could not trace individual sector or divisional leaders up.”²³⁵ Roberts gave evidence he was concerned about the lack of acknowledgments to the “Wickliffe” wind change message. He was asked:

*“Why were you concerned about that?—Because we had a weather change coming through and an impending wind change. I had no idea of what was out on the fire ground to the extent of what sectors, who was running the fire, who was in control of those crews out there, as divisions and sector leaders, and I have been asked to do a broadcast and I have only been acknowledged by one person. So that is when I also raised that as an important issue with John Anderson.”*²³⁶

19.5.141 Mr Roberts was also asked:

“When you went to see Mr Anderson, did you have an expectation that he would give you specific names of people who it was important to get this message through, was that your expectation or not?—My expectation was to basically find out more intelligence of the fire, the mapping, who was out on the fireground. So, yes, in a word, my expectation was for a communications plan and some mapping.

Did Mr Anderson tell you to re-broadcast the message and seek specific acknowledgments from specific people?—No, he did not.

Did he tell you to re-broadcast the message at all?—To re-broadcast?

*Yes?—No he did not.”*²³⁷

19.5.142 Mr Roberts was recalled during the course of Anderson giving evidence. He was asked about the conversation he had with Anderson on the night. He said:

*“We had no mapping, no command structure to find out who was actually in control to make sure messages got through to people on the fireground.”*²³⁸

19.5.143 Mr Anderson gave evidence that he believed, having received the Wickliffe message that the wind change would arrive at approximately 9 o'clock.²³⁹ Anderson was asked:

“Why didn't you ensure that went out with the general message on Wickliffe?—Your Worship, I cannot recall at the time why I did not do that.

Do you think you should have?—Your Worship, hindsight says yes, but to me it was a time of significance, was a significant place that we identified as a zone that people needed to know about. We still believed that we had the hour in which to get the strategy completed as well.

Do you think that the fact that you knew where Wickliffe was might have been a factor that resulted in you not necessarily putting two and two together and putting the message out in a form that is more acceptable for those who didn't know where Wickliffe was, if you understand what I am saying?—I understand, Your Worship, and I agree.

*You agree?—I agree.”*²⁴⁰

19.5.144 Mr Anderson stated that he heard Phelan acknowledge the general message regarding Wickliffe.²⁴¹ Phelan agrees with this evidence.

The meaning of the ‘Wickliffe’ message to firefighters and command

19.5.145 The following paragraphs are illustrative of the meaning the radio message that the wind-change was at Wickliffe conveyed to a range of firefighters and command. Many did not know where Wickliffe was and those that did had varying opinions as to when to expect the change.

- 19.5.146** At the time Mr Roberts was asked to broadcast the Wickliffe message by Anderson, he did not know where Wickliffe was or how far away it was and he did not ask Anderson about that.²⁴²
- 19.5.147** Mr Leigh Buckley from the Kyneton Strike Team heard the Wickliffe message. He said: *"The whole of the time we were hearing the aircraft overhead and when we heard that the wind change had hit Wickliffe I decided it was time to head out."*²⁴³ He said he knew roughly where Wickliffe was and knew that the wind change was nearby.²⁴⁴
- 19.5.148** Numerous other people on the fire ground heard the *"Wickliffe"* message. Mr Phelan heard it on 15A. He knew where Wickliffe was.²⁴⁵ Scharf said he didn't hear the message. In any event, he didn't know where Wickliffe was.²⁴⁶ Harris gave evidence that he knew where Wickliffe was generally and – *"...would have alerted me to the fact that the wind change was a lot closer than I was expecting."*²⁴⁷
- 19.5.149** Mr Wright could not remember Wickliffe specifically being mentioned but stated he knew where Wickliffe was and knew that on the day of the fire.²⁴⁸ Fullerton said he knew roughly where Wickliffe was and had he been told the wind change was at Wickliffe, it would have meant that the wind change was closer than it was thought to be.²⁴⁹
- 19.5.150** Mr Lightfoot stated he heard the Wickliffe message and knew approximately where Wickliffe was. He was asked:
- "Did it cross your mind that the Geelong Strike Team might not have known where Wickliffe was?—No."*²⁵⁰
- 19.5.151** Mr Balm was with Roberts in the MCV. He did not know where Wickliffe was.²⁵¹
- 19.5.152** Mr Wayne Rigg, working on the east flank north of Possum Gully Road, said:
- "From what I can recall I heard broken parts of that message and the part we picked up on was the wind was at Wickliffe..."*
- Having heard that message did you make any inquiries to find out where Wickliffe was?—I had two other people on the tanker with me and I asked both of those people if they knew where Wickliffe was and they suggested it was in the Western District.*
- Did that give you sufficient information to approximate the time of the arrival of the wind change in your own mind?—No, it didn't because the Western District could have been anywhere from us to the border of ...*
- Did you make any further inquiries so you could get a better idea of the likely time of arrival of the wind change?—No, I did not."*²⁵²
- 19.5.153** Mr John Sanders, Deputy Incident controller, could not recall whether he heard the Wickliffe message or was told about it or not.
- 19.5.154** Mr Bill Miller heard the Wickliffe message from O'Rorke. He knew where Wickliffe was and thought that the wind change would probably arrive at about 8.30pm.²⁵³
- 19.5.155** Mr Chapman heard the Wickliffe message from O'Rorke and knew where Wickliffe was.²⁵⁴ Diane Foy, the radio operator at the Snake Valley sub-base, heard the Wickliffe message but had no idea where it was.²⁵⁵
- 19.5.156** Mr Parker heard a general message about a wind change but was not sure about the name Wickliffe. He knew where Wickliffe was.²⁵⁶
- 19.5.157** Mr Wyllie said he heard Anderson tell the MCV to put out a general message. He knew where Wickliffe was.²⁵⁷
- 19.5.158** Mr Welsh heard O'Rorke deliver the Wickliffe message.²⁵⁸
- 19.5.159** Mr Britton said he knew in general terms where Wickliffe was.²⁵⁹
- 19.5.160** Mr Phelan stated that upon hearing that the wind change was at Wickliffe he thought it was an hour to an hour and a half away.²⁶⁰

- 19.5.161** Mr Lightfoot gave evidence that, having heard the Wickliffe message it did not alert him to any particular time that the wind change was likely to arrive.²⁶¹ He gave evidence that Graham and Anderson did not tell him that they expected the wind change to arrive in about an hour.²⁶²
- 19.5.162** Mr McInnes heard the Wickliffe message and knew where Wickliffe was.²⁶³ He gave evidence that he thought the wind change was 2 to 3 hours away.²⁶⁴
- 19.5.163** Mr Smithers heard the message and thought the change was about an hour away.²⁶⁵ Fullerton gave evidence that Graham told him that the wind change was about one hour away.²⁶⁶

Examples of knowledge and actions by command about the ‘Wickliffe’ message

- 19.5.164** Mr Anderson heard the Wickliffe message from the pilot, O’Rorke, and thought the wind change was approximately one hour away.²⁶⁷ He told Graham at the Operations Point and Harris and Mahoney at the IMT.²⁶⁸
- 19.5.165** The Operations Officer Mr Graham was asked:

“When you received the information about the wind change being at Wickliffe what did you do to ensure that the information was disseminated to people on the fire ground who needed to know that information?—I put the information into the CFA’s communication structure via John Anderson and Neville Britton to put out, and I made sure that NRE personnel were acquainted with it by contacting the sector commanders, then I notified the incident management team of the impending wind change.

So how did you contact the sector commanders?—I called Murray Fullerton on his radio, spoke with him directly, I called Darryl Scherger, I couldn’t raise Darryl, I got a member of his team who said he would pass the message on to Darryl, but Darryl at that time was with the other dozer.

So he was with the CFA?—At that stage.

I will be corrected if I am wrong here, but as I understand it, I think Mr Fullerton’s evidence was he was actually at the operations point and you told him about the Wickliffe wind change at the operations point, does that accord with your recollection, or do you think you contacted him on the radio?—My recollection is that Mr Fullerton was at the operations point for the Skipton message but not the Wickliffe message, but I am relying on memory here.”²⁶⁹

- 19.5.166** Mr Fullerton was questioned:

“Did Mr Graham tell you that the wind change was at Wickliffe, or did he tell you that it was about an hour away, or did he tell you both those things, what did he tell you?—To the best I can recall it was approximately an hour away.

Do you recall whether he mentioned the place Wickliffe or not?—No, I have heard the name Wickliffe mentioned so many times, I don’t know whether it was mentioned that night or whether it is what I have heard since.”²⁷⁰

- 19.5.167** Mr Fullerton was also asked:

“When Mr Graham told you that at the Operations Point, what did you understand your responsibility to do in terms of advising other people of that information?—My responsibility was to let my crews know the same message, that the wind change was approximately an hour away and for people like Lubeek to pass that on to the other people underneath that work, working underneath him.

What did you do to carry out that responsibility, what did you actually do?—I radio called Luke Lubeek and told him that information and asked him to pass it on.”²⁷¹

19.5.168 Mr Graham was asked:

"Now, Mr Keppell, his evidence is that you didn't tell him about the earlier arrival of the wind change at any time?—I believe I did when he returned to the office after doing some work with the dozers, that's my recollection." ²⁷²

19.7.169 Mr Keppell was also questioned about this issue:

"Can you recall being given any updated wind change information when you returned to the Operations Point?—No.

Are you sure about that?—Yes.

The evidence is, and Mr Graham will state, that at 1950, 10 to 8, he received a message from Mr O'Rourke, who was one of the pilots ?—Yes.

That the wind change would arrive within the hour?—Yes.

Do you recall being told that?—No.

So what was your state of mind when you returned to the Operations Point at about 8.30 as to the likely arrival of the wind change?—Well I was deploying the D4 to the south west corner, I overheard some CFA officers, or CFA members, talking about the wind change being earlier at around 10.00pm.

Right. Did you receive any messages on your NRE radio about the earlier than expected arrival of the wind change?—No.

Do you recall receiving a message that the wind change was at Wickliffe?—No." ²⁷³

19.5.170 Mr Keppell was asked about being in contact with people at the IMT in Ballarat:

"In any of your discussions with people at the IMT in Ballarat, did any of those discussions involve the wind change, the likely arrival of the wind change?—No.

Did you receive any information from the IMT in Ballarat during the course of the evening that the wind change was arriving quicker than initially expected?—No.

Or that they had deployed an officer to go out to the west to track the likely arrival of the wind change?—No.

Was the timing of the arrival of the wind change an important matter, particularly in terms of controlling the eastern flank?—Yes." ²⁷⁴

19.5.171 Mr Keppell gave evidence that he was responsible for supervising Scherger. He was asked:

"Did you consider that it was part of your responsibility to ensure that Mr Scherger and his team were kept up to date about the likely arrival of the wind change?—Yes.

What did you do to carry out that responsibility?—Well, I discussed with Darryl when we met that we basically both knew that the 1 o'clock time was when it was predicted to be there, and after that, you know, I assumed that it would be 1 o'clock until such time as I heard the CFA talk about 10 o'clock. They talked about a message on the radio and I basically, I assumed that that message would have gone out to all the people on the line.

Did you tell Mr Scherger about that conversation that you overheard with the CFA people about it arriving?—No.

Because that was a fair amount earlier than anticipated, wasn't it, the 10 o'clock?—Yes, that's correct.

Why didn't you contact Mr Scherger and tell him about that information?—I don't know." ²⁷⁵

19.5.172 Mr Keppell was asked:

"The wind change when it arrived at the operations point when you were there came as a complete surprise to you, is that right?—Yes, well, I saw the wind change and I thought – 'That's come through early'.

It was a total surprise to you, wasn't it?—I was expecting it later.

*So prior to the arrival of the wind change, no one had informed you that it was expected around that time, that is, around 9 to 9?—No.”*²⁷⁶

General communications difficulties at fire-grounds and Linton

19.5.173 The Inquests heard considerable evidence relating to communications difficulties experienced at Linton and, indeed, experienced generally in rural forest fire fights. The effect of this evidence is that those in management positions and in the chain of command at the Linton fire knew that the broadcast of a general message was an unreliable mechanism to deliver important information and could not reasonably found an assumption that any particular person on the fireground had received it. Such is particularly the case where acknowledgments are asked for and few, if any, received, as in the case of the “Wickliffe” general broadcast. Some of this evidence is set out in the following paragraphs.

19.5.174 Mr Graham was asked the following questions:

“Just in relation to communications generally, has it been your experience in numerous fire fights that you have attended that there are often communications difficulties?—Yes.

Because fires have a habit of starting in the most inconvenient places sometimes, is that why?—Yes, that is correct, for radio communications.

Sometimes there are black spots where radios just don’t work?—Yes.

And in the case of Linton, as well, did you become aware during the course of the day that similar problems were being encountered?—When I first arrived at Linton I tried to use my trunking radio and my mobile phone and neither would work.

From that point on was there anything else that happened during the day that indicated that there was some communications problem ?—Yes, I had trouble contacting Murray Fullerton on trunking, to appraise him of what was going on early in the fire fight ...

*I will come right to the point. What I want to suggest to you is your experience as a firefighter, including your experience during the early part of the Linton fire, would lead you to conclude that when a general message is put out over the radio, it is not reasonable to conclude that any particular person on the fire line has necessarily received that message. You understand the question I am putting to you?—Yes I do, and I agree that that is the case.”*²⁷⁷

19.5.175 Mr Leach was asked:

“You might have heard me ask Mr Graham this question as to whether it would be reasonable or not to assume at a fire, when a general message was put out, whether it would be reasonable to assume that any particular person had received that message without acknowledgment, and he indicated in his experience it wouldn’t be reasonable to make that assumption. What do you say about that?—Sorry, what was Mr Graham’s response?

I will say the question again, the question was in light of your experience with communication problems, and black spots and brown spots...?—Mm.

And other things that can go wrong with communications such as people being away from their radios etc?—That’s right.

There are a number of reasons as to why a person might not receive a radio message on the fireground?—That is right, and - that’s right.

The question based on that, is that it would not be reasonable to assume that any particular person on the fireground had heard a general broadcast that was put out, unless an acknowledgment was sought and received?—Correct.

*On this day at Linton, did you have any role in directing the Operations Point to disseminate to the people on the fireground the earlier than expected arrival of the wind change?—Not directly. I was involved in discussions within the IMT about weather conditions, but I relied on the chain of command to do that.”*²⁷⁸

19.5.176 Mr Anderson gave evidence about the CFA's new "red flag warning system" and was asked:

"One of the reasons for the system is to ensure important information is disseminated and acknowledgments received, so if there isn't any acknowledgment, people are aware of it?—Correct.

Are you aware of any difficulties in other fires of getting messages through, on the radio for example?—Your Worship, I think any fire that we have we have to make sure our radio system is disciplined. There has been instances where radio messages have had difficulty getting around the fireground.

So it is not an uncommon situation prior to Linton that messages haven't got through, for a number of reasons?—I believe so, Your Worship.

Those reasons may vary from no coverage in a particular spot, through to officers not being near their radio?—A variety of reasons, yes, Your Worship.

Or turned the radio off?—Correct.

Or whatever?—Correct." ²⁷⁹

19.5.177 Mr Phelan was asked about some communications problems that he had on the day that were apparent from the radio communications log transcripts. Mr Phelan was asked:

"If I suggest to you, just in general terms, that on other occasions during the day, for example, you might have had difficulty contacting someone from your radio and you ask Mr O'Rorke if he could contact someone for you and get them to call you or patch through ?—Yes.

You did that during the course of the day?—I think, yes, I think I did, yes.

In all your experience, Mr Phelan, in any fire there's a number of reasons why not all communications that are sought to be made actually get through and are effectively made?—That would be correct, yes.

We have heard some evidence that in relation to when a general message is put out, that it's not reasonable to assume that everyone on the fireground who needs to hear that general message will, or has heard it, unless they acknowledge it?—That would be correct, yes.

Because people might be in a black spot, or a brown spot, or they might be away from their radio for a time; there are a number of reasons why a person might miss a general message?—That's right, yes.

Has that been your experience over a long period of time?—Yes.

Those sort of things happen?—They do, yes." ²⁸⁰

19.5.178 Mr Lightfoot was also asked about this issue:

"What I want to ask you about is your general knowledge of communications and suggest to you that there are a number of ways that a general broadcast might get to a particular person on the fireground?—That is possible.

And one of those reasons is just technical reasons, there might be a brown spot, or black spot in a particular piece of terrain?—Yes.

And Linton was particularly notorious for that type of terrain, wasn't it?—because we were only 3 or 4 kilometres away from Linton, which is not very far, I wouldn't have thought it was a problem there, not at that location.

The other way the message can be missed is the person might be away from their radio just for a short time, just when the message comes through?—Well, the equipment we have got, I know in my vehicle and all the vehicles I am aware of, we have outside speakers and I use them all the time, and they are very clear and they can be heard from up to 50 metres away.

So are you aware of a person ever, or yourself for a start, we will deal with you?—Yes.

Have you ever missed a message because you have been out doing something important on the fireground, and not manning your radio?—Yes.

And it's not an uncommon occurrence for that to occur?—It's possible." ²⁸¹

19.6 Bureau of Meteorology Involvement

19.6.1 The Bureau's forecasting role on 2 December 1998

19.6.2 A review of the meteorological aspects of the Linton fire and the performance of the Bureau of Meteorology was undertaken in the report dated July 1999, exhibited to the statement of Mr Mark Williams, the supervisor of Weather Services (Victoria) for the Bureau.²⁸²

19.6.3 Notwithstanding that the wind change arrived at Linton less than an hour after the spot weather forecast issued at 7.53pm by Mr Rooney²⁸³ having forecast the change to arrive at around 11.00pm, Williams' report stated that the forecasting error was "*within normal accuracy standards for forecasting such phenomena*"²⁸⁴ and that "*Judgements exercised by Bureau staff based on the information available were sound, and all operating procedures were followed correctly.*"²⁸⁵ Williams repeated those statements in his conclusions in the report.²⁸⁶

19.6.4 The fire weather estimates by the Bureau issued at 5.05pm on 1 December 1998²⁸⁷ predicted that the wind change would reach Hamilton between 2.00pm and 6.00pm the following day and Ballarat between 7.00pm and 11.00pm. This forecast which proved to be generally accurate, was based on the ECMWF model, rather than LAPS.

19.6.5 The fire weather estimates issued at 6.30am on 2 December 1998²⁸⁸ were similar to that from the previous evening. The principal difference between this forecast and the forecast issued the previous evening was that the change was predicted to cross the State later. The estimate²⁸⁹ forecast the change to arrive at Hamilton in the period between 4.00pm to 8.00pm, two hours later than predicted the previous evening. No timing is given for Ballarat. In this case the forecaster gave the LAPS and MESO LAPS model predictions greater weight in the revised forecast.

19.6.6 Dr Reeder carried out an analysis of the wind change charts.²⁹⁰ He also reviewed the spot fire weather forecasts.²⁹¹

19.6.7 In his report Dr Reeder expressed his opinion as to whether the Bureau made a "*major forecasting error*" in forecasting the passage of the wind change across southern Australia on 2 December 1998. He said:

"On 1 and 2 December the BOM issued a number of forecasts of when the wind change would cross Victoria, and in particular, when it would arrive at Linton.

The forecast issued on 1 December and in the morning of 2 December were very good and appear to have been based principally on the ECMWF numerical model guidance (these forecasts are the 5.05pm on 1 December, the 6.30am on 2 December and the 10.20am on 2 December).

The forecast and briefing issued on 2 December slowed the timing of the change by about 2 hours, perhaps reflecting the forecaster's uncertainty as to which numerical model (ECMWF, LAPS or MESO LAPS) would prove to be the most accurate. Nonetheless, these forecasts were as good as one could reasonably expect.

The afternoon forecasts seriously underestimated the timing of the change, but were consistent with the numerical model guidance provided by LAPS and MESO LAPS. The forecast in this category are:

Spot fire forecast issued at 2.12pm on 2 December;²⁹²

Wind change chart issued at 2.40pm on 2 December.²⁹³

It appears that these forecasts are in error because the BOM numerical models, on which the forecasters based their predictions, were in error. Given the numerical model guidance, these two forecasts are reasonable.

A major forecasting error occurred late in the afternoon of 2 December. By this time the wind change had propagated on shore and was crossing western Victoria. It would have been clear from the observations that the numerical predictions from LAPS and MESO LAPS were in error. The timing of the change is a major forecast error in the following forecast:

*Wind change chart issued at 5.20pm on 2 December;*²⁹⁴

*Wind change chart issued at 6.20pm on 2 December;*²⁹⁵

*Wind change chart issued at 7.45pm on 2 December;*²⁹⁶

*Spot fire weather forecast issued at 7.53pm on 2 December.*²⁹⁷

*It appears that these forecasts were also based principally on the numerical model runs from LAPS and MESO LAPS, and did not take account of the observations from the AWS network and the synoptic charts available at the time.”*²⁹⁸

19.6.8 Dr Reeder’s fundamental criticism of the Bureau forecast was that a time was reached during the afternoon of 2 December 1998 where the information available, particularly from the AWS network, indicated that the change was moving across southern Australia at a constant speed. There came a point when it became unreasonable for forecasters to continue to rely upon the LAPS and MESO LAPS computer models effectively, to the exclusion of what was occurring on the ground. This, according to Reeder was particularly the case, when the highly regarded European model, at least in general terms, coincided with the likely arrival of the wind change if it continued to move at a constant speed.

19.6.9 It is not in dispute that this change did move at a constant speed across Victoria.²⁹⁹ Mr Williams was asked:

“Are you sensitive about being critical of Mr Rooney’s 1953 forecast?—Am I sensitive about?

Yes, are you sensitive about being critical of it?—I naturally don’t want to criticize anyone unnecessarily, but I also know that Ward is a very good forecaster and he would have taken that into account. I have worked with Ward for many, many years and I understand what he was confronted with on that particular evening.

But what he was confronted with was the AWS data that we have looked at and you have looked at, haven’t you, in reviewing the Bureau’s performance?—True.

What he had was a front moving at a constant speed from the west of the State?—Yes.

A fairly easy calculation to make at 1953?—Yes.

That if it continued at the speed that you knew it was travelling at ... it would be at Linton in about 45 minutes or so; all that was plain to the forecaster making the 1953 forecast?—That is true, he would have known that, yes.

*And it should have been noted on the forecast, shouldn’t it?—The forecaster makes a judgment and that was the judgment that was made at the time, that it would slow down.”*³⁰⁰

19.6.10 In his report, Dr Reeder said:

“Underestimation of the speed of the movement of fronts across southern Australia is a major source of forecast error in the warmer months (Wilson, et al, 1987). Often this error is associated with development within the pre-frontal trough; this appears to have been a significant problem in the LAPS and MESO LAPS forecast for 2 December 1998. The dynamical principles are yet to be clarified, although it seems clear that surface heating plays a critical role.

The effect of surface friction, orography and the coast line on the development of cool changes is poorly understood. Numerical forecast models do not represent these processes well enough, and forecasters do not have the physical understanding to accurately predict the effect of these processes. On occasion, the orography and coast line act to accelerate the front along the coast line, producing a pronounced eastward bulge or surge. The development of a coastal surge affects the timing of the wind change, but the conditions under which it forms are not well understood.

Summertime fronts do not simply translate without change. They evolve, often intensifying as they move eastward, but sometimes weakening and stalling. The factors controlling the evolution are not well understood, and are not always well simulated in the numerical forecast models.

Although moist processes and cloud did not play a significant role of 2 December 1998, they can at times be very important, especially in the spring and early summer. These processes are often not well handled by the numerical models, and experience suggests that the models are most in error when moist processes are important.”³⁰¹

19.6.11 Mr Williams gave evidence, firstly in his report that:

“While it is usual for such changes to slow down once they cross the coast and begin to move over land, this change slowed little and advanced in an east and north-easterly direction at 50 to 60kph.”³⁰²

19.6.12 The Bureau Report, also contained the following:

“The detailed movement of such changes is difficult to predict as the rate of forward movement often slows down over the land, and especially over high ground. The strength of an opposing wind field or ‘downstream pressure system’ may also slow the movement down. In this case the slowing down was less than predicted and the speed of movement once it crossed the coast was fairly steady.”³⁰³

19.6.13 The Bureau Report continued:

“Predictions of summertime cool changes over south-eastern Australia thus presents an important component of fire weather forecast. Computer based numerical weather predictions models have helped to ensure that the occurrence of such cool changes can be fairly reliably predicted in broad terms.

However, detailed prediction of the movement and strength of the cool change remains a difficult challenge. It is often not simply a matter of observing the location, strength and speed of movement of the cool change, then extrapolating forward in time. The structure of the cool change can evolve resulting in strengthening or weakening an acceleration or deceleration. For example, in Victoria it is common for changes to slow down once they move over land and especially as they encounter mountain ranges such as the Otways or the ranges in north-east Victoria.”³⁰⁴

19.6.14 Later in the Bureau Report it was said:

“Automatic weather stations (AWS) are useful in real time monitoring of wind changes. They can be monitored remotely and can show detail such as the timing, direction and strength of a wind change. Once the change has crossed land and can be tracked over a period of time by successive AWS observations, projection of its movement on the basis of historical movement can be applied, though, as described above, it is not necessarily accurate. The AWS information is simultaneously displayed at the bush fire agencies in Victoria. The agencies can then use the Bureau forecasted advice and real time data along with their own local implementation to decide strategy and tactics at the fire site.”³⁰⁵

19.6.15 Dr Reeder’s evidence as to the major forecasting error was put to Rooney in cross-examination. He said:

“The point of view of Dr Reeder was with hindsight incorporating the end position of the systems, in other words, he knew not only the intermediate positions of the system, because they had been teased out by getting all the information, but he also knew how it ended up. In the forecast position I was in, I did not have, and never will have, an idea of how it will end up. That’s what the forecast is about. But more importantly, the information that was available to me wasn’t the same information that was available to him. The AWS’s in western Victoria, the CFA AWS’s, the information that I had available from them was spotty and late, it didn’t have 10 minute data, it didn’t have wind changes that actually went through places. So the difficulty of timing through that area was compounded somewhat by not having this knowledge. And the second thing is that, the basis of my forecast was really that it exhibited every sign of being a shallow change, the type of change that in the forecast research programme that was done in the early ‘80s was typified as a Type 1 change. That meant as part and parcel of that it was going to have (a) basically shallow cold air; and (b) that the depth of the cold air would increase the further west you got from the starting point of

*the front. In other words, no matter where the position was at low levels, at higher levels the apparent position of the change would be somewhat slower, it would take longer to get the colder air up to that depth.”*³⁰⁶

- 19.6.16** Later Mr Rooney was questioned about his assertion that Reeder, in his reconstruction, had more up to date information than Rooney had on the night:

“You had the reports from Goroke, Edenhope, Casterton and Dartmoor, didn’t you?—They only told me that something had happened some time in the last hour. If you look at the reception of those reports at places like Goroke and Edenhope there was a gap, an hour gap instead of the half hourly reports.

You had places further to the north, the Bureau’s own AWS at Lameroo?—And Renmark, the Renmark time is on my wind change chart.

Horsham, that was an important one as well?—On the wind change chart I didn’t have Horsham. The Horsham report didn’t come in until after 7.30.

*Your report wasn’t issued until 7.45?—Indeed, it wasn’t but you have to allow some time in compiling it. It is not an instantaneous thing.”*³⁰⁷

- 19.6.17** On the question of the variable speed of travel of cool changes across the land surface, Mr Williams’ evidence was:

“If I can suggest to you in your report you mentioned a number of times that this cool change travelled at a relatively constant speed across the western part of ... ?—Yes.

... for a number of hours?—In hindsight, yes.

Not even in hindsight, you could map it as you did with your chart ... —Yes.

... travelling at a constant speed?—Yes. It is, in meteorological terms, quite a short distance though.

Is it not, however, a relevant history when you are looking at making a short term prediction as to where the change is going to be?—Yes, yes.

Because sometimes changes continue to travel at that constant speed, don’t they?—Sometimes they do.

*And sometimes they don’t?—Yes.”*³⁰⁸

- 19.6.18** Surprisingly, Mr Williams gave evidence that there were no studies determining the statistical likelihood of a change slowing down over the land or continuing to travel at a constant speed.³⁰⁹

- 19.6.19** In fact there is no data, audit or study as to the efficiency or accuracy of the various computer models in predicting the timing of the arrival of south-westerly wind changes moving across southern Australia.³¹⁰

- 19.6.20** Mr Williams described the AWS system as – “A less than perfect system at the time.”³¹¹ He went on to say:

“The exchange of the information, how frequently does that take place between the two organisations?—At the time of the Linton fire?

In ‘98, yes?—At the time of the Linton fire it’s pre-set to exchange every half hour, about 10 minutes after the half hour.

What happens if the system doesn’t exchange the information every half hour?—That in fact did happen, and there were some times there was a later slide where we got only the hourly information at the time.

*Now?—There were difficulties with the way the system worked. It was using a phone line at the time and it didn’t always work reliably.”*³¹²

- 19.6.21** This situation is most unsatisfactory. The whole point of the AWS network is to supply, immediately, to the Bureau, weather conditions at particular locations that can be analysed and factored into forecasts.

19.6.22 The Bureau's own performance review

19.6.23 The conclusions in the Bureau's review of its performance³¹³ in relation to the Linton fire are problematic.

19.6.24 The Bureau's Report noted:

*"The general evolution of the weather on 2 December was well predicted several days in advance. The more detailed forecasts given on the day were an accurate prediction of weather events of the day by normal accuracy standards."*³¹⁴

19.6.25 In relation to the prediction of the wind change:

"And the arrival of the change in the Linton area was some two hours earlier than the best predictions given by the Bureau forecast. This timing was within the normal standard of forecast service achievable for such changes, where forecasters aim to specify the passage of a wind change through a specific location within a 3 hour time 'window'.

*All judgments exercised by Bureau staff were sound and accorded with present scientific understanding and capability..."*³¹⁵

19.6.26 The theme was repeated in a number of places in the Bureau's Report. For example:

"Judgments exercised by Bureau staff based on the information available were sound and all operating procedures were followed correctly.

*However, in the first few hours after it crossed the Victorian south-west coast the change did not slow down as much as expected. As a consequence, the arrival of the change at Linton fire site was earlier than forecast by about 2 hours. This is within normal accuracy standards for forecasting such phenomena."*³¹⁶

19.6.27 And at paragraph 99:

*"The arrival of the wind change about 2 hours earlier than the best estimate was within normal accuracy standards. The change did not slow down as much as had been predicted based on from computer guidance and experience of the common behaviour of changes once they move over land and approach mountain ranges."*³¹⁷

19.6.28 And again, at paragraph 100:

*"As a consequence the arrival of the change at the Linton fire site was earlier than forecast by about 2 hours. This is within normal accuracy standards for forecasting such phenomena."*³¹⁸

19.6.29 These statements regarding a so-called "normal accuracy standard" were drawn to the attention of Mr Williams in his evidence. He was asked:

"Yes, but you can't point to any objective work that supports your opinion that this is within normal accuracy standards?—There is no objective work, no.

*Do you think your report was a bit misleading by its reference to normal accuracy standards upon re-reading it?—It is implied, the message it is trying to convey is we have limits on the accuracy of the forecast we can provide, so whether that can be interpreted as some sort of written standard, I guess is open to debate."*³¹⁹

19.6.30 Mr Williams was referred to a passage of his report, which referred to "normal accuracy standard"³²⁰ and was asked:

"Again, what normal accuracy standard were you referring to there?—The same as before, within that time frame we had with agreement with the agencies we provide the forecast in those time slots – 3 hour time slots, and that is our, I guess agreed sort of limits that we can put on the forecasts about changes....

You refer throughout your report a couple of times ... the phrase 'normal accuracy standards'?—Yes.

And because you say the 1953 forecast for the wind change to arrive at Linton at about 11.00pm was about within 2 hours of the actual time of arrival - that that was

within the normal accuracy standards, that is, what you say in your report?—Yes, in several places, yes.

You heard Dr Reeder's evidence that he was unaware of any national or international standard of such a type as you describe?—Yes.

*Do you say there is such a standard that is applicable in Australia or internationally?—There is no written standard. I agree with Dr Reeder, there is no sort of written standard, but that refers to the arrangements that we worked out with the agencies when we provide the fire weather forecast for the spot fires within those three hour time segments ...”*³²¹

- 19.6.31** The Report of the Bureau into its performance at the Linton fire had the potential to mislead by regularly asserting that its forecasts were within “*normal accuracy standards*” when there was no formal protocol or standard.

19.7 Submissions

- 19.7.1** The Bureau submitted that Australia only receives limited information in the ECMWF model which is designed for medium ranged forecasting of 2 to 10 days, not short term forecasting.³²² It is submitted that the information available from LAPS and MESO LAPS is far more detailed and is consistent with all developed countries using such regional models.
- 19.7.2** That submission is consistent with the evidence. What is required, however, is an audit of the accuracy of the various computer models, particularly in relation to the predicting of the timing of movement of south-westerly changes across southern Australia.
- 19.7.3** The Bureau submitted that Dr Reeder, in reconstructing the performance of forecasters on 1 and 2 December 1998, was in an advantageous position compared to the Bureau forecasters. In this regard the Bureau referred to the evidence of Rooney in cross-examination referred to above.³²³ The Bureau submitted ³²⁴ “*Most importantly Dr Reeder knew the exact position of the change at any given point...*”
- 19.7.4** The evidence, in particular that of Mr Williams demonstrates that Rooney either was, or should have been, in the same position.
- 19.7.5** The Bureau submissions refer to “*A number of pieces of weather information that was not passed on to the Bureau but should have been in order for it to make an accurate forecast.*”³²⁵ This submission referred to the information that at least some officers of the CFA were aware that at about 7.15pm the change was at Dunkeld³²⁶, that at 7.45pm the change was at Wickliffe³²⁷ and that at 8.28pm Mr O’Rorke flew through the change near Skipton. The Bureau made reference to Reeder’s evidence that one of the problems for a forecaster is knowing where the front is at any particular time.³²⁸ The Bureau submitted that the above information was “*extremely important information.*”³²⁹
- 19.7.6** The Bureau further submitted “*... in circumstances where the Bureau was deprived of probably the key weather data, through no fault on their part, there should be no adverse comment upon their involvement and performance in predicting the arrival of the wind change.*”³³⁰
- 19.7.7** The CFA submitted that the evidence of Messrs Williams³³¹ and Rooney³³² that the Wickliffe and Dunkeld information would have improved the accuracy of the Bureau forecast is, in respect of Dunkeld, “*contrived and should be readily rejected.*” The CFA submitted that Mr Williams’ power point presentation ³³³ “*amply demonstrated a significant amount of data available to the Bureau by the time the change reached Hamilton.*” The CFA submitted:
- “It is highly improbable that one additional piece of information from a short distance to the east of Hamilton would have suddenly alerted the firm predictions based on LAPS and MESO LAPS computer models which the Bureau forecasters had doggedly adhered to up to that point.”*³³⁴
- 19.7.8** Mr Williams was questioned about the relevance of this “*additional information*” and said it “*would have helped, how much difference it would make I am not sure, but it would have helped.*”³³⁵

He was then asked:

"That single piece of information you are suggesting would have caused the forecaster at the time to have disregarded everything he had been doing up to that point, relying on all those other AWS reports then suddenly take the view – 'This is moving a lot quicker than I forecast'?—No, he would have taken that as another piece of evidence to put in the whole, the whole forecasting decision making process.

*I suggest to you again it is far from certain that that piece of information would have made any difference in relation to that forecast at 1953?—It may well have done, I don't know."*³³⁶

19.7.9 The CFA submitted:

*"... The evidence of Dr Reeder criticizing the Bureau forecasters for not giving more weight in their forecasting to the speed of progress of the change apparent from remote automatic weather station observations, highlights the potential value to the agencies of a change in the approach to fire weather forecasting by the Bureau. Although apparently provided for in the fire weather directive applicable at the time of Linton, the forecast provided by the Bureau in relation to the Linton fire did not 'indicate whether other less likely scenario that that shown on the forecast might occur'."*³³⁷

19.7.10 The CFA submitted:

*"The evidence of Dr Reeder clearly demonstrates that one such scenario for the Linton wind change was that it would continue to travel across western Victoria at the same speed which it had maintained between the time it first hit the coast until reaching Hamilton. This scenario would have had the wind change arriving at Linton by about 9.00pm ..."*³³⁸

19.7.11 Mr Williams conceded that the fire weather directive had not been followed as closely as it could have in the forecast provided for the Linton fire.³³⁹ Williams also agreed with the suggestion put to him by counsel for the DNRE in the following terms:

*"Can we agree, and it is something the Coroner can act upon, that 6.3 (of the Fire Weather Directive) should be interpreted for the future so that that sort of less likely scenario will be communicated to the agencies at a fire fight?—I am happy with that, I think that's a good way to tighten up and provide a better fire service."*³⁴⁰

Mr Rooney endorsed this suggestion³⁴¹ as did the CFA in its submissions.

19.8 Conclusions

19.8.1 Operational Management for Linton – Weather Information

19.8.2 As set out earlier in this Chapter, the CFA's Operational Guidelines, published in 1995, specifically recognise the importance of carrying wind change information to firefighters because of the risk posed to their safety.³⁴² It is important to restate the phraseology in the Guidelines:

"Changes in wind direction can increase the area burnt and be a safety hazard for firefighters and it is vital to carry warnings of the actual or estimated wind change to ALL PERSONNEL involved in the firefighting operation. This includes all firefighters as well as incident management team personnel. The safety and security of firefighters and equipment will be a priority concern during and immediately after the wind change. In some cases it may be necessary to suspend firefighting operations temporarily during the change until the new wind direction and strength has been established."³⁴³ (Emphasis added)

19.8.3 Also as indicated earlier in this Chapter the weather, in particular the wind, has a significant impact upon fire behaviour. It is essential that those responsible for managing a fire ensure that all available information is obtained, analysed, factored into strategies and tactics, reflected in incident action plans and actually relayed through the incident chain of

command to those on the fire ground. Under the AIIMS-ICS system this is the responsibility of the Planning and Operations Officers and the Incident Controller. It was not done at Linton. Instead, significant reliance was placed on a “general” radio message system when it was known, by operational management, that communications difficulties were not uncommon during wildfire suppression operations. In addition, it should have been obvious that the “Wickliffe” message had no meaning. Although it contained information on direction and speed, it contained no information on expected time of arrival.

- 19.8.4** The Linton fire contained a number of examples of incidents, where firefighters who were regarded as experienced were surprised by dramatic changes in fire behaviour influenced by weather (wind), fuel load and topography. In fact the fire behaved in a way that should have been predicted by appropriately trained and experienced forest firefighters. Forest fire fighting requires a significantly higher degree of training and practical experience than grassland fire fighting.
- 19.8.5 The role of the Bureau on 2 December 1998**
- 19.8.6** The spot weather forecast and wind change charts issued by the Bureau to the fire fighting agencies on 2 December 1998 forecast the wind change to arrive at the fireground between about 5 hours and about 2 hours later than the actual time of arrival.
- 19.8.7** The Bureau forecast closest to the actual arrival of the wind change was the 7.53pm forecast, which forecast the arrival of the wind change at around 11.pm. The wind change arrived at about 8.45pm.
- 19.8.8** Contact with Mr Rooney by the fire agencies at the time of the Wickliffe, Dunkeld and Skipton observations may have resulted in a review of the available information, including that from the automatic weather stations. It is, however, impossible to say that it would have had any effect on the forecasts that issued. Rooney had enough information available to make an accurate forecast, or at the least identify the actual arrival time of the change as a real possibility. Taking into account the evidence of Williams, including the diagrams prepared by him showing the movement of the relevant change across southern Australia coupled with the notes as to the time of receipt of information by the Bureau from the AWS stations,³⁴⁴ the criticisms made of the Bureau and the opinion of Reeder as to the forecasting errors, are well founded.
- 19.8.9** Under the Fire Weather Directive applicable at the time, the information available to the fire agencies should have been conveyed to the Bureau. Also, it is clear that Clause 6.3 of the Fire Directive required the Bureau, during the afternoon of 2 December, to alert the fire agencies to what was (at the very least) a realistic possibility of the wind change arriving at about the time it did, if it continued to maintain its constant movement across the continent.
- 19.8.10** The forecasting error by the Bureau contributed to the disparate views of those in the IMT as to the likely timing of arrival of the wind change. However, those in the IMT never reached the stage of analysing, discussing and reaching a position based on all available material, including the inaccurate Bureau forecast. The IMT was in possession of sufficient information to come to the accurate conclusion reached by Messrs Graham and Anderson. The Bureau’s error did not result in misinformation being relayed to those on the fire-ground. The IMT relayed no information to those on the fire-ground. The disparate views of its members did not add to or subtract from the quality of the information received by those on the fire-ground.

Occupational Health and Safety Issues

20.1 Introduction

- 20.1.1** The duties of employers to employees or others who are affected by their undertaking are to be found in:
- The Common Law; and
 - The Victorian *Occupational Health and Safety Act* 1985
- 20.1.2** In some circumstances an understanding of these principles is necessary to be able to draw a conclusion whether or not there has been an act or omission that amounts to contribution under the provision of the *Coroners Act* 1985. These issues to do with contribution were fully explored in Chapter 1. It is the purpose of this Chapter to give a brief overview of the duties of employers and employees, and then to examine some important practical aspects of occupational health and safety.

20.2 Duty of Employers and Employees

Common Law

- 20.2.1** The duty of an employer to his employees is an implied term of a contract of employment and also a duty imposed under the general tort of negligence: *Davie v. Merton Board Mills Ltd* [1958] A.C. 604, 619; *Matthews v. Kuwait Bechtel Corporation* [1959] 2Q.B. 57, 67; and *Toth v. Yellow Express Carriers Ltd* [1969] 2 N.S.W.R. 425.
- 20.2.2** The duty has been consistently formulated as a duty to take reasonable care for the safety of the employee in all circumstances of the case: *Paris v. Stephney Borough Council* [1951] A.C. 367, 384; *Hamilton v. Nuroof (WA) Pty Ltd* (1956) 96 C.L.R. 18, 25; *Wilson v. Tyneside Window Cleaning Co* [1958] 2 Q.B. 110, 124; *Cavanagh v. Ulster Weaving Co Ltd* [1960] A.C. 145, 167; *Davie v. New Merton Board Mills Ltd* [1959] A.C. 604, 618; *Vozza v. Tooth & Co Ltd* 126 C.L.R. 316, 318; *Ulahos v. Easywear Australia Pty Ltd* [1974] V.R. 155, *McLean v. Tedman* [1984] 155 C.L.R. 306, 311–313; and *Bankstown Foundary Pty Ltd v. Braistina* [1985–86] 160 C.L.R. 301, 307–309.
- 20.2.3** The duty which in modern times has been described as a “*managerial duty*” (see Fleming, *Law of Torts* (7th ed.) p.481–482) is seen as having four components:
1. The provision of competent staff;
 2. The provision of a safe place of work;
 3. The provision of proper plant and appliances;
 4. The setting down and enforcement of a safe system of work.¹
- 20.2.4** Fleming has made the following observation about the duties of employers:
- “The relevant standard of care exacted from employees is high and over many years tended to increasing stringency. In Britain it has been observed that when an employee*

is injured at work there is now a near presumption – in fact – that the employer is, or ought to be liable. In Australia the High Court long sought to oppose this trend but has now become more forgiving. Concededly, in comparison with decisions only 20 or 30 years ago, the standard has risen substantially in response not only to technological improvements but more yet to ‘changing ideas of justice and increasing concern with safety in the community.’ As a descriptive statement it may not therefore be far off the mark to say that the standard ‘has moved close to the border of strict liability’, even if the official position remains that employer’s obligation is to exercise reasonable care and not to warrant safety ...”²

20.2.5 While these observations have appeared in some judgments in recent times, the general principle set out in paragraph 20.2.2 has not changed. This point was forcefully made by the High Court in *Bankstown Foundry Pty Ltd v. Braistina*:

“It should be mentioned that senior counsel for the appellant employer focused attention, in the course of his argument, upon particular statements in the judgments of Priestley and McHugh JJ.A who constituted the majority of the Court of Appeal. The relevant statement in the judgment of Priestley J.A., was to the effect that there was to be discerned in some recent decisions of this Court ‘deliberate emphasis on the heavy obligation upon an employer in fulfilling his duty’ of care to an employee. The relevant statement in the judgment of McHugh J.A. was that ‘particularly in the employer/employee field, the standard of care required of a defendant has moved close to the border of strict liability.’

If these statements, made by their Honours in the course of ex tempore judgments, were intended to lay down principles to be applied by judges at first instance, they would be open to some criticism in that it would be wrong for a trial judge to approach an action in negligence by an employee against an employer on the basis of some perceived principle that ‘the heavy obligation upon an employer’ was to be emphasized or that the standard of care required of an employer ‘has moved close to the border of strict liability.’ Contemporary decisions about what constitutes reasonable care on the part of an employer towards an employee in the running of a modern factory are in sharp conflict with what would have been considered reasonable care in a nineteenth century workshop and for that matter, reflect more demanding standards than those of twenty or thirty years ago. While it is true that that has, in part, been the consequence of the elucidation and development of legal principle, it has, to a greater extent, reflected the impact, upon decisions of fact, of increased appreciation of the likely causes of injury to the human body, of the more general availability of the means and methods of avoiding such injury and of the contemporary tendency to reject the discounting of any real risk of injury to an employee in the assessment of what is reasonable in the pursuit by an employer of pecuniary profit.

For our part, however, we do not read the relevant statements of Priestley and McHugh JJ.A. in the Court of Appeal as intended to lay down any principle to be applied by trial judges. In our view, those statements are more properly to be seen as no more than ex tempore comments about the overall tendency of some more recent judicial decisions.”³

20.2.6 The duty owed by an employer to its employees is often referred to as a non-delegable duty. The meaning of this has been considered in a number of cases.

20.2.7 In *Wilson’s Clyde Coal Company Limited v. English* [1937] A.C. 57, it was held by the House of Lords that the employer’s duty is non-delegable and where an agent is performing the duty of providing a safe system of work he or she is performing the duty of the employer and not that of an employee. In other words, the employer is not vicariously liable for the agent’s breach of duty but is taken to have breached its own duty.

20.2.8 Lord Thankerton stated the issue in that case as being:

“ ... whether a master, who has delegated the duty of taking due care in the provision of a reasonably safe system of working to a competent servant, is responsible for a defect in the system of which he had no knowledge ...”⁴

- 20.2.9** It was argued by the Appellants in that case that, as they had delegated the function to the agent who was competent, any negligence was that of the agent and not the employer, and so the now defunct doctrine of common employment applied to exonerate the employer.
- 20.2.10** In respect of this argument, Lord Thankerton said:
- "It seems to me that the fallacy in the Appellant's argument lies in the view that the master, being under a duty to take due care in the provision of a reasonably safe system of working, is absolved from that duty by the appointment of a competent person to perform the duty. In my opinion the master cannot 'delegate' his duty in this sense, though he may appoint someone as his agent in the discharge of the duty, for whom he will remain responsible under the maxim respondent superior ..."*⁵
- 20.2.11** This is not a case of vicarious liability but one of the principal retaining the liability to perform the duty owed to the employee. This is clear from Fleming's analysis of vicarious liability;
- "The hallmark of vicarious liability then is that it is based neither on any conduct by the defendant himself nor even on breach of his own duty. Personal liability, in contrast, is always linked to breach of ones own duty ..."* (Emphasis added).⁶
- 20.2.12** This point was further emphasised by Lord Thankerton:
- "... The workman, under his contract of employment, is not to be held impliedly to have taken the risk of want of due care in the provision of a reasonably safe system of working, and the master cannot transfer the duty onto the shoulders of a subordinate. If he appoints a servant to attend to the discharge of such duty, such servant in this respect, is merely the agent or hand of the master, and the maxim qui facit per alium facit per se renders the master liable for such servant's negligence as being, in the view of the law, the master's own negligence."*⁷
- 20.2.13** The maxim is translated in Osborn's Law Dictionary as meaning "He who acts through another is deemed to act in person."
- 20.2.14** Lord Thankerton also approved and adopted the observations of the Lord Justice Clerk in *Fanton's Case* [1932] 2 K.B. 309, where it was said:
- "... It ignores what has always been regarded as a fundamental doctrine of the law of master and servant – namely, that there are certain duties owed by a master to his servant so imperative and vital to safety that the master cannot divest himself of responsibility by entrusting their performance to others, so as to avoid liability in the event of injury arising to the servant through neglect of any of these duties ... The duty may not be absolute, and may be only a duty to exercise due care, but, if, in fact, the master entrusts the duty to someone else instead of performing it himself, he is liable for injury caused through the want of care of that someone else, as being, in the eye of the law his own negligence..."*⁸
- 20.2.15** In the same case Lord MacMillan expressed similar opinions. At p.75 His Lordship observed:
- "Now I take it to be settled law that the provision of a safe system of working in a colliery is an obligation of the owner of the colliery. He cannot divest himself of this duty, though he may – and, if it involves technical management and he is not himself technically qualified, must – perform it through the agency of an employee. It remains the owner's obligation, and the agent whom the owner appoints to perform it performs it on the owner's behalf. The owner remains vicariously responsible for the negligence of the person whom he has appointed to perform his obligation for him, and cannot escape liability by merely proving that he has appointed a competent agent. If the owner's duty has not been performed, no matter how competent the agent selected by the owner to perform it for him, the owner is responsible."*
- 20.2.16** Clearly His Lordship saw the duty as non-delegable and therefore his reference to vicarious liability is inappropriate. He maintains the distinction between the existence of a duty, which always remains with the employer and the performance of that duty which may be delegated. In this sense therefore he casts a personal obligation on the employer as did Lord Thankerton.

20.2.17 Lord Wright also took a similar line:

“... This House held ... the statutory duty was personal to the employer, in this sense that he was bound to perform it by himself or by his servants. The same principle, in my opinion, applies to those fundamental obligations of a contract of employment which lie outside the doctrine of common employment and for the performance of which employers are absolutely responsible. When I use the word ‘absolutely’, I do not mean that employers warrant the adequacy of plant, or the competence of fellow employees, or the propriety of the system of work. The obligation is fulfilled by the exercise of due care and skill. But it is not fulfilled by entrusting its fulfilment to employees, even though selected with due care and skill. The obligation is threefold – ‘the provision of a competent staff of men, adequate material and a proper system and effective supervision’ ...”⁹

20.2.18 Later His Lordship said:

“... But in truth the employer’s obligation, as it has been defined by this House, is personal to the employer, and one to be performed by the employer per se or per allius ...”¹⁰

He then went on to adopt the analogy of maritime law where ship owners are absolutely held to warrant the seaworthiness of their ships and observed:

“... It is the obligation which is personal to him, and not the performance ...”¹¹

20.2.19 Further on in his speech His Lordship said:

*“... What is the extent of the duty attaching to the employer? Such a duty is the employer’s personal duty, whether he performs or can perform it himself, or whether he does not perform it or cannot perform it save by servants or agents. A failure to perform such a duty is the **employer’s personal negligence**. This was held to be the case where the duty was statutory, and it is equally so when the duty is one attaching at common law ...”* (Emphasis added)¹²

20.2.20 Finally, Lord Wright summarised his opinion as:

*“... I think the whole course of authority consistently recognises **a duty which rests on the employer and which is personal to the employer**, to take reasonable care for the safety of his workmen, whether the employer be an individual, a firm, or a company, and whether or not the employer takes any share in the conduct of the operations. The obligation is threefold, as I have explained. Thus the obligation to provide and maintain proper plant and appliances is a continuing obligation. It is not, however, broken by a mere misuse or failure to use proper plant and appliances due to the negligence of a fellow servant or a merely temporary failure to keep in order or adjust plant and appliances or a casual departure from the system of working, **if these matters can be regarded as the casual negligence of the managers, foremen, or other employees.**”* (Emphasis added)¹³

20.2.21 Lord Maugham, the last of their Lordships to deliver a speech in this matter, was of the same general opinion. His Lordship said:

“... an employer cannot divest himself of responsibility in regard to the three matters which are in his peculiar province ...”¹⁴

20.2.22 Later His Lordship observed:

“... The employer can, of course, and frequently must delegate the performance of any of his duties to skilled agents; but it would need an altogether new implied term in the contact between employer and employee before a court could properly hold that this delegation has the result of freeing the employer from his liability ...”¹⁵

20.2.23 It is to be noted that similar views were expressed in the Privy Council in *Toronto Power Co v. Paskwan* [1915] A.C. 734, 738.

20.2.24 It is quite clear that the fundamental duty of an employer to the employee, i.e. the duty to take reasonable care for the safety of the employee in all the circumstances of the case, is

not delegable. It is also quite clear that there is a distinction to be drawn between the existence of the duty which is always personal to the employer and the performance of that duty which is delegable.

20.2.25 Where the performance of the duty is delegated, the performance by the delegate is the performance of the employer. If it is negligent then the employer is negligent. The employer or delegate may also be liable but that does not derogate from the breach of the employer.

20.2.26 This point was clearly made in the reply of the DNRE:

*"... Since Kondis v. State Transport Authority (1984) 154 CLR 672 it is clear that an employer has a 'non-delegable duty of care' to its employees. This does not preclude an employer from delegating the tasks it wishes performed, but the duty to ensure that reasonable care is taken cannot be delegated. These principles are clear and do not require further exposition."*¹⁶

20.2.27 The DNRE further, and correctly, submitted that:

*"An employer must take responsibility for any deficiency in the system of work which it has prescribed its employees to follow. The employer cannot rely upon its workers, experienced as they might be, to challenge the system prescribed. The employer cannot rely upon its employees to take the initiative in devising or pursuing other methods to increase safety: General cleaning contractors Limited v. Christmas [1953] AC 180 at 190; WorkCover Authority of NSW v. Wallis No. 1118 of 1998 (Full Court of the Industrial Court 14th August 1996); Fleming (supra) pp.564-5"*¹⁷

20.2.28 The DNRE also submitted that:

*"Since Kondis v. State Transport Authority (supra) and Burnie Port Authority v. General Jones Pty Ltd (1994) 120 ALR 42, it has been accepted that a non-delegable duty will not arise unless there is a special relationship between the parties in which the person, upon whom the duty is imposed, has a particular level of control or supervision over the other. Various categories of case in which it has been held that there was a non delegable duty were analysed by Mason J in Kondis (supra)."*¹⁸

20.2.29 It is correct to say that a non-delegable duty arises in circumstances where there is a "level of control or supervision" by the party owing this duty. In a contract where there is an employer and employee relationship that is a given because the employer's duty is to provide a safe system of work, which is the means by which the work performed by the employee is controlled.

20.2.30 The situation becomes somewhat more difficult to analyse when there is not an employer and employee relationship in existence.

20.2.31 The analogous situation to what occurred on the Linton fire ground is the lending of employees by one employer to another. In such circumstance which employer has the non-delegable duty towards the employee? Is it the general employer, or the hiring employer or both?

20.2.32 The DNRE submitted:

"Thus in law where employees of an employer are utilised by a third party, the employer remains responsible for his employees. Control and liability for the employees conduct in such circumstances will reside with the employer: See Mersey Docks v Coggins [1947] AC 1 at 17; McDonald v Commonwealth (1945) 46 SR (NSW) 129 at 132. In Fleming it is said that the principle reason for this approach is that:

'The general employee, unlike the hirer, has selected the servant for the task and thereby makes himself responsible for the manner in which the work is carried out.' (p.419)."¹⁹

20.2.33 This statement of the law is not quite accurate. The accurate exposition of the law is found in the following passage from Glass et al:

“General and particular employers

It is a common event in modern industrial life for one organisation to hire out its plant or employees, or both, to another organisation. the hiring may be for a particular occasion or it may be continuous. A firm of manufacturers, for example, may find it more economical to hire lorries and drivers from a transport firm to do carting within its own works than to pay drivers and purchase lorries of its own. In such cases a question commonly encountered is the ascertainment of the relevant employer of the individual whose services have been transferred. Does he remain the employee of his general employer while performing those services or does he become pro hac vice the employee of the organisation which has hired his services? It is clear in principle that the employee of one person may become for a particular occasion the employee of another, even though he receives no remuneration from the latter. This was pointed out in Johnson v. Lindsay & Co. by Lord Herschell who said:

‘The general servant of A may for a time or on a particular occasion be the servant of B, and a person who is not under any paid contract of service may nevertheless have put himself under the control of an employer to act in the capacity of a servant, so as to be regarded as such. This, as has been pointed out, is the position of a volunteer.’

The control test applies

The question whether responsibility for the employee’s conduct has shifted from the general employer to the particular employer is governed by the control test. A similarity is to be seen in the language of the High Court in Zuijs v. Wirth Brothers Pty Ltd and Humberstone v. Northern Timber Mills and the language of Lord Uthwatt in the Mersey Docks case:

‘The proper test is whether or not the hirer had authority to control the manner of execution of the act in question.’

There will accordingly be many sets of facts on which it will be open to the jury to decide the question either way.

Prima facie, when the general employer of an individual lends or hires the services of that individual to a third party, the individual remains the employee of the general employer. If, however, the third party has by agreement with the general employer the right to direct the manner in which the individual is to do his work, the latter will become the temporary employee of the third party. Moreover, if the third party does not have a right of control by agreement, the individual will be the employee of the third party if the latter assumes a right of control over the manner in which the individual does his work. The burden on a litigant who claims that the third party has become pro hac vice the employer of the individual, however, is a very heavy one and is not easily discharged. It is not enough to show that the individual is subject in some respects to the control or supervision or orders of the third party. The right of control or superintendence must extend to the manner of doing the work. A right of control over incidental or collateral aspects of the work is not sufficient.” 20

- 20.2.34** Ultimately the DNRE agreed with this when it submitted:

“The test often asked is who exercises control, not only over the task to be performed but over the method of performing it? At Linton and, it appears from the evidence, generally.

- 20.2.35** The UFU submitted that at Linton the DNRE owed a non-delegable duty as an employer to CFA personnel and therefore should be found to have contributed to the deaths of the Geelong West crew.

- 20.2.36** The DNRE by contrast submitted that it owed a common law duty to CFA personnel on the fire ground but was not in the position of an employer towards them. Thus it submitted:

“In Stevens v Brodribb Sawmilling Co Pty Ltd (1986) 160 CLR 16 the High court held that whilst an employer owed a duty of care to the employee of an independent contractor, it was not a non-delegable duty. The relationship between an employer and

an independent contractor is not such as to attract liability in the employer for casual negligence of an employee of the contractor: Stevens v Brodribb Sawmilling Co Pty Ltd (supra) per Mason J at 32. The relationship of employer and independent contractor is to be distinguished from the level of control exercised by the employer of an employee in the precise task that is being performed.

The relationship which arises by virtue of the arrangements made between DNRE and the CFA is best illustrated in a passage from the judgement of Brennan J in Stevens v Brodribb (supra) at 47:

‘An entrepreneur who organises an activity involving a risk of injury to those engaged in it is under a duty to use reasonable care in organising the activity to avoid or minimise that risk and that duty is imposed whether or not the entrepreneur is under a further duty of care to servants employed by him to carry out that activity. The entrepreneur’s duty arises simply because he is creating the risk and his duty is more limited than the duty owed by an employer to an employee. The duty to use reasonable care in organising an activity does not import a duty to avoid any risk of injury, it imports a duty to use reasonable care to avoid unnecessary risks of injury and to minimise other risks of injury. It does not import a duty to retain control of working systems if it is reasonable to engage the services of independent contractors who are competent themselves to control their system of work without supervision by the entrepreneur. The circumstances may make it necessary for the entrepreneur to retain and exercise a supervisory power or to prescribe the respective area of responsibility of independent contractors if confusion about those areas involves a risk of injury but once the activity has been organised its operation is in the hands of independent contractors. Liability for negligence by them within the area of their responsibility is not borne vicariously by the entrepreneur. If there is no failure to take reasonable care in the employment of independent contractors competent to control their own systems of work or in not retaining a supervisory power or in leaving undefined the contractor’s respective areas of responsibility, the entrepreneur is not liable for damage caused merely by negligent failure of an independent contractor to adopt or follow a safe system of work either in his area of responsibility or in an area of shared responsibility.’²¹

- 20.2.37** The principles set out above and in the next part of this section were applied when considering the liabilities of the DNRE for contribution in respect of the deaths of the Geelong West crew. The principal analysis of that issue occurred in Chapter 14.9.

Occupational Health and Safety Act 1985

- 20.2.38** In 1972 the British *Robens Report* on occupational health and safety reform was released, and it was recognised by:

“policy makers that OHS legislation should apply to as wide a range of people under a single comprehensive enactment covering all sectors of economic activity.”

In 1985 the Victorian Government gave effect to this policy by the introduction of the Victorian *Occupational Health and Safety Act 1985* which provides a regulatory structure covering a system of information, instruction, training and supervision. The act also may apply, in some circumstances, to volunteers. The firefighting agencies do not demur from the application of the act to wildfire operations. It is a question of how its application is understood.

- 20.2.39** The *Occupational Health and Safety Act* provides for “Duties of an Employer”²², which are:

- 1 An employer shall provide and maintain so far as is practicable for employees a working environment that is safe and without risks to health.
- 2 Without in any way limiting the generality of subsection (1), an employer contravenes that subsection if the employer fails:
 - (a) to provide and maintain plant and systems of work that are so far as is practicable safe and without risks to health ...
 - (e) to provide such information, instruction, training and supervision to employees as are necessary to enable the employees to perform their work in a manner that is safe and without risks to health.

20.2.40 Section 22 provides that every “*employer and every self-employed person shall ensure as far as is practicable that persons (other than the employees of the employer or self-employed person) are not exposed to risks to their health or safety arising from the conduct of the undertaking of the employer or self-employed person.*”

20.2.41 Section 4 deals with “*definitions*” and “*practicable*” means practicable having regard to:

- (a) the severity of the hazard or risk in question;
- (b) the state of knowledge about that hazard or risk and any ways of removing or mitigating that hazard or risk;
- (c) the availability and suitability of ways to remove or mitigate that hazard or risk; and
- (d) the cost of removing or mitigating that hazard or risk.

20.2.42 The UFU in its submission argued that the Act binds the Crown, the terminology broadly defines the circumstances to “*working environment*” rather than the narrower “*workplace*”, employees have duties while at work for the protection of his or her own safety and that of “*anyone else who may be affected by his or her acts or omissions.*”

20.2.43 The UFU pointed to the fact that the duty imposed by section 21 has been the subject of interpretation by the Victorian Supreme Court in *Holmes v. R.E. Spence & Co Pty Ltd* (1992). Mr Justice Harper said:

“The Act does not require employers to ensure that accidents never happen. It requires them to take such steps as are practicable to provide and maintain a safe working environment. The courts will best assist the attainment of this end by looking at the facts of each case as practical people would look at them; not with the benefit of hindsight, nor with the wisdom of Solomon, but nevertheless remembering that one of the chief responsibilities of all employers is the safety of those who work for them. Remembering also that, in the main, such a responsibility can only be discharged by taking an active, imaginative and flexible approach to potential dangers in the knowledge that human frailty is an ever present reality ...”

20.2.44 The operation of the Act was also considered by the Full Court at the Supreme Court of Victoria in *R v. Australian Char Pty Ltd*.²³ The Full Court observed:

“The relevant portion of his Honour’s direction vis-a-vis count 1 was as follows:

‘So far as concerns the employer’s duty to provide a safe system of work is concerned, a safe system of work is one that is safe for an average workman taking reasonable care for his own safety. It is not a system that is safe only for persons of superior skill whose attention never wanders. An employer is bound to have regard to the risk that the employee will act inadvertently, or without taking reasonable care for his own safety.

The law provides that while at work an employee must take reasonable care for his own health and safety and the safety of anyone else who may be affected by his acts or omissions at the workplace. He must also co-operate with his employer with respect to any action taken by the employer to comply with any requirement imposed by, or under the law relating to safety of workplaces.

Therefore whilst you are entitled to take into consideration any failure by any particular employee, such as Robert Evans, to take reasonable care for his own health and safety, or any failure by an employee, such as the witness, Scurlock, to take reasonable care for another employee, such as Evans, in considering whether the Crown has established either count against the accused company, the law still requires that employers have the regard to the risk that their employees will act inadvertently, or without taking reasonable care for their own safety and for the safety of others, or without complying with requirements of an employer with regard to the safety of the workplace.’

So much of the direction as referred to an employer being bound to have regard to the risk that its employee will act inadvertently, or without reasonable care for his own

safety, was based upon common law principles applicable to a worker's action in negligence for damages against his employer: *McLean v. Tedman* (1984) 155 C.L.R. 306 at 311–13; *Bus v. Sydney County Council* (1989) 167 C.L.R. 78 at 90. It was not debated that the direction accurately stated the common law position in such cases. The argument of counsel for the appellant was that this common law consideration was not to be imported into a prosecution under s. 21(1) of the Act in so far as the reliance was placed upon failure of provision of plant under subs. (2)(a). It was not submitted that common law considerations generally were irrelevant to the operation of s.21(1) and (2). Indeed, it was observed by counsel for the applicant that the legislation may be said to codify the common law.

In our opinion it is clear that his Honour, in giving the direction complained of, gave it only with respect to the 'system of work' aspect of count 1. His later reference to the jury bearing the matter in mind when 'considering whether the Crown has established either Count ...' was to be understood in that context. That is a short and complete answer to grounds 11 and 12.

We should add this: In our opinion, bearing in mind the objects of the Act as defined in s.6, and the definition of 'practicable' contained in s.4, his Honour's direction would not have been inappropriate even if given with respect to the provision and maintenance of plant. The employer's statutory obligation was to provide and maintain a working environment that was so far as was practicable safe and without risks to health. Contravention of that obligation might be established, inter alia, by failure of provision of plant that was so far as practicable safe and without risks to health. By s.4, 'practicable' is defined to mean practicable having regard (inter alia) to '(a) the severity of the hazard or risk in question.'

It was pointed out in *McLean* that in many employment situations 'the risk of injury ... is negligible so long as the employee executes his work without inadvertence and takes reasonable care for his own safety.' But long experience has shown that employees do sometimes act inadvertently or without due care for their own safety. It is in that context that an employer must guard against such acts or omissions as may foreseeably cause injury. Foreseeability is not equivalent to probability. The severity of a workplace hazard or risk in the common law context depends, inter alia, upon consideration of the potential for its causing foreseeable injury to an inadvertent or careless worker. It would seem to us inconsistent, in the context of an Act of Parliament much directed towards achieving workplace health and safety and the elimination of risks to health and safety, that an employer's obligations would be of lesser dimension than those which arise under the common law."²⁴

20.2.45 The DNRE submitted that:

"Sections 21 and 22 of the Occupational Health and Safety Act 1985 create statutory duties which largely mirror but also enhance the nature of the common law duty of care which DNRE has towards firefighters and public on the fireground.

...

*The Coroner should proceed on the basis that Section 22, given the widest application, creates a duty that is co-extensive with the common law duty of care imposed upon DNRE with respect to employees of the CFA, Volunteers, and members of the public that would be exposed to risks arising from the fire at Linton."*²⁵

20.2.46 It is on the basis set out above that the application of the Occupational Health and Safety Act was considered in this Report.

20.3 Other Jurisdictions – Practices and Research

20.3.1 An examination of work in another jurisdiction on the issue of safety in wildfire operations (or wildland fire) and research on incidents discloses the nature and extent of the risk and raises practical solutions already adopted. Australian research also indicated the extent of the problem over a number of years.

OH&S Practices in the United States

- 20.3.2** The Inquests were provided with information on wildfire safety from the United States. This documentation served to illustrate that occupational health and safety issues associated with wildfire have been in the process of research and continual improvement in that country. The National Fire Protection Association in the US developed a number of standards. The UFU drew attention to the purpose of the NFPA standard “1500 Standard of Fire Department Occupational Safety and Health” which is to

“specify the minimum requirements for an occupational safety and health program for a fire department, and safety procedures for those members involved in rescue, fire suppression and related activities.”²⁶

- 20.3.3** There also is a handbook dealing with the practical application of NFPA 1500. However, DNRE cautions that:

“the NFPA is an association of urban firefighting agencies whose activities are principally confined to static incidents such as house fires, industrial plant events and the like. The UFU says in response that there is nothing in the scope of NFPA 1500 which renders it inapplicable to forest fires. It should not be assumed, however, from the fact that the standards make one reference to wildling fires that they are appropriate to be applied in the context of forest firefighting. The point is that those firefighting agencies in the United States whose principal fire suppression activities are concerned with forest fires have for good reason not adopted the NFPA standards.”²⁷

- 20.3.4** DNRE explained that there are “quite different techniques and hazards involved in controlling a forest fire.” That the US National Wildfire Co-ordination Group (representing the agencies involved in wildfire suppression) has not adopted or endorsed the NFPA standard.²⁸

- 20.3.5** DNRE produced material from the US, which included notes on a booklet entitled “Common denominators of fire behaviour on tragedy and near-miss forest fires.”²⁹ The booklet was produced by NWCG as a simple guide to assist wildland firefighters in identifying potentially hazardous fire behaviour. The notes summarised by DNRE are significant and include the following comments by the US Coordinating Group:

“We are concerned both with the differences between fatal fires and those in which someone has a narrow escape and the similarities between these two kinds of fires. A review of recorded firefighter entrapments on wildland fires between 1926 and 1990 shows that over 400 firefighters died (from fire induced injuries) in 100 fires.”³⁰

Further:

“It is possible to identify some common denominators of fire behaviour both in fatal fires and in the near miss fires. But remember that all fires differ and that the change of one small factor can result in an entirely different picture. Tragedy and near miss fires often involve so-called ‘erratic fire behaviour’ and occur under seemingly innocuous conditions.”³¹

And:

“Whatever the reason, individual behaviour and circumstances make the difference between life and death. For the individual firefighter and crew boss, it becomes more and more important to recognise conditions under which so many close calls and fatalities occur.”³²

- 20.3.6** In 1990 the NWCG produced another document entitled “Firefighter Safety in Wildland and Urban Interface Fires.” The US Group commented:

“Remember, as structure and wildland fire fighters are increasingly called on to assist one another in wildland/urban interface fires, your safety and survival may depend on knowing not only your capabilities, but your limitations.”³³

And:

“Wildland/urban interface fires don’t lend themselves to textbook control methods. This is partly due to the fact that interface fires are common on days with high-to-extreme burning conditions, which means larger, faster burning fires that are more difficult to control.

Also the presence of structures limits wildland fire control options and presents additional concerns, such as how to safely burn out the area between the fireline and the fire.

*The biggest danger is usually at the head or along the hot flank of a running fire. Be aware of these hazardous circumstances and be ready to move to a safer position fast. Otherwise, crews may wind up at the fire head without anchor points or adequate escape routes.”*³⁴

- 20.3.7** The 1990 document highlights a number of “watch out” factors (for wildland and structural firefighters) in the use of equipment in the wildland/structural fire interface. For example:

“road grades too steep to allow egress, and cul-de-sacs and turn-arounds with inadequate turning radii for vehicles.

You should also be aware of the limitations of all types of engines and equipment. Structural fire apparatus, for example, cannot always get into rougher terrain because they carry such heavy loads.

*Wildland engines, on the other hand, may not have enough extinguishing capability for all situations, especially structure fires which usually require large amounts of water. Pump operators must always remember to save a small reserve of water for their own protection.”*³⁵

- 20.3.8** The US documentation also notes:

“Check for ground fuels beneath your engine. Grasses, brush and other ground cover could bring the fire to you.

If you realize that the fire is about to overrun you, take shelter in the structure, or in your vehicle. An overrunning fire will usually pass very quickly.

If you have one, use your fire shelter. Remember, a fire shelter is not a fallback measure in routine wildland fire fighting. It’s last-chance lifesaver to be used only when every possible means of escape is cut off.

*Also remember that good fire fighting depends on a good fire escape plan. Make sure you always have two means of egress. Maintain and protect your escape routes, and post lookouts to keep you informed.”*³⁶

And importantly the document identifies the problem of emotions:

“Emotions may pose one of the biggest obstacles to avoid. Unwilling to accept defeat when it’s time to evacuate, fire fighters may try to stay dangerously long in deteriorating conditions. You must, however, always be prepared to move before your egress is cut off.

*Learning to think of everything that might be going on around you on a fire scene can be hard when you’re concentrating on getting your own job done – but you should train yourself to be aware of the big picture.”*³⁷

- 20.3.9** The document also identifies the need for a strong incident management system as being one of the “most important things in managing any fire.”³⁸ The system is based on a hierarchy of command where:

“the overhead team maintains a strong presence and the crew maintains high accountability. Freelancing and solo jobs are strictly out. Everyone works in a team, as a team.

The incident command system acts as a wide-ranging safety net that connects you with other people in the field when your life is on the line – which is every time you fight a fire. Since that safety net is essentially a flow of information to and from your position, good communications are integral to the incident command system.

*For example, wildland firefighters who are appropriately trained sometimes use fire as a suppression tool. When the decision has been made to begin burning in a certain area, a member of the overhead team notifies adjacent divisions so that everyone in the area knows what is going on, thereby avoiding confusion and preventing accidents.”*³⁹

- 20.3.10** More recently, in 1994 the US TriData firefighter safety study identified a series of problems and control measures necessary for fighting wildfire. Some aspects of this study are considered under the following sub-headings to this Chapter, “Research” and “Safety Officer Function.” The TriData study re-enforced the need for the resurgence of the role of Safety Officer.

20.4 Research

- 20.4.1** A study of the history of wildfire firefighter fatalities indicates the deaths of the five volunteers at Linton are but an example of the range of risks that wildfire firefighters face. Risks are also inherent in other aspects of firefighters’ work (ie: in training, in structural fire, in hazardous materials fires, non-fire related natural disasters, emergency rescue, travelling to and from incidents, exposure to toxins, etc.) It is noted that heart attacks are identified as a significant factor in some of the non-accidental deaths.

- 20.4.2** Three studies of firefighter fatalities were presented to the Inquests. Two of the studies relate to wildfire and the third is a broader study about the variety of risks firefighters may face. The first study is by Dr. Bruce Paix entitled “Improving Burnover Protection for Australian Bushfire Appliances,”⁴⁰ the second is a document “Fatalities and Near Miss Investigation”⁴¹ by DNRE and the final is the TriData “Analysis Report on Firefighter Fatalities in the United States in 1994.”⁴²

- 20.4.3** In the acknowledgment to the 1994 US study is the comment by TriData:

*“We acknowledge that firefighting is a dangerous profession, and tragedies will occur from time to time. This is the risk all firefighters accept every time they respond to an emergency incident; however, the risk can be greatly reduced through efforts to increase firefighter safety.”*⁴³

And under the heading “Background” comments:

*“For two decades, the United States Fire Administration (USFA) has kept track of firefighter fatalities and conducted an analysis of the fatalities that occur each year. Through the collection of information on the causes of firefighter deaths, the USFA is able to focus efforts on specific problems and direct efforts towards finding solutions to reduce the number of firefighter in the future.”*⁴⁴

- 20.4.4** The 1994 US study included a special analysis of wildland fatalities “which claimed an unusually high number of lives this year, and an analysis of risk management and recognition in the fatal incidents.”⁴⁵ Across all areas the distribution of deaths by cause or fatal illness is reported as follows (these are listed in order of magnitude):

- (1) The largest category was “stress or overexertion, which was the listed as the primary factor in 35 percent of the deaths. The act of firefighting has been shown to be one of the most physically demanding activities that the human body performs, and deaths from stress are usually from heart attacks. Of the 37 stress related fatalities in 1994. 36 firefighters died of stress related heart attacks and one firefighter died of an aneurism.”
- (2) The next leading cause of firefighter fatalities “was being caught or trapped, accounting for 36 firefighter fatalities (35%). Seventeen firefighters were overrun by rapidly moving brush or wildland fires. Nine firefighters WCI-C trapped by rapidly changing fire conditions inside burning structures and seven apparently became disoriented or lost and died in building fires. Two firefighters died as a result of becoming trapped in structural collapses. A fire chief died of burns after being caught in an explosion while directing operations outside a burning garage.”
- (3) The third leading cause of firefighter fatalities was “being struck by or coming in contact with an object. Of the 26 firefighters (25%) who died in these incidents, 11 were involved in vehicle accidents, 8 died in aircraft crashes, 2 were struck by vehicles while at the scene of an emergency, one was struck by a falling tree, one was struck by a helicopter rotor blade, one was hit by shrapnel when a 106mm recoilless rifle misfired and exploded, and one was struck by falling debris at a fire and one was electrocuted when he came in contact with an electric line power line while carrying a chainsaw down and aerial ladder from the roof of a fire building.”

- (4) Finally, *“three firefighters (3%) died as a result of falls. One firefighter died when he fell through a hole in the floor while checking a room for fire extension. A second firefighter, who had suffered a broken ankle when he fell down a flight of stairs at a fire died of an embolism that was caused by his injury. A third firefighter died when he fell off the roof of his fire station. Exposure to smoke or toxic gases was listed as the causal factor in deaths (2%). A chief officer suffered a fatal heart attack after breathing toxic gases while performing overhaul at a house fire. He was not wearing any protective gear or SCBA. Another firefighter suffered a fatal heart attack after being overcome by heat and toxic gases while standing-by at a controlled burn.”*

20.4.5 Australian research was conducted by Dr. Paix after the Linton fire. He commented that in Australia at least 52 *“bushfirefighters have died on active duty since 1980”* and excluding natural deaths *“the majority of the deaths have occurred when fire tankers have been overrun and this continues to happen.”* Paix reported that *“five firefighters died at Waterfall in 1980, 16 on Ash Wednesday in 1983, 3 at Grays Point in 1983, 1 at Wingello in 1998 and 5 at Linton in 1998.”*

The times of Australian burnovers occurred as *“early in the season as September, and as late as April, whilst a number occurred at major fires others occurred during quite times at small fires or burnoffs.”* Dr Paix examined a range of burnover situations in both Australia and the United States and concluded that being:

“overtaken by fire remains a significant cause of death for Australian bushfire fighters. Often the burnover occurs so suddenly there is little time to prepare, and it must be ridden out in whatever location and orientation the appliance is in.”

20.4.6 Dr. Paix also provided summary details of number of burnover incidents involving fire appliances in both Australia and the United States. Dr. Paix cautioned that the *“protection afforded by present appliances is not optimal...”*

As indicated additional research on deaths in Victoria during DNRE wildfire operations was provided. DNRE produced the document *“Fatalities and Near Miss Investigations”* which summarised the known fatalities of the Department’s employees during fire-line suppression operations since the 1939 *“Black Friday”* fires and non suppression fire activities since 1974.⁴⁶

20.4.7 The deaths need to be placed in the context of the Department’s overall annual exposure, which is:

“...around 640 unplanned fires which burn some 120,000 11 hectares. In addition the Department aims to treat between 80,000 and 150,000 hectares of public land with prescribed fire for fuel management, and/or ecological, or silvicultural reasons.”⁴⁷

20.4.8 The summary of the deaths described by DNRE depicted a range of fire suppression circumstances from 1983 to date. The summaries include entrapment of 2 bulldozer operators, a single vehicle collision following an extended shift at a fire, a heart attack of a 71 year old sub-contractor bulldozer operator, a pilot dropping fire retardant from an aircraft, 3 deaths (crew and pilot) dropping an incendiary device from an aircraft and a fall (possible heart attack where the body was badly burnt) during a prescribed burning operation.

20.4.9 A study of the detail provided in the research on fatalities whilst fighting wildfire indicates that the information is not complex. It should have been undertaken well before Linton and the lessons learnt factored in to the safety systems that ought to have been operating by modern firefighting agencies.

20.5 Risk Control

20.5.1 It is clear that the Victorian Occupational Health and Safety legislation applies to firefighting and, in particular, a wildfire operation. There is nothing in the legislation to indicate firefighting agencies or individual firefighters are exempt when involved in wildfire management. The agencies have recognised this point. Occupational health and safety is referred to in the manual for the incident control system for AIIMS:

“Within each agency, safety health and welfare must be continually stressed by managers. All personnel have a responsibility for their own welfare, their workmates and the people they may be supervising.

*The occupational health and safety policies of the combatant authority must be adhered to during the incident.”*⁴⁸

It is the extent to which it is practical to apply traditional occupational health and safety risk management principles to the management of wildfire on the fire-ground that is at issue.

The need to work from risk assessment

- 20.5.2** Risk assessment or analysis is a precursor to effective removal, control or mitigation of risk. Risk assessment requires awareness of the potential risks of a work process and a person undertaking a risk assessment must have knowledge and experience of the work process. The UFU submitted:

*“Proper risk analysis involves both the identification of risks and the estimation of the magnitude of those risks (Noonan, B 246–7). In a rapidly changing and dynamic working environment such as a wildfire, such analysis must be ongoing and must be performed by persons trained in the techniques of risk analysis (Noonan, T10360).”*⁴⁹

The Union also pointed to the need to undertake the assessment in *“accordance with established models designed for that purpose.”* It gave by way of example the model developed by the United States (National Fire Protection Handbook – NFPA 1500 Standard of Fire Department Occupational Safety and Health):

*“regular re-evaluation of conditions; pessimistic evaluation of changing conditions; and experience based on previous incidents.”*⁵⁰

- 20.5.3** Whilst the use of NFPA 1500 has been challenged by DNRE as not being adopted for wildfire the list is a useful pointer to some of the practical rules for assessing and reassessing risk. The use of information on previous incidents is an important part of the process of risk assessment. Where the hazard (wildfire) is likely to generate a risk to safety it becomes a far more essential element in the process. Thus investigation, research and knowledge of prior incidents is a necessary precursor for accurate risk assessment.
- 20.5.4** Risk assessment may include considering the type of work, assessing the adequacy of training or knowledge required to enable the work to be performed safely and considering the way the work is to be conducted. In the context of managing wildfire, risk assessment should be a continual part of the process – built into every aspect of the way a firefighting organisation and its firefighters conduct the work.
- 20.5.5** The firefighting agencies need to work from the state of knowledge about the wildfire hazard or risk and examine ways of removing or mitigating that hazard or risk. This requires consideration of risk assessment as a broad concept. A risk assessment is also required for every wildfire and needs to be regularly reviewed during the management of a going fire.

Working on risk control – application of the hierarchy of controls

- 20.5.6** Risk control or mitigation is normally undertaken in accordance with what is known, in occupational health and safety parlance, as the *“hierarchy of controls.”* This hierarchy provides a series of steps or control measures as a guide for managing risk. The traditional hierarchy of controls, used in risk management for decades, is usefully summarised in DNRE’s *“Attachment C”* (also see CFA’s Risk-e draft report⁵¹):

- “ 1. Elimination – controlling the hazard at its source.*
- 2. Substitution – replacing a substance or activity with a less hazardous one.*
- 3. Engineering – the installation of a protective device such as guards on machinery.*
- 4. Administrative – policies and procedures for safe work practices.*
- 5. Personal Protective Equipment – clothing, eye protection, helmets, respirators, ear plugs, etc.”*⁵²

20.5.7 A hazard is not a machine or fire, such items or events are merely the mechanisms by which death or injury can be caused to an individual. In occupational health and safety terms the hazard to be protected against is the danger of injury or death that can result from a particular way of doing a job, ie: the interaction between the machine or fire and the person working it or on it. In the context of a fire, by way of example the hazard is:

- Smoke inhalation;
- Radiated heat;
- Being engulfed in the fire;
- Exhaustion

that can occur when certain methods of fire suppression are not followed.

20.5.8 In relation to each option the hazard should be identified and addressed as – acceptable/not acceptable. It is interesting to note that many of the hazards associated with fire suppression activities are referred to in chapter 4 of the Australian Fire Authorities Council's publication "*Wildfire Suppression 2*".

Obviously, the most effective method for controlling a risk or hazard is to eliminate the risk or hazard. This process of eliminating the hazard is in accord with the normal process of managing a risk – the control measure is commenced by an elimination selection from the top of the list, wherever practicable. In the case of wildfire elimination by suppression control of the hazard is at the very core of a firefighting agencies work. The fire is a given, the fire agency is there to put it out. The analysis ought to be – how to deal with the risk (being burnt by fire) in a safe way and avoid injury to the firefighter? The assessment should be about how to control (or suppress) the fire in a safe way to avoid the hazard by using tried firefighting methodologies like mineral earth control lines and burning out.

When a fire agency is making the assessment, known problems for the methodology should be factored in to the decision and management (ie: are the firefighters on the eastern flank sufficiently experienced, have they been instructed as to the work to be performed when a wind change arrives, do they know the time of the arrival of the wind change?). This is all part of managing the human interaction with the hazard (and starting the process of control). However, in its reply DNRE argues that because of the nature of the work:

*"Firefighting, by its very nature, precludes the elimination of the hazard and brings the firefighter into close proximity to it. It is by nature an undertaking which severely restricts the application of most of the hierarchy of control."*⁵³

20.5.9 Accepting for the moment that DNRE's line of argument is correct, one would move to the second control, substitution, which might mean, in the case of wildfire, back burning (attempting to substitute one fire for another). In reality, this should be part of the first control – part of the initial assessment of risk and how to deal with the job of suppression (control). Examples of the third control (engineering) are fog sprays on tankers, which are problematic and have limits for effective and safe operation. The fifth control, Personal Protective Equipment, also has a limited, but none the less important safety role in the wildfire environment.

20.5.10 DNRE indicated that it was "*committed to the application of OH&S principles on the fire ground.*"⁵⁴ However it pointed out that the issue is not about whether OH&S principles (like the hierarchy of controls) should apply on the fire-ground but "*how and to what extent they should apply.*"⁵⁵ It also alluded to a tension between two groups of experts, Noonan and Packham on the one hand, who considered that OH&S principles applied fully to the fire ground, and Tolhurst, Cheney and Burrows on the other who were of the view that "*such principles could only apply to the fire ground in a modified form.*"⁵⁶

20.4.11 This argument turned on how far the hierarchy of controls should be applied in a wildfire. In considering how these traditional occupational health and safety risk management controls should be viewed in the wildfire situation, DNRE made the point that the hierarchy of controls must be largely inverted when applied to the fire ground. This is because:

"at the top of the hierarchy the ideal way to deal with the hazard is to eliminate it. This cannot be done on the fire ground. Failing elimination of the hazard one looks to implement engineering controls. This can only be done to a limited extent on the

fire ground. The third course is administrative controls which also have limited application on the fire ground. Consequently, the emphasis must be on a “safe person” approach.”

- 20.5.12** DNRE acknowledged that the *safe person* approach was recognised by Mr. Noonan. It also pointed to the fact that the UFU acknowledged (while maintaining an approach that all OH&S principles applied on the fire ground):

“acknowledged that the “safe person” approach may have to receive a greater emphasis, as it is not always possible to commence at the top of the hierarchy of control on the fire ground. This accords precisely with the evidence given by Dr. Tolhurst as to the modification of the principles of the hierarchy of control to the fire ground.”⁵⁷

- 20.5.13** Mr. Noonan pointed to the fact that *“when control measures other than the elimination of the hazard are adopted, the probability of exposure is increased. Where any one of these elements listed above for the safe person approach fail, then there is nothing between the person and the hazard, ie. the exposure.”⁵⁸* These elements, which Noonan referred to included:

- the correct equipment;
- sufficient training and experience;
- adequate information and instruction;
- effective supervision;
- knowledge and skills required by the circumstances; and
- support from all members of management.⁵⁹

- 20.5.14** However, as the firefighter’s job is to control (suppress) the hazard the alternative argument is that it is the system of work (or particular firefighting methodology structured to avoid the firefighter coming into contact with the hazard) designed to control the fire which is at the top of the hierarchy. There may be an increased probability of exposure but that is managed by a sound system of work combined with a range of other methods (including training and experience – the safe person).

- 20.5.15** As indicated, the other (and perhaps more traditional) method of viewing the hierarchy is to start at the first control and work down. This is the method referred to by Risk-e and also DNRE in “Attachment C” to its submissions.⁶⁰ In this attachment DNRE argued that to control the health and safety risks in a workplace to prevent injury and illness it is necessary to:

“identify and assess the risks then decide on the best way to control (ie. Remove or reduce) them by applying the Hierarchy of Control.”⁶¹

And that when:

“deciding on the best way to control a risk one should start at the top of the ‘hierarchy’ (ie. investigate if the risk can be eliminated first, for example by changing the way the work is done, or by using safer substances or equipment). This is the most effective way to control a hazard. If these methods are not possible one should use engineering or administrative controls to reduce or minimise the risk.”⁶²

- 20.5.16** On the other hand, DNRE argued in “Attachment C” that the key *“to success with firefighting is to attack the fire aggressively before it has the opportunity to develop impetus and threaten life or assets.”⁶³* As we have seen demonstrated in the Linton fire this is not always possible. DNRE submitted that there are *“numerous hazards at a wildfire with the main hazard being the fire itself.”* Progressively checking off the hierarchy list DNRE submitted that *“it is not possible to eliminate the fire once it has commenced.”* And at the next level – substitution:

“indirect or parallel attack are options however they may expose firefighters to a further hazard.”⁶⁴

Another substitution method (aircraft) is not an option as aircraft only retard the intensity of the fire to enable ground attack.⁶⁵ DNRE concluded by making the point that:

“in contradiction with its normal approach to risk management (ie remove the hazard), NRE is reliant upon a combination of the remaining levels in the ‘Hierarchy’ ie Engineering controls, Administrative controls & the use of Personal Protective Equipment.”⁶⁶

- 20.5.17** DNRE appeared to be inconsistently arguing two different approaches to “*Hierarchy of Control*” in its submission. DNRE stated “*the emphasis must be on a “safe person” approach*” (the inverted view of the hierarchy). On the other hand it was also saying that it “*is reliant upon a combination of the remaining levels in the ‘Hierarchy’ ie Engineering controls, Administrative controls & the use of Personal Protective Equipment.*”
- 20.5.18** The hierarchy of control method still requires, in the case of wildfire, as put by DNRE “*Engineering controls, Administrative controls & the use of Personal Protective Equipment.*”⁶⁷ In discussion on its “*Application of Occupational Health & Safety Principles to Fire*” DNRE pointed to the fact:
- “The process in NRE which underpins occupational health and safety management involves systematically identifying hazards, assessing and controlling risks, and reviewing activities to make sure they’re working to keep the risks controlled. Effective consultation, training and information management are essential parts of this process. This systematic approach is used by NRE in risk management (see Attachment C).”*⁶⁸
- 20.5.19** In noting that it tends to reverse the Hierarchy of Controls when dealing with fire suppression DNRE observed that, to “*correctly assess the options available staff must not only be properly trained in fire behaviour and fire suppression but also the application of the OH&S principles.*” It does this by providing:
- “training programs which are relevant to the task and delivered by competent instructors; competent supervisors who are trained and accredited...”*⁶⁹
- 20.5.20** The concept of the “*competent supervisor*” is not only part of a *safe person* approach but is one of the main administrative controls used in any safety management system. It is also observed that the agencies’ own incident management system (AIIMS-ICS) provides a structure for managing a wildfire (or any other incident) that has as its core – supervision.
- 20.5.21** By contrast, as indicated earlier, DNRE argued that when “*deciding on the best way to control a risk one should start at the top of the ‘hierarchy’ (ie. investigate if the risk can be eliminated first, for example by changing the way the work is done, or by using safer substances or equipment). This is the most effective way to control a hazard*”. (Emphasis added). Clearly the way the work is done is the essential element in the argument. The hazard (fire) is only a risk when the firefighter is in a position to be burnt. Control lines being carefully constructed by experienced firefighters who are supervised by competent supervisors, have the correct information on weather fuel, etc is one work method that will either significantly reduce or eliminate the risk. By contrast, albeit using a different technique, many of the firefighters at Linton used the wrong work methods to suppress the fire ie: attacking the head of the fire on the Pittong-Snake Valley Road when the fire was too far advanced (spotting over), fuels, topography and weather were not conducive.
- The preferable position is that the traditional hierarchy of controls applies to managing wildfire and that the issue is “*deciding on the best way to control*” the risk by starting at the top. The traditional firefighting methodologies are the first controls to be considered in the process.
- 20.5.22** There was some argument about the degree to which the *safe person* or *safe workplace* approach should apply to wildfire safety (this will be discussed in more detail in Chapter 23).

20.6 Supervision

- 20.6.1** The *Occupational Health and Safety Act* requires, in effect, an employer to provide such “*supervision*” to employees as is “*necessary to enable the employees to perform their work in a manner that is safe and without risks to health.*”⁷⁰ This is subject to the practicability test in sub-section 21 (1) and section 4.
- 20.6.2** In the context of wildfire the Australian Inter-Service Incident Management System (AIIMS) is designed to provide a common approach to management where a number of agencies are involved in combating the incident. It is one way whereby the firefighting agencies have provided for a system of supervision. The system was developed by the Australian fire

services in the early 1990s (the United States) as it was recognised that more emergencies required the *“coordinated efforts of several emergency services working together.”* The system was designed to more effectively utilise existing resources in a common approach to the management of these resources in combating all types of emergency incidents.

20.6.3 The AIIMS system has been acknowledged during the running of the inquest as a basically sound method of work for managing an incident such as a wildfire. This is to the credit of the agencies involved in its original development in the early 1990s. One of the identified problems at Linton was that many of the firefighters working on the fire ground were either not trained in the system or inadequately trained and operated under the old Group System.

20.6.4 AIIMS provided a structure of command and span of control (through an operating system – the Incident Control System). The Incident Control System (ICS) provides for management by objectives which is:

*“a process of consultative management where the management team determines the desired outcomes of the incident. These outcomes or objectives are then communicated to those involved, so they know and understand the direction being taken during the operation.”*⁷¹

20.6.5 The *“span of control”* concept recognises that there are limits to *“to the number of groups or individuals which one person can successfully supervise.”* The detail of the principles behind *“span of control”* in the ICS manual are that:

“At emergency incidents, the environment in which supervision is required can rapidly change and be dangerous. A maximum of (5) reporting groups or individuals is considered to be the optimum, as this maintains a supervisor’s ability to effectively task, monitor and evaluate performance.

*The supervising officer needs to be able to quickly receive reports, evaluate information, communicate orders, and mobilise and redeploy crews at the same time as overseeing their safety and welfare. Responsibility for more than 5 teams or persons begins to jeopardise the safety of personnel and the effectiveness of the operation.”*⁷²

20.6.6 The UFU argued that supervision is *“central to any system of risk control”* relying on the *“safe person”* concept.⁷³ However, one of the difficulties with the *“safe person”* concept is that, to be effective, the potential and consequences of human error also needs to be factored in to the system. In *R v Australian Char Pty. Ltd.* (1995) VR. Justices Phillips (CJ), Smith and Ashley whilst hearing an appeal relating to charges under the Occupational Health & Safety Act 1988 referred to a passage from the judgement of Harper J. in *Holmes v R.E.Spence Pty.Ltd.* Harper J states that an employer’s responsibility for safety:

“...can only be discharged by taking an active, imaginative and flexible approach to potential dangers in the knowledge that human frailty is an ever present reality. This indeed is an element which often turns what would otherwise be a positive result into a negative one, so that for example, the minor but less obvious traps may present a greater danger than the major more obvious ones...One must then weigh the chances of spontaneous stupidity, or a fall or the like, against the practicability of guarding the machine so as to maintain its function while preventing the human factor from resulting in injury...”

20.6.7 And the Appeal Court reiterated, as it was pointed out many years earlier in *McLean v Tedman & Anor* (1984) 155 C.L.R. at pp. 311–313, that in many employment situations:

“ ‘the risk of injury...is negligible so long as the employee executes his work without inadvertence and takes reasonable care for his own safety.’ But long experience has shown that employees do sometimes act inadvertently or without due care for their own safety. It is in this context that an employer must guard against such acts or omissions as may foreseeably cause injury. Foreseeability is not equivalent to probability. The severity of a workplace hazard or risk in the common law context depends, inter alia, upon consideration of the potential for its causing foreseeable injury to an inadvertent or careless worker....”

- 20.6.8** Effective supervision by trained supervisors is one of the elements of a safe system of work and helps to reduce the risk of the consequences of inadvertence. It is an essential part of the control of risk when working with a hazard such as wildfire.

20.7 Incident Reporting and Analysis

- 20.7.1** The reporting and thorough investigation of incidents/near misses is important for a sound occupational health and safety or risk management system. It is vital for the process of risk assessment for operational managers (and firefighters) to understand where problems affecting safety may develop at a wildfire and how countermeasures work to reduce risk. That understanding can be continually improved by an effective incident/near miss reporting and investigation system combined with feedback of lessons learnt to firefighters.

- 20.7.2** In this regard the UFU submitted that *“central to any proper system of OH&S is a formal mechanism for the reporting of incidents and their analysis.”* It suggested that this reporting system is crucial in a high risk industry such as firefighting because:

“as Tolhurst observed...the ‘margin between survival and fatalities can be quite fine.’ Dr. Burrows made a similar point...that the ‘burnover survival strategies adopted wouldn’t have worked under more severe conditions’ than those experienced at Linton.”⁷⁴

- 20.6.3** The incidents involving Snake Valley ‘A’ tanker, the burning of the Lightfoot utility and the Madden Flat and Possum Gully Road burn-over are but examples of where the lives of firefighters were at risk. All of which have been considered in detail in other Chapters of this Report.

- 20.7.4** DNRE have an incident reporting and investigation system, which it outlined in a document headed *“Fatalities and Near Miss Investigation.”* The procedures for reporting and investigating significant fire related incidents were introduced on 16 September 1998.⁷⁵ To assist with the *“capture of injuries and near misses on the fireline”* DNRE introduced for the 1999/2000 fire season a *“Firefighter Notice of Injury or Near Miss”* pocket card. The Department has also introduced detailed investigatory procedures. The CFA did not have an incident reporting investigation system for wildfire. The AIIMS-ICS Manual provides for a system of incident reporting to the Incident Controller.

20.8 Training

- 20.8.1** The *Occupational Health and Safety Act* requires, in effect, an employer to provide such “training” to employees as is *“necessary to enable the employees to perform their work in a manner that is safe and without risks to health.”⁷⁶* This is subject to the practicability test in sub-section 21 (1) and section 4.

- 20.8.2** An important element of a safe system of work is to ensure that firefighters are trained. Training for the task is part of an essential risk control measure. As indicated by the list in the hierarchy of control training is not a suitable control measure on its own, but training but must be an essential element of good risk control. Training helps to give the firefighter the skills and knowledge to identify the risk and work with the wildfire hazard. Competency based training recognises the need for the additive of experience.

- 20.8.3** The CFA also recognised the importance of training to safe firefighting. Effective training is at the core of its *“safe person”* approach to wildfire fighting. Its training materials developed prior to Linton were recognised as first class. Also prior to Linton it had effectively moved to Competency Based Training. After Linton it recognised that its record keeping on training was inadequate.

- 20.8.4** As part of the process of training firefighters need to be trained in the operational system of work operating on the fire ground. At the time of Linton the operational system of work was AIIMS-ICS.

20.8.5 A firefighter's ability to effectively recognise the true nature of fuel loads in the forest environment and assess the risks is but one example of an area where training is required. Thus knowledge and skill in this area is one of the important elements for safe operations. It was already recognised, prior to Linton, by the CFA in its *"Operations Guidelines – A Guide to Operations and Tactics in the Field"*:

"FOREST FIRE

Forest fire behaviour is influenced by:

- *Complex fuel structure – fine and heavy fuels, often distributed vertically, with potential for tree crowns to become available fuel also.*
- *Often there is a big range in local areas of fuel quantities and fuel moisture contents, as influenced by topography, streamside effects."*⁷⁷

20.8.6 Other examples of areas of training for firefighters would include: the use of burnt ground as a safety procedure; the importance of wind change information for safe operations; working with earthmoving machinery; the need for regular turn-arounds when building a control line; planning escape routes; how to use the fog sprays; etc.

20.8.7 The UFU was critical of the CFA because it did not provide its firefighters with training on occupational health and safety and *"formalised training in relation to risk assessment."* That the lack of this type of training:

"which is quite different to training about fire safety, is symptomatic of an organisation that is failing to come to grips with its legal and moral responsibilities for the safety of firefighters and others on the fireground."

20.7.8 Some support for the line of argument that occupational health and safety training is important for firefighter safety is to be found in DNRE documentation. It notes that, to *"correctly assess the options available staff must not only be properly trained in fire behaviour and fire suppression but also the application of the OH&S principles."* DNRE does this, in part, by providing:

*"training programs which are relevant to the task and delivered by competent instructors.."*⁷⁸

20.9 Safety Officer Function

20.9.1 The AIIMS-ICS structure provides for a *"Safety Officer"* to be appointed by an Incident Controller during a *"type 3 fire."*⁷⁹ Apparently this post has never been filled for any *"wildfire"* operation under AIIMS.

20.9.2 The CFA sought to argue that fundamentally the position of safety officer was meant to apply to structural or hazardous materials type incidents and not to a *"wildfire."*⁸⁰ This is not explained in the AIIMS document. Both the CFA and DNRE argued strongly against the concept of a safety officer.

20.9.3 The DNRE's *"Fire Management Training Package"* for *"Operations Officer Level 3, (Operational Management Learner's Guide 26/08/98)"* essentially dealt with training for *"wildfire"* (although other types of incidents were also specified⁸¹) and discussed the respective roles of the Incident Controller and Operations Officer and their responsibility for safety. Under the heading *"Safety Officer"* the Learner's Guide comments that when appointed a Safety Officer *"is responsible for ensuring that adequate safety provisions are implemented and maintained at incidents."* The guide envisaged that the Safety Officer would deal with issues such as:

- correct wearing of protective clothing;
- safe use of equipment;
- integrity of structure affected by an incident;
- ensure proper procedures are being followed, for instance with hazardous materials;
- accidents and incidents are reported and investigated;
- instigate critical incident stress management procedures.⁸²

- 20.9.4** The Safety Officer must be “clearly identified” and liaise with the Operations Officer in regard to operational safety. The guide envisages the appointment of “more than one person to the Safety Unit” where, by way of example, “accident investigations need to be carried out” or “specialists need to be brought in.” In this case the “Unit leader reports to the Incident Controller.”⁸³ This is the earliest (and only) suggestion in any of the pre-Linton Australian documentation provided to the Inquests of a “Safety Unit.” It is also the only guide to the potential role of a Safety Officer. The guide does not exclude the role of Safety Officer from “Type 3” wildfire incidents.
- 20.9.5** The CFA and DNRE also argued that the appointment of a safety officer to a wildfire would risk firefighters losing focus on their own safety as such matters were the responsibility of the “safety officer.” Also the Volunteer Associations were not convinced a safety officer system was necessary.⁸⁴
- 20.9.6** Mr. Roche acknowledged that safety officers had not previously been used by the CFA in wildfires.⁸⁵ However, there had been a use of safety officers in “structural firefighting for hazardous materials incidents...” but not in a structured way.⁸⁶ He did not “contemplate the general use of safety officers in a wildfire situation.”⁸⁷ Also Roche consulted regularly with other agencies, read texts from overseas, discussed the issue with counterparts from other states, and:
- “...there are significant variations in the desire or otherwise or the application or otherwise of having safety officers, and I remain to be convinced that a safety officer in a dynamic wildfire ... as to how that person can influence line decisions which change from minute to minute, from mile to mile or sorry, kilometre to kilometre, with tactics that are constantly changing.”⁸⁸*
- 20.9.7** And Mr. Roche considered that the difficulty of the safety officer role is “having the right people in the right place at the right time....” He indicated that in “any fire, particularly a wildfire” the environment changes:
- “... rapidly, minute to minute. You can audit a task or an action or a system at a particular stage and suggest to the line commander, “This ought to occur to fix it”, and hopefully he will say “There is nothing wrong here, it is fine”, but five minutes later, or 30 seconds later even that can change.”⁸⁹*
- 20.9.8** In addition Mr. Roche identified one of the other arguments in favour of the CFA not adopting the safety officer proposition as:
- “...there is also a view that suggests that one of the dangers associated with that is that it makes someone else responsible for safety.”⁹⁰*
- 20.9.9** Mr. Anthony Edgar, Regional Manager for DNRE⁹¹ stated that Safety Officers (reporting to the incident controller) were used at fires in the United States. The role of a Safety Officer in the States was reported as being:
- “responsible for monitoring and assessing hazardous and unsafe situations and developing measures for assuring personnel safety. The Safety officer will correct unsafe acts or conditions through the regular line of authority, although they may exercise emergency authority, to prevent unsafe acts when immediate action is required.” (p.81, Fireline Handbook, National Wildfire Coordinating Handbook, January 1998, NWCG Handbook 3).⁹²*
- 20.9.10** Mr. Edgar commented that, during his stay in the United States, he:
- “encountered a degree of ambivalence amongst a number of USA fire managers about the use of this position. From discussions and observations it was obvious that the role is performed inconsistently. The practice in the US is to have one Safety Officer at each fire and this position operates at the Incident Control Centre, and in the field.”⁹³*
- 20.9.11** Mr. Edgar considered that if Safety Officers were to be recommended for wildfire in Victoria “a number of matters would require resolution.” These are:
- “it would be very important to ensure that such an officer would be a highly experienced firefighter and that he or she, as in the USA, be placed within the formal*

chain of command; the accountability issues in often dynamic and rapidly changing situations would require resolution; and the possibility that firefighters would adopt an attitude that “safety is someone else’s responsibility” would have to be addressed. An analysis of the overall impact on forest fire suppression, any consequential increased risks to the community, and the impact on suppression costs should also occur.”⁹⁴

20.9.12 DNRE raised considerable concerns about the role of a Safety Officer in Exhibit 71D. It recognised that it is:

“inherent in the task of forest firefighting that there will necessarily be risks associated with many of the activities. As such, occupational health and safety principles must assume paramount importance in the approach, and actions of all those involved....”⁹⁵

And continued:

“...Clearly fire controllers, and all forest firefighters have to balance the risks they face with those faced by the wider community. In forest firefighting even the best systems and safety practices cannot eliminate all risks. Risk must be reduced however to an acceptable level, through appropriate risk management strategies.

35. Forest fires are usually rapidly evolving events, where a great many variables interact, such as fire behaviour elements (including the effect of fuels, topography, weather, microclimate etc) and human behaviour factors (including the productivity of fire crews under various weather conditions and altitudes). Many of these variables, and certainly their interactions with each other, are currently imperfectly understood.”⁹⁶

20.9.13 Rather than look at external (to operational command) safety supervision systems DNRE restated the “fundamental rationale within AIMS-ICS” is that to move up through the ranks firefighter to Sector Commander ‘greater training, and importantly greater experience of the way the forest fire variables interact, and how those interactions impact on firefighter safety’ is required⁹⁷ DNRE argued that the appointment of a “safety officer, even in limited circumstances raises serious concerns” which have yet to be “adequately addressed.”⁹⁸ It argued that to:

“effectively operate as a safety officer for example, would require considerable training and experience. Placing that experience outside, or parallel to, the chain of command potentially ‘dilutes’ the incident management structure.”⁹⁹

And more significantly that in:

“a dynamic and rapidly changing situation, is the question of how disputes are to be quickly resolved between, for example, a Sector Commander and a safety officer. Does the safety officer, once concerned about safety, then become the tactical decision maker? And how is confusion avoided in rapidly changing and potentially life threatening situations?”¹⁰⁰

20.9.14 DNRE considered that safety should be “built into every level in the chain of command.” It developed “WATCHOUT” guidelines for firefighters some 20 years ago, in conjunction with the United States Forest Service. That for:

“many years all NRE firefighters have been trained and instructed to monitor fire behaviour, their team’s behaviour and information flows, and not to put themselves in high risk situations when fighting wildfires. The safety philosophy underpinning the ‘WATCHOUTs’ forms the core of NRE’s fire training.”¹⁰¹

20.9.15 DNRE argued that its training program “which the CFA is committed to adopting” is designed to:

“equip firefighters at all levels with the skills to assess the inherent hazards encountered during fire suppression and prescribed burning operations, and to minimise the risk to them and their colleagues. The approach is designed to embed risk management into all levels of the incident control organisation, and particularly on the fireline.”¹⁰²

20.9.16 Mr. Noonan also indicated some support for this argument when discussing a structural approach to safety (and a safety officer at board level):

*"Might it also have another advantage – tell me if I'm wrong, it is something I thought about overnight – and that is that it would also give a systemic approach to safety in the sense that every part of it, such as the training and the material that is handed out, the manuals that are used, can be looked at by a particular person with that function within the organisation as opposed to a safety officer at the scene on a day who takes what he gets?—Yes, exactly."*¹⁰³

20.9.17 The UFU, in its submission, commented:

*"Noonan's evidence about the need for one or more safety officers at a wildfire is based on the existence (since 1992) of such a position in the AIIMS Incident Control System...One of the claimed benefits of AIIMS is 'safety, health and welfare' of firefighters....As the AIIMS manual itself recognises, 'designated responsibility for this important function will assist in effectively meeting the needs of the incident personnel.' "*¹⁰⁴

And made the point:

*"Under AIIMS the Incident Controller ('IC') 'is responsible for the safety of combating crews. Supporting personnel and the public who may be involved in the incident.' However, the IC is not practically able to carry out this entire role personally. That is no doubt why. Under AIIMS/ICS, the IC is able to appoint an officer for specific activities such as safety. 'to support incident operations.' "*¹⁰⁵

20.9.18 The UFU argued the difficulties raised by the agencies (disruption of chain of command, enhancing firefighters' attitude that "safety is someone else's responsibility" and that they are inappropriate in the dynamic situation of a wildfire) do not withstand scrutiny. They do not withstand scrutiny because:

"First, the chain of command argument. It is envisaged that the safety officer would generally operate within the chain of command. Any veto power is only to be exercised in extreme cases to save lives. As such it is entirely consistent with existing statutory powers in Victoria.... The view that the chain of command is best able to protect firefighters assumes, of course, that existing mechanisms are able to achieve that goal...

... The second concern may be met by an appropriate process of introducing safety officers. Part of the role of a safety officer would be to emphasise that everyone has safety responsibilities and that the safety officer is there to make that work in practice as well as theory....

*... The final concern is in fact an argument for safety officers: the dynamic nature of the fire means that people become focussed on the job at hand to the exclusion of proper risk analysis."*¹⁰⁶

20.9.19 Material from the United States offered some support for the concept of a safety officer for larger wildfire operations.¹⁰⁷ The documents also highlight some difficulties. This material dealing extensively with firefighter safety during "wildland fire" covered research work undertaken between 1995 and March 1998. Apparently it was not researched or actioned by the CFA prior to Linton.

20.9.20 The United States material is a culmination of an extensive research project aimed at improving firefighter safety and directed by the five Federal Agencies "most involved in wildland fire fighting." The TriData Corporation of Arlington, Virginia undertook the work. The culmination of the work was the "Third Phase" which contains "implementation recommendations." There are striking similarities between many of issues discussed in the United States material and those raised during the Linton Inquest. One of the issues considered was the role of Safety Officers. The TriData report states:

"We believe that the Safety Officer position is important and can positively impact safety on the fireline. However, though the position has been in existence for a long time, the Safety Officer's role has been slow to develop its full strength and potential. The Safety Officer position task book ... generally seems up to par, but the Safety

Officer is not, and is not approved by NWCG. With the current focus on safety, the timing is right to strengthen the Safety Officer role.”¹⁰⁸

20.9.21 Seventy percent of the TriData survey respondents *“believed that the use of the Safety Officer position is a strength of the system.”* Apparently only five percent considered the position required strengthening. Some survey respondents considered firefighting culture *“belittles Safety Officers because of the occasional trivialization of their role in practice: some safety officers give too much emphasis to minor hygiene issues, and not enough to safety from the fire.”¹⁰⁹*

20.9.22 TriData identified the goal of defining the *“position responsibilities, priorities and independence”* of the Safety Officer.¹¹⁰ In the Incident Command System the Safety Officer worked directly for the Incident Commander (IC). In the process of re-examining and clarifying the role and organisational placement of Safety Officers the comment is made that fundamental differences of opinion exist as to whether this arrangement is best.

“Some say that having the Safety Officer on the Command Staff develops an important level of trust and gives the Safety Officer more direct access to the IC and more influence on the IC’s decisions. Others argue that the Safety Officer should come from outside the Incident Management Team to provide a more objective perspective, although this displays a lack of organisational trust and sets up a potential adversarial relationship between “safety inspectors” and the Incident Management Team.”¹¹¹

20.9.23 Importantly, TriData noted that a:

“related question is the ability of Safety Officers to adequately detect and correct safety problems on the fireline where risk exposure is greatest – or whether they should even try to do so. The most effective, highest leverage way to influence safety is by not selecting a tactical option that is likely to put people in harm’s way. The Safety Officer’s input to command decisions is critical. However most Safety Officers find it difficult to simultaneously discharge their Command Staff duties and also observe and influence safety on the fireline.”¹¹²

20.9.24 Rather than remove the Safety Officer position because of the difficulties, TriData recommended that *“the appropriate strategy is to build on the strengths of the current system.”* The report considered that maintaining:

“the Safety Officer position as a key member of the Command Staff but supplementing them with field Safety Officers ordered to the fire as single resources. Ideally, a field Safety Officer would be assigned to each division or group on a major fire. The field Safety Officer should be tactically savvy and trained to assist crews. Strike Team/Task Force Leaders, and Division/Group Supervisors to assess risk and implement risk controls.”¹¹³

20.9.25 TriData considered that Safety Officers should first *“focus on firefighting safety”* and secondly *“on other safety and health issues (eg: hygiene).”* Safety Officers should also be *“alert to symptoms of extreme fatigue and dehydration.”* TriData also recognised as a key point that the *“use of Safety Officers must not diminish the responsibility of all firefighters and incident management teams for safety.”¹¹⁴* Also it was suggested that the first principle should be *“to strengthen the safety awareness of everyone”* and not *“reflexively depend on Safety Officers.”* This approach *“will ultimately have more impact and lasting change on the culture than relying on Safety Officers ‘to inspect in’ safety.”¹¹⁵*

20.9.26 The report also set *“higher standards for Safety Officers”* and suggested that a Safety and Health Working Team reviewed the training and standards. As a minimum TriData suggested that the program should:

- Establish a corps of Safety Officers who are physically able (moderate fitness level) and willing to work on the fireline, where they can directly observe and influence the safety of firefighters and fireline Incident Management Team.
- Require a rigorous training and experience regimen that includes prerequisite training and performance in key command and operations positions....
- Require successful completion of a Safety Officer course that has been thoroughly evaluated and approved by the NWCG.¹¹⁶

20.9.27 TriData noted that to be most effective *“Safety Officers must not be looked down upon in the culture as people who have been put out to pasture. The higher standards and restored focus of Safety Officers on fireline safety should help restore the status of the Safety Officer position.”*¹¹⁷

TriData also highlighted a difficulty with the role for all fires (especially smaller fires). The report notes that expert firefighters interviewed:

*“recognised initial and extended attack as the riskiest of fire operation environments. Many firefighters...share a strong perception that they face greater risk while fighting small fires that are growing and transitioning to larger operations than they do on large fires that are continuing to grow. The transition can be especially dangerous because not only is the fire situation becoming more complex, but the command function changes from “fire fighting” to managing an emergency situation.”*¹¹⁸

20.9.28 In this situation TriData considered that the agencies should require the *“Initial Attack and Extended Attack Incident Commanders to designate a very experienced (perhaps the most experienced) person on their fire as an ad hoc Safety Officer to monitor safety during transition periods.”* In these initial attack circumstances TriData does not consider a trained Safety Officer is needed. However, in many cases it is likely the officer would arrive too late to observe the transition.¹¹⁹

20.9.29 The UFU also pointed to a safety manual in the US entitled *“National Wildfire Co-ordinating Group Fireline Handbook”*, which was attached to Mr. Edgar’s statement. That handbook provides for the appointment of one or more safety officers *“to monitor and assess hazardous situations and develop measures for ensuring safety of personnel.”* UFU draws attention to the role of the safety officer in the handbook:

*“The Safety Officer, a member of Command Staff, is responsible for monitoring and assessing hazardous and unsafe situations and developing measures for assuring personnel safety. The Safety Officer will correct unsafe acts or conditions through the regular line of authority, although they (Safety Officer) **may exercise emergency authority, to stop or prevent unsafe acts when immediate action is required.**”*¹²⁰ (Emphasis added – in UFU submission)

20.9.30 A safety officer was not used by operational command at the Linton fire. It is understood in the past the position of safety officer had not been used in any wildfire. A safety officer is an important part of risk control in the wildfire environment. The firefighter’s job (elimination of wildfire) may mean that focus is on understandable and necessary operational management and there is potential for safety issues being inadvertently missed or not elevated to the correct level. Thus a safety officer is an important adjunct as a resource for safety advice and audit to the firefighter on the fire-ground. This important issue is further developed in Chapter 23 (with recommendations).

20.10 Equipment and Hardware

20.10.1 The Occupational Health and Safety Act provides that *“an employer”*¹²¹ shall provide and maintain so far as is practicable for employees a working environment that is safe and without risks to health. In this context an employer should also provide and maintain plant and systems of work that are so far as is practicable safe and without risks to health.¹²² *“Practicable”* means practicable having regard to the severity of the hazard or risk in question; the state of knowledge about that hazard or risk and any ways of removing or mitigating that hazard or risk; the availability and suitability of ways to remove or mitigate that hazard or risk; the cost of removing or mitigating that hazard or risk. The design of tankers and related safety systems is therefore an important issue to review in the context of occupational health and safety.

20.10.2 In the context of Section 21 the traditional hierarchy of controls, discussed earlier, provides for the following solutions:

“3. Engineering – the installation of a protective device such as guards on machinery.”

And:

“5. Personal Protective Equipment – clothing, eye protection, helmets, respirators, ear plugs, etc.”¹²³

20.10.3 Since 1981 the CFA had been examining equipment design through the Chief Officer's Equipment Design Committee. The role of the committee was to recommend *“the development and new design of pumpers, tankers, firefighting equipment and other appliances”*¹²⁴ and monitor performance. At the time of Linton CFA owned vehicles were fitted with rollover protection, fibreglass heat shielding and low water sight tubes.

20.10.4 There is an engineering solution that provides some limited degree of protection for firefighters caught in a burn-over. This solution is the use of firefighting water on tankers to provide a protective spray against radiant heat. The CFA relies on the crew keeping a quarter of a tank of water for survival. According to Mr. Roche this rule had been *“drummed into personnel as part of basic safety and survival training”* at least since he became a volunteer in 1963.¹²⁵ Before the Linton fire the CFA had:

“not undertaken any scientific research to verify the adequacy of that allowance for different fuel conditions, based on different pump pressures etc. However, the pump pressure rates required to achieve the most appropriate fog patterns and the amount of water consumed using different pump pressure rates and different nozzles etc, was well understood and formed part of basic training.”¹²⁶

And:

“the first time that a requirement that crews keep a reserve of water was put in writing was with the publication of the Operations Guidelines in 1995 (page 14.5). There was no mention of the minimum quarter tank. This is now dealt with in the new Chief Officer's Standing Order 3.05...”¹²⁷

20.10.5 Mr. Roche explained that the history of the use of quarter of a tank resulted from the old mainstay tanker of the CFA fleet, which was:

“the 400 gallon tanker, which is equivalent to today's 2000 litre tanker that still makes up the bulk of the CFA's tanker fleet. Thus, the quarter tank rule was and is aimed at the lowest common denominator of 500 litres.”¹²⁸

20.10.6 Following a burn-over incident in the Creswick fire in 1997 the CFA decided to progressively install a low water alert and water management system in its tankers. The water alert operates when the tank water level reaches $\frac{1}{4}$ full.¹²⁹ The water management system comprises a panel displaying five lights, which indicate full, $\frac{3}{4}$, half, $\frac{1}{4}$ and empty.¹³⁰ At the time of Linton not all CFA tankers were provided with this system. Mr. Roche's statement indicated that inquiries were recently made on the quarter tank rule of the NT Fire and Rescue Service, the NT Bushfires Council, the Queensland Fire and Rescue Authority (Rural and Urban) and the WA Department of Conservation and Land Management which do not have:

“any standard operating procedures or guidelines for the retention of water. The main reasons given for the lack of relevant protocols were that

- (i) no research has been conducted to define a figure and thus agencies are not confident about putting an arbitrary figure in a formal protocol;*
- (ii) a figure may not be appropriate to all fuels;*
- (iii) the organisations concerned have identified this as an issue and are in the process of reviewing their positions.”¹³¹*

20.10.7 Apparently two other firefighting agencies (ACT Emergency Service Bureau and NSW Rural Fire Service) do not have formal protocols but either have a rough rule of thumb of 20% to 25%¹³² or 500 litres¹³³ as minimum reserves. The SA Country Fire Service has an operational procedure introduced in January 2000 and require *“if there is any doubt about the level of safety of the firefighters, 20% of the tank shall be maintained.”¹³⁴*

20.10.8 The DNRE conceded that the CFA's *“Quarter Tank Rule”*, which was referred to extensively during the Inquests, has been developed *“to deal with the wide range of circumstances and incident types in which CFA crews and tankers can find themselves.”¹³⁵* However it also makes the point, by way of caution, that:

*"it needs to be appreciated that Australia is a dry continent with very limited water supplies in most forest areas. As such, reliance must be placed upon 'dry firefighting' techniques, implemented in association with 'lower risk' tactics in undertaking fire suppression, rather than relying primarily upon water extinguishment and associated firefighter protection, using higher risk tactics. Dry firefighting is the suppression of the fire without the significant use of water. This is achieved by using hand tools and/or machinery to remove fuels from the path of the fire so as to create a break in the continuity of fuel."*¹³⁶

And as to the basic difference between the agencies' methods of suppressing fire:

*"The CFA relies heavily upon the application of water to suppress fires whereas the NRE generally uses dry firefighting methods. NRE does use water on fires, but its use is secondary to dry firefighting methods, NRE accordingly does not train its crews to retain a minimum quantity of water for safety purposes, but rather it emphasises training in fire behaviour and in the need for crews to avoid placing themselves in high risk situations."*¹³⁷

- 20.10.9** DNRE provided detail on the design differences between its smaller four wheel drive utility or twin-cab type tankers called "*Slip on Units*" and the larger four wheel drive truck tanker with a water carrying capacity of 4000 litres. The "*Slip on Unit*" carries either 400 or 200 litre tanks depending on vehicle design. The 200-litre vehicle is more of a support unit and not considered as a primary firefighting unit. The larger truck tanker carries 2700 litres in the front section and 1300 litres in the rear. The larger tanker is fitted (or plumbed) with fog sprays:

*"to provide vehicle protection from radiant heat, particularly during the conduct of high intensity prescribed burns."*¹³⁸

- 20.10.10** DNRE commented of the dual tank water system, that:

*"when the tanker crew physically change the water supply from one tank to the other, they are aware they are using the last 1300 litres of water on the tanker. Providing they are located in a safe position and the predictable fire behaviour is not threatening, they are not currently prohibited from using this secondary tank."*¹³⁹

- 20.10.11** The smaller "*Slip on Unit*" is DNRE's main fire suppression support vehicle and because of its smaller size is "*faster and more manoeuvrable*" than the larger tanker. Slip on Units are "*quicker in arriving at a fire and can vacate at a similar speed should the need arise.*"¹⁴⁰

- 20.10.12** On the differences between the DNRE and CFA tankers, DNRE explained that its tankers are designed for forest firefighting:

*"in remote and difficult terrain. Whereas the CFA tankers have been designed as multi-purpose vehicles suitable for incidents in crops, grassland, scrub and forest. CFA tankers also attend hazardous material incidents on highways, motor vehicle accidents and structural fires."*¹⁴¹

- 20.10.13** DNRE illustrated that the benefits of retaining water for survival may have some limits. The manufacturer's specifications indicate (with everything in working order):

*"a 400 litre tank would empty in 3.4 minutes and a 200 litre in 1.7 minutes. However, the new large NRE tankers with two fog nozzles deployed, would empty the 2700 litres in 9 minutes and the 1300 litre tank would empty in 4.33 minutes."*¹⁴²

- 20.10.14** It is noted that the Geelong Crew, operating a 3000 litre tanker, used all of their available water to save their lives. They faced two waves of fire – the second wave was more severe than the first. The Geelong West Crew was in a 2000 litre tanker with, most probably, a limited amount of water for survival. Neither of the tankers had advanced safety systems warning of diminishing water supplies for protection.

- 20.10.15** In the event that the Geelong Crew kept quarter of a tank it would have had 750 litres. Had Geelong West done the same the crew would have had 500 litres. In view of the fact that Geelong used all its available water to survive, 500 litres (if kept) in the Geelong West tanker would have been problematic for survival.

- 20.10.16** DNRE are of the view that a formal policy requiring its tankers to retain a certain volume of water would have little safety benefit on the operation of the large tankers, and could have the adverse effect of prohibiting the use of the more numerous 400 and 200 litre rapid response smaller “*Slip on Units.*”¹⁴³ (On this issue see discussion about engineering solutions in Chapter 23)
- 20.10.17** Fog sprays on firefighting tankers are a last resort option. The CFA agrees.¹⁴⁴ It cites the evidence of Mr. Cheney:
- “I don’t believe that firefighters should rely on any engineering solution for their safety in these critical stages. I believe that if they do that sooner or later they will get caught in a situation which is beyond the capacity of whatever they have engineered for their safety to cope with.”*¹⁴⁵
- 20.10.18** Also the joint “*Operations Review*” noted that the estimated intensity of the Linton fire (in the Geelong Strike Team entrapment) was between “4,000 and 11,000 kW/m” and “flame heights averaged between 8 and 11 m, but it also crowned in trees 21 m tall immediately in front, of the tankers.” Importantly the Review refers to a 1998 paper by Cheney, and makes the point:
- “Without the aid of water, a tanker could only be expected to withstand forest fireline intensities of up to 3,000 kW/m.”*¹⁴⁶
- 20.10.19** Also Dr. Paix’s recent study “*Improving Burnover Protection for Australian Bushfire Appliances*”¹⁴⁷ raises a number of variables and concerns about the protection afforded by tankers during a burn-over. He concluded:
- “The protection afforded by the present appliances is not optimal and can be significantly improved by the fitting of:*
- *radiant heat shields to the exterior of the driver’s cabin*
 - *heat reflective curtains inside the cabin*
 - *properly engineered fixed self defense sprinklers, with appropriate water reserves*
 - *radiant heat protection for the pump.”*¹⁴⁸
- 20.10.20** In addition “*reasonable steps should be undertaken to minimise the flammability of exterior structure and reduce the vulnerability of vital systems, eg brake lines.*” That Australian bushfire fighting:
- “is largely mechanised and most burnover incidents have involved mounted crews. Bushfire appliances should be engineered for maximum crew protection. Personal fire shelters may still prove useful if crews are caught away from their vehicles, require additional protection during a severe burnover, or are forced to bail out into still hostile environments during or after a burnover.”*¹⁴⁹
- 20.10.21** When discussing the benefits of personal fire shelters for firefighters the United States National Wildfire Coordinating Group said:
- “Do not get over-confident that shelters are an easy recourse. They are not. They are to be used when everything else has failed. ‘The best fire shelter’ said one supervisor, ‘is the one that never has to be used.’ ”*¹⁵⁰
- 20.10.22** The above is also illustrative, in a different context of relying on engineering or personal protective devices, of the problem that once fog sprays on CFA tankers are activated “*everything else has failed.*” The firefighters on the tanker are having an accident. At this stage the management systems have failed and survival will depend on the level of intensity and duration of the fire, the amount of available water and, in some circumstances, how well the tanker has been designed to withstand fire. Fog sprays no doubt saved a significant number of lives during the Linton fire. Fog sprays were used in a number of incidents (as well as the Geelong Strike Team entrapment) within the fire. The system saved the Geelong Crew, but because of a lack of available water, did not save the Geelong West Crew.
- 20.10.23** The CFA is currently undertaking a range of work on issues such as: literature searches; reserve water tanks; heat reflective curtains; purpose built firefighting vehicles; improving the safety features of brigade owned vehicles; looking at using smaller “*Slip on*” type units for wildfire fighting.¹⁵¹

- 20.10.24** A study of the history of the work undertaken on water protection safety features on tankers discloses a dearth of scientific and research work about the issue by the CFA prior to Linton. This is highly unsatisfactory in view of the known state of knowledge of the risk of the hazard and the fact of prior entrapments and deaths (See further discussion and recommendations in Chapter 23).

20.11 Visitors on the Fire-ground

- 20.11.1** The *Occupational Health and Safety Act* provides that every “employer...shall ensure as far as is practicable that persons (other than the employees of the employer...) are not exposed to risks to their health or safety arising from the conduct of the undertaking of the employer...”¹⁵²
- 20.11.2** At the Linton fire there were circumstances where individuals visited the fire ground with no safety training or supervision. By way of example the media were permitted on to the fire ground and filmed the Possum Gully/Madden Flat Road burn-over. Another example was a bulldozer operator who had no training or previous experience of wildfire work, who was permitted to work on the eastern flank of the fire with no effective supervision.¹⁵³
- 20.11.3** The media have the important responsibility of informing the public of the issues associated with a particular fire and can assist emergency agencies in delivering timely safety messages and warnings to the community. However, the Linton fire has also disclosed that some members of the media entered and filmed on the fire ground without any safety controls being exercised.
- 20.11.4** It is noted that DNRE have suggested both agencies are now committed “to ensure that all contractors, other fireline support personnel, and media representatives are properly trained and accredited, or are supervised by suitably trained and accredited personnel...”¹⁵⁴

20.12 Conclusion

- 20.12.1** There are a range of occupational health and safety principles and practices that apply to safe wildfire operations. Some apply without modification. The “*Hierarchy of Controls*” does apply to work on the fire ground (See further discussion in Chapter 23 of this Report).
- 20.12.2** It is because the firefighter is brought into close proximity with the hazard that pro-active safety systems are necessary. The range of incidents in the Linton fire from the Pittong Road line-up to the Geelong Strike Team entrapments demonstrate the need for additional systems.¹⁵⁵ Essentially, suppression of wildfire is about assessing and managing risk safely.

Work by the Agencies on Firefighter Safety

21.1 Introduction

- 21.1.1** Each of the governmental agencies involved in the Linton Inquests had undertaken considerable work on firefighter safety prior to the incident on 2 December 1998. Also since Linton the issue of firefighter safety has received considerable attention by these agencies. The agencies referred to in this Chapter are the Victorian CFA, Victorian DNRE and the Commonwealth Bureau of Meteorology.
- 21.1.2** All too frequently, recognition is not given for prior work or for new and innovative directions in safety systems stemming from an incident. In this Chapter it is not intended to critically examine explanations for the failure to have certain systems in place or why operating systems might or might not have been adequate or effectively managed. These issues will be examined elsewhere in this Report. What is intended is to point to some of the work undertaken both prior and post Linton and raise some of the difficulties and balances facing organisations managing wildfire. However, it should be noted that this investigation has also identified a range of management systems that ought to have been in place prior to Linton.¹ The investigation has also examined the effect of the failure to fully apply the system of work (AIIMS-ICS) to all of the operational management of the Linton fire.
- 21.1.3** It should be noted that this Chapter does not purport to be an exhaustive examination of all the work undertaken by the agencies before and after Linton. However, it does raise some of the main issues.

21.2 Safety – an Evolutionary and Balancing Process

- 21.2.1** What must be recognised is that serious one-off incidents involving safety issues or safety-systems problems often become a major catalyst for change and cause parties involved to rethink their current systems to find new ways of improving safety. This was partly acknowledged by the CFA when it submitted that the:
- “aftermath of the Linton tragedy has been critical in facilitating acceptance of both the pace and the extent of reform. This has been particularly evident in the increasing acceptance of the AIIMS-ICS system of incident management and the introduction of competency based training.”²*
- 21.2.2** It must be understood that safety, in the environment of a wildfire can be a complex issue, which needs constant attention and vigilance, by those agencies responsible for its management. Thus, as part of the learning from these Inquests it is important to balance and recognise some of the valuable work already undertaken (and now in the process of being undertaken) by the CFA, DNRE and the Bureau towards improvement in firefighter safety in Victoria. In the past some of that work has also been undertaken on a cooperative national basis by Australia’s firefighting agencies.³

21.2.3 Not only should changes in safety systems be considered in the context of lessons learnt from incidents but also the difficulties for institutions and individual groups associated with changes in systems need to be acknowledged and appropriately balanced. The CFA made the point that:

“systemic reform at the time of Linton in areas relevant to safety (eg management systems, training, vehicle design) had progressed as far as was reasonable achievable, having regard to the historical, cultural and budgetary factors operating up until that time.”⁴

And that the:

“introduction of further systemic reform since Linton is not an acknowledgment that systems in place at the time of reform were inadequate or unsafe. In some cases, reforms and improvements since Linton have been part of an evolutionary process that was in place long before Linton. In others (eg red flag warnings), the reforms have been a direct response to issues that have been revealed by the Linton tragedy, in circumstances where those experienced with the previous system had not perceived that there were difficulties or deficiencies attached to the system.”⁵

21.2.4 The CFA in its submission pointed to the “practical, cultural and historical context affecting change” in its organisation. Mr. Roche, the Chief Officer, commented that a brigade is:

“a microcosm of the society or the environment in which it operates. Over the last number of years, particularly in rural Victoria, there has been a whole lot of changes that have been influenced by government policy, global economic policy, et cetera, et cetera, that have really impacted on people in the rural areas of Victoria.”

And that rural Victoria has been:

“belted from one end of the community to the other by government change, and so when another government department, as it were, pops its head up in the CFA, they say, “Oh no, not another change”. That’s a factor we haven’t been able to ignore in terms of the resilience of the community to adapt to change and accept that change.”⁶

21.2.5 The CFA’s submission observed that Mr. Noonan⁷ compared and contrasted “the task faced by the NRE in enforcing work procedures with that faced by the CFA” when he said the:

“problem may be that volunteers believe that they are in effect helping out the CFA perform its statutory responsibilities, but as such, they will do it their way. Any real attempts to enforce procedures, standards or disciplinary action against a volunteer can be made more difficult by the volunteer refusing to volunteer.”⁸

And, according to the CFA, this is a “a critical factor that affects the CFA’s capacity to enforce change.” That if the CFA is to:

“preserve its force of committed volunteer fire fighters who are so vital to the safety and welfare of rural and provincial communities in Victoria. It must be sensitive to all factors affecting the introduction of change.”⁹

21.2.6 These are real and practical problems, which need to be considered when examining the safety systems in place before the Linton fire. However, because of the known level of danger in managing wildfire, these difficulties provide an explanation, but do not fully excuse the failure to have alternate management systems to cope with the potential safety problems in place prior to Linton.

21.3 Firefighter Safety Systems Prior to Linton

21.3.1 Introduction

21.3.2 Effective safety depends on senior management and organisational culture, adequately resourced and audited systems, combined with a policy of continued improvement. The CFA in its submission pointed to the evidence of Mr. Roche who stated that the organisational policy was to:

*“always give priority to the safety of its own crews over the safety of the community and community assets. No strategy or tactic is acceptable if it exposes firefighters to an unacceptable risk.”*¹⁰

21.3.3 This policy was reiterated in the CFA's Standing Orders *“Safety of Fire Crews”*¹¹ which was in force prior to Linton.

21.3.4 ‘Safety First’ and development of competency based training

21.3.5 Mr. Noonan, in his report on the fire indicated that, by the time of Linton *“an analysis of the training records and training information provided by the CFA revealed that...the actual course content of the training provided, and the training facilities”* were first class.¹² (See also discussion training and firefighting methods referred to in Chapter 6 of this Report.)

21.3.6 The CFA commented, that even in the late 1980s, training materials had a *“safety first”* focus. That the materials indicated:

*“Safety in any occupation is a major consideration. In firefighting it is the consideration ...The purpose of this module is to help you to be a safe firefighter at all times.”*¹³

And the CFA pointed to the effectiveness of the training material being demonstrated by a number of witnesses who *“clearly understood the importance of safety first or of thinking safety at all times.”*¹⁴

21.3.7 The CFA submitted that *“the move to competency based training”* was *“a significant development which required careful management.”*¹⁵ This move commenced in 1994 when the CFA adopted the Australian Fire Authorities Council Standards and implemented a pilot project in four regions. The difficulties for the process of introducing this new direction related to the voluntary nature of the brigades with the attendant need for brigade ownership, acceptance of change and careful management of the pace of change by CFA management.¹⁶ Mr. Roche commented:

*“there has been a significant reluctance and, in fact, in some parts of Victoria a very, very strong push against mandating competencies, mandating training and in fact recognising that training as being an accredited process, and it's been – over the years it's not been acceptable to the broader membership of the CFA to have those things imposed on them, despite, on a number of occasions, it being attempted to by senior management within the organisation, that we have not necessarily been able to progress that as well or as fast as we could have in the face of political and social pressure against those decisions.”*¹⁷

Also following the tragedy of Linton the CFA has been able to achieve *“significant movement forward”* in the mandatory nature of competencies and minimum skills that it would not have *“otherwise achieved”* but for Linton.¹⁸ The CFA submission also effectively points out that in *“the practical realities of a volunteer organisation”* the ideal of being in a position *“to identify the need for reform and mandate and enforce stipulated levels of training”* has difficulties.¹⁹

21.3.8 With the advent of AIIMS-ICS and also as part of the competency based training system, the CFA developed a detailed guide *“Operations Guidelines – A Guide to Operations and Tactics in the Field.”*²⁰ It also published the pocket sized *“red book”* for ease of reference for firefighters in the field.²¹ In the *“red book”* is a list of 10 *“Standard Fire Orders”* and 13 *“Watchouts”* for firefighters.

21.3.9 AIIMS-ICS

21.3.10 The AIIMS-ICS system of incident management was introduced in the early 1990's to replace the Group System of incident management. Because of the difficulties of introducing change in rural Victoria and reliance on volunteers the CFA has *“allowed acceptance of AIIMS ICS to evolve over time.”*²²

21.3.11 In evidence Mr. Roche explained that historical development of the Group structure evolving from the early 50s (which was initiated largely by the volunteers and the need for *“ownership”*) was the reason for the slow uptake of the new AIIMS incident

management system. That “*imposing or seeking to change that fire management structure and particularly the catalyst for that coming from above*” and a “*significant number of our people felt threatened and do still feel threatened in some cases by that imposition*” of the AIIMS method of operation.²³

21.3.12 Other factors effecting the introduction of AIIMS-ICS were the length of the accreditation course (5 days) with the attendant difficulties of time commitment for volunteers and the infrequent large scale incidents necessitating implementation of the new AIIMS-ICS incident management system. Also the lack of opportunity for volunteers to gain experience was a problem.²⁴

21.3.13 The CFA’s submission argued firstly, that it “*should not be criticised for taking an evolutionary approach to the introduction of AIIMS ICS which took account of the sensitivities of its volunteers to radical systemic change.*”²⁵ Secondly, that there is “*no evidence to support a conclusion that incompatibilities in AIIMS ICS and the Group system were an operative cause of the entrapment or any of the other incident examined during the course of the incident and, indeed, the evidence is to the contrary.*”²⁶ However, it should be again noted that this Chapter is directed at acknowledging the introduction of an appropriate incident management system prior to Linton. Consideration of how the system actually worked at Linton is covered in other Chapters of this Report.

21.3.14 Vehicle design and safety

21.3.15 Following Linton the safety design of CFA tankers and the water deluge system featured as an important issue. The CFA indicated that for a many years prior to Linton it demonstrated “*a structured approach to improvements in vehicle design aimed at enhancing firefighter safety.*”²⁷ That it has had a program of constant development of safety features for vehicles commencing with the introduction of:

*“fibreglass heat shielding and roll-over protection, through the phasing out of petrol motors and, shortly before Linton, the introduction of low water alert systems. It has progressed to the testing of prototype vehicles with deluge systems connected to independent water supplies, heat curtains...”*²⁸

21.3.16 Before Linton, following the Creswick fire in 1997, it had been in the process of fitting audible low water warning and water management systems to its tankers. The CFA also pointed to the fact that safety features “*fitted to tankers have been subject to rigorous trialing, testing and re-testing and constant feedback from the various committees and projects established to look at vehicle design.*”²⁹

21.3.17 The 1997 Fire Agencies Improvement Initiatives Project (FAII)

21.3.18 The FAII project was jointly developed by the CFA and DNRE following the Review of the Significant Fires of 20/21 January 1997 and recommendations from reviews of other fires over a few years prior to 1997. The aim of the project was to ensure recommendations following these fires were considered and “*specific action statements formulated.*”³⁰ The Executive Summary for the project commented that it is expected that the:

*“implementation of the actions will result in a significant step forward in improving firefighting strategies within and across both organisations, contribute to enhanced emergency management with support agencies, and better service to the community in all aspects of fire management.”*³¹

21.3.19 The FAII project covered a broad range of issues involving firefighter and community safety. The topics effecting safety potentially relevant to these Inquests include operations, training, equipment and occupational health and safety, communications and research. The report arising from the project set out over 100 recommendations. The recommendations covered three areas:

- preparedness (including, for example, adoption of a state-wide framework for joint operational preparedness and joint burning operations for joint training in fire behaviour);

- equipment and occupational health and safety issues (including, for example, personal protective clothing and education and training);
- operations (including, for example, adoption of common terminology between agencies, agreed field identification and agreed protocols for control points and staging areas).³²

21.3.20 Unfortunately, some of the work, which may have had potential to effect the outcome at Linton, was not completed by the time of the fire. The CFA submitted that any delay in introduction of the FAII initiatives was explained as being due to the fact that *“the Linton fire occurred relatively soon after the completion of the FAII report.”*³³ However, it did point to the fact that *“key features”* of the report were implemented – the establishment of the operations point and staging area.³⁴ One of the important FAII training initiatives that might have had potential to effect the outcome at Linton – a course for the role of Sector Commander was not funded at the time of the fire. Mr. Roche suggested that even if the course had been funded in the budget for the 1998/99 financial year as originally intended it would not have been running before Linton.³⁵

21.3.21 In its submission the CFA also pointed to the fact that on the surface *“and in particular to the perception of members of the incident management team at Ballarat, it seemed that”* the operations point and staging areas *“were in place and working appropriately.”* However, the submission noted that the Inquests revealed a number of issues relating to both structures, which requires further consideration.³⁶ In addition, the CFA acknowledged that it has become apparent that:

*“in order to ensure that key features of the operations section of the incident management structure are in place and working in a coordinated and appropriate manner. The increasing number and sophistication of structures such as operations points, staging areas and MCV’s means that their roles and inter-relationships need to be further defined and that, outside the management structure. There needs to be a system of checking that they are functioning appropriately.”*³⁷

21.3.22 The detail in the following sub-headings is taken from the Executive Summary for the FAII project report. It provides a useful guide to the type of work being jointly scoped by the firefighting agencies prior to Linton. These were:

operations

A number of the items referred to under *“Operations”* in the FAII Executive Summary are directly relevant to Linton.

“Adopt common fire terminology, T card systems in the field, (and as contingency at other levels), and the new ICS forms to ensure consistency of incident reporting streamline information flows.

Implement agreed field identification mechanisms for appliances, personnel, and incident management positions at all levels.

Adopt the command reporting lines of State to Region to ICC/IMT to Ops point to fireground. Increase the emphasis on ACTION PLANNING and the production of documented data (using the new ICS forms) at all levels of management.

Apply training in incident management techniques through joint burning operations arranged at local levels.

The concept of an “Operations Point” supersede all other existing descriptions of points in the field. Comes with functional role statement, likely ICS roles undertaken, field identification markers, and infrastructure required.

Increased emphasis on setting up of staging areas and the concept of “checking in” to the fireground to aid all aspects of resource management.

Concept of “ground observer” to assist in the gathering of fireground intelligence. Role statement and reporting relationships to be given.

Application of joint agency deployment of portable AWS’s to fireground.”

training

Under this sub-heading issues were identified that may have had potential to effect the outcome at Linton (in the event the work on the recommendations were completed). As indicated, one important issue was the development of a:

“training package specifically aimed at increasing the knowledge and application of tactics for Sector Commanders.”

And another was the development of a:

“variety of educational videos and promotional material to support initiatives in operations, equipment use, evacuation policy, fire behaviour for the community, and safety procedures on the fireground.”

Importantly, the Agencies had recognised the need to adopt the:

“AFAC national competency standards for firefighting and management training.”

equipment and occupational health and safety

The Report indicated that the agencies should:

“Adopt the principle of the issuing of a minimum personal protective equipment kit assigned to a firefighter, linked to specified performance attendance criteria. Evaluate performance and contribute to the ongoing development of national standards.

Provide ancillary protective equipment to optimise crew survival in adverse fire conditions.

Organise joint contract arrangements for heavy equipment, communications infrastructure and other common specialist equipment using the Integrated Firefighting Aircraft Resources framework as a model.”

Communications

The Report noted that the agencies should:

“Adopt minimum user competencies and generic communication planning guidelines for a range of incident type, scope and complexity.

Implement common labelling of radios and a common set of conventional frequencies.

Develop and implement emergency management personality on fleet SMR to ensure communication between fire agencies and Police.”

Research

The Report also noted that the agencies should:

“Provide a common interface using computer technology, which facilitates the mutual interchange of information suitable to increase each agencies’ effectiveness and their joint effectiveness in fire management. Interface presentation should be the same, and user friendly to field operatives.

Develop a project that investigates the application of Global Positioning Systems, unique resource identifier systems, and Mobile Data Terminal technology to assist in more effective resource management for both agencies.

Jointly develop fire threat models, and fire prediction systems to better predict fire behaviour and perimeter spread.

Ensure linescan observation maps and other fireground intelligence gets to the Operations point as soon as possible.”

21.3.23 The Multi-Agency Incident Management Agreement

21.3.24 The Multi-Agency Incident Management Agreement “was designed to assist the two agencies to fight fires in an integrated and co-ordinated manner.”³⁸ The relevant agreement was signed by the Chief Officer, CFA and the Chief Fire Officer, DNRE on 14 November 1997. The background to the agreement cited the fact that is:

*“paramount for effective and efficient protection of life, property and assets that fire suppression operations where both agencies are involved are coordinated to maximise suppression effort...”*³⁹

And that the “most effective way of achieving this aim is through Multi Agency Incident Management.” The agreement reiterates that both the CFA and NRE “are committed to Multi Agency Incident Management.”⁴⁰

21.3.25 The CFA explained that, in recent years, there have been:

*“particularly significant advances in the level of cooperation between the CFA and the NRE in jointly managed fires. This has been a substantial achievement, particularly in light of the significant differences in the two organisations in their structures, backgrounds and methodologies.”*⁴¹

And noted the:

*“task of achieving, and maintaining, high levels of co-operation is not easy given those underlying differences between the organisations.”*⁴²

That “further, while some individuals, particularly management do have regular and constructive contact from both agencies, the opportunities for those at the “lower levels” of both agencies to have the same amount of contact is limited.”⁴³

21.3.26 The CFA argued that the Multi-Agency Incident Management Agreement “was designed to assist the two agencies to fight fires in an integrated and co-ordinated manner.”⁴⁴ Although it acknowledged that “particularly in light of the FAII initiatives. There are differences of interpretation both of the multi-agency incident management agreement and of the FAII report.”⁴⁵ However, according to the CFA, “the differences of interpretation between the two agencies are theoretical, and did not produce any particular differences of opinion, nor dislocation of command, at Linton.”⁴⁶ Nevertheless, the CFA also acknowledged the need to “reach a common view” as to the construction of the agreement.⁴⁷

21.3.27 DNRE’s 1998 Incident Reporting System

21.3.28 DNRE have an incident reporting and investigation system, which it outlined in a document headed “Fatalities and Near Miss Investigation.” The procedures for reporting and investigating significant fire related incidents were introduced on 16 September 1998.⁴⁸ To assist with the “capture of injuries and near misses on the fireline” DNRE introduced for the 1999/2000 fire season a “Firefighter Notice of Injury or Near Miss” pocket card. The Department has also introduced detailed investigatory procedures.⁴⁹ The CFA did not have an “incident” or “near miss” reporting system (although it had an Operational Analysis or de-briefing system for a particular fire).⁵⁰

21.3.29 Work with the Bureau of Meteorology

21.3.30 Before Linton the Bureau, CFA, DNRE et al had developed a “Fire Weather Directive”⁵¹ by which the Bureau agreed to provide certain “fire weather services during the 1998/99 season.” Those services included:

- (a) a fire weather forecast;
- (b) a fire weather briefing;
- (c) a fire weather outlook;
- (d) spot forecast for wild fires and prescribed burns were to be provided on request;
- (e) a Wind Change Chart on critical days;
- (f) fire weather warnings, on a district basis;
- (g) the provision of an out posted fire weather forecast if so requested by the NRE;
- (h) verbal briefings when sought by the Fire Fighting Agencies.⁵²

21.3.31 As part of the process of establishing the services required between the respective agencies for the forthcoming fire season the Fire Agencies and the Bureau met twice per year. These meetings occurred before and after the fire season. The Bureau’s submission indicated that the:

*"first meeting ensures that all procedures are in place for the season. The second meeting reviews the performance of those procedures in an attempt to enhance the procedures the next year."*⁵³

21.3.32 The detail of the relevant Fire Weather Directive provided that:

*"the Bureau will continually monitor the fire weather forecasts and their accuracy. Clause 3.2 of the fire weather directive requires that if it becomes apparent that the latest fire weather forecasts do not adequately cover the situation, the Fire Fighting Agencies are to be phoned to discuss and change the forecasts before transmitting amended estimates."*⁵⁴

And, as the Bureau submission indicated:

*"Section 6 of the Fire Weather Directive deals with the provision of Spot Weather Forecasts upon request from the Fire Fighting Agencies. Such requests are to be made on a proforma request form."*⁵⁵

21.3.33 Clause 6.3 stated that, wherever appropriate, to assist fire agencies in planning their firefighting activities,:

*"forecasters are encouraged to indicate whether other less likely scenarios than that shown on the forecast might occur..."*⁵⁶

And on shift termination or changeover:

*"the person assuming fire weather responsibilities will ensure existing information is current and establish whether there are any ongoing forecast commitments."*⁵⁷

21.3.34 Clause 6.5 provided that it is essential that the requesting officer (from the relevant firefighting agency) send:

*"weather data in the vicinity of the fire to the RFC as frequently as possible, preferably every three hours. Fire agencies are encouraged to fill in the appropriate columns with on site observations and fax this back to the Bureau. This will also assist forecast verification."*⁵⁸

21.3.35 The relevant Fire Weather Directive provided some explanation and technical detail on the range of services under sub-headings; Operational data; Forecast monitoring with amendment; Fire weather warnings and Total Fire Bans; Media graphics arrangements; Spot forecasts; Meteorological Elements to be forecast; Fire weather forecast issued at 0630 and 1700; etc.⁵⁹

21.4 Work on Firefighter Safety Systems Since Linton

21.4.1 Introduction

21.4.2 As already indicated, prior to Linton, the firefighting agencies identified a number of potential problems in the way of improving safety for firefighters. They had developed a number of systems to help address the problems. Obviously the development of AIIMS-ICS, the Multi-Agency Agreement and the FAII project were examples of this earlier work.

21.4.3 During the running of the Inquests, as fresh issues arose relating to safety matters it was clear that all of the agencies were, to a certain extent, receptive to considering new ways of looking at firefighter safety. Certainly, where issues developed involving safety required complex testing of equipment, statistical research or providing comprehensive reports on future directions for firefighter safety considerable work was undertaken by the relevant agencies to assist the inquiry.⁶⁰

21.4.4 The Joint Operations Review of the Linton Fire/Midlands Fire

21.4.5 Immediately following the Linton fire the two main agencies involved (CFA and DNRE), with knowledge and support of the Coroner, undertook a joint Operations Review.⁶¹ The review was completed on 11th March 1999 and made 39 Recommendations for

improvements in safety systems. Broadly the recommendations relate to “*firefighter competencies, contractors, command structure, information flow, communications, planning, policy, research, equipment, work practices and “near miss” incidents.*”⁶² Following the fire the CFA and DNRE have worked to implement the 39 recommendations.⁶³

21.4.6 Apparently, the initial joint Operations Review of the fire did not have access to some of the witness statements, and when they became generally available to the parties, additional analysis resulted in the “*Supplementary Fire Behaviour Report.*” DNRE in its submission indicated that as some of the witnesses were “*not prepared to talk to the review team*”⁶⁴ accuracy of the original review may have been open to question. It should be noted, from a coroner’s perspective, completion of an in-depth and critical review of a significant incident by involved agencies is an important precursor and vital step to help the agencies identify factors and, if appropriate, improvements in safety systems are to be developed and introduced. Thus cooperation of witnesses is an important component and must be encouraged.

21.4.7 The 2000 Safe Forest Firefighting Agreement

21.4.8 Following the fire, in August 2000, the respective Chief Fire Officers of CFA and DNRE signed the *Safe Forest Firefighting Agreement*. It is planned that the document is to be reviewed in May of each year. However, as evidence closed before May 2001, the Court did not cite the current review. The submission by DNRE explained that the agreement:

*“outlined the joint position of both agencies on a range of key issues relating to forest firefighting. It also set out a timetable for the achievement of the goals jointly identified and agreed upon by the agencies. Areas covered in the agreement are Management Systems, Operations Competencies, Communications, Equipment, Aircraft and Fire Protection Planning.”*⁶⁵

21.4.9 The Safe Forest Firefighting Agreement acknowledged that “*both Victoria’s rural fire services face challenges and changes, many of which will be managed with greater confidence in partnership by the agencies.*”⁶⁶ The DNRE submission also acknowledged in particular the:

*“challenges the CFA confronts to implementing considerable change within its large volunteer membership.”*⁶⁷

21.4.10 DNRE stated that with the Safe Forest Firefighting Agreement that it is committed to:

*“assist the CFA so far as possible in its program of implementing the competencies prescribed in the Safe Forest Firefighting agreement. NRE also acknowledges and greatly appreciates the efforts of the many well trained and experienced volunteers who already provide a first class community service in forest and woodland firefighting in many parts of Victoria.”*⁶⁸

21.4.11 DNRE anticipated that, as implementation of the goals contained in Safe Forest Firefighting Agreement proceed, the percentage of CFA personnel:

*“attending forest fires who are trained and experienced in forest fire behaviour, and in AIIMS-ICS, will increase considerably. This situation should help facilitate the achievement of the ultimate objective or integrated chains of command below operations points.”*⁶⁹

21.4.12 DNRE also noted that its training program is designed to equip firefighters at all levels with:

*“the skills to assess the inherent hazards encountered during fire suppression and prescribed burning operations, and to minimise the risk to them and their colleagues. The approach is designed to embed risk management into all levels of the incident control organization, and particularly on the fireline.”*⁷⁰

21.4.13 Apparently this training program and direction has been adopted, to some extent, by the CFA.

21.4.14 DNRE in its submission, also sought the Coroner’s endorsement that the “*document and commitments it contains be endorsed as the appropriate way forward for Victoria’s two rural fire services.*”⁷¹ Many of the coronial recommendations following the Inquests, if adopted, will affect the future operation of “*Safe Forest Firefighting*” and to that extent it is not appropriate

to completely endorse the 2000 document. Suffice to say there are a number of useful directions for the future safety of firefighters. These are:

- (a) Review of AIIMS and its operating incident control system (ICS);
- (b) Requiring prescribed competencies for firefighters within the National Competency framework;
- (c) Compatible communications planning, training, procedures for joint operations (with the desired situation that *“accurate information will be available to people (including the public) in a timely manner to enable informed decision making”*);
- (d) Equipment that is safe and appropriate to the task;
- (e) Aircraft – shared resource via a single and jointly operated aircraft management unit;
- (f) Regional *“Readiness and Response”* plans; and
- (g) Fire Protection Planning.

21.4.15 It is noted that the agreement, although referring to *“safety”* and *“combat the fire safely”*, does not specifically raise occupational health and safety issues in training or management structures. This may be because the document is intended to be *“strategic in nature”* and *“therefore, some details of the implementation program are not completed.”*⁷² The overview made the observation that although the CFA:

*“has always had some forest fire fighting responsibility this increasing reliance on jointly managing fires has meant more responsibility for CFA members who need to respond correctly to the specialised practice of forest fire fighting.”*⁷³

And that both the CFA and DNRE:

*“face challenges and changes that will be managed with greater confidence in partnership.”*⁷⁴

21.4.16 A reading of the 2000 position paper disclosed significant problems which have been raised by the agencies with the current system (some of these problems were evident at the Linton fire – *“author’s note”*). The problems are:

- Although most of DNRE staff and many CFA personnel *“understand AIIMS ICS and apply it well”* the take up within the CFA has *“been as been variable, particularly role specific training. Consequently, in some parts of the State there are CFA firefighters who do not have an adequate understanding of the system.”*⁷⁵
- There are different organisational structures within the DNRE and CFA.
- Difficulties where fire coordination occurs in remote locations.⁷⁶ It is pointed out, under the heading *“Location”* that generally:

*“NRE staff involved in the management side of AIIMS ICS prefer to work out of offices well equipped with the latest information technology. This can result in the Incident Control Centre being remote from the fireground. On the other hand, the CFA often move too close to the fire at the expense of running an effective ICC. This may partly be because CFA personnel expect more direct leadership and supervision than their NRE counterparts.”*⁷⁷

And:

*“The effectiveness of information flow, particularly by electronic means, is dependent on the location chosen for incident control. There are limits to fast access to data management systems and difficulties in distribution where fire coordination occurs in remote locations.”*⁷⁸

- Use of Resources: *“Effective operation of AIIMS ICS requires a high degree of discipline in the registration and deployment of resources. When this does not occur, inefficiencies in resource deployment arise. The agencies have deficiencies and differences in their resource registration and deployment systems. As these are rectified, the systems will be brought into alignment.”*⁷⁹
- Volunteers: *“Volunteers are involved in most of the CFA’s area of responsibility. In rural areas the number of volunteers is decreasing and their average age is rising. Also many have limited time for training.”*⁸⁰

- Leadership: *"The CFA/NRE partnership is characterised by predominantly good relationships. However, CFA and NRE do not always accept each other's leadership at incidents."*⁸¹
- Communication: *"On occasions priority has been given to the provision of information up the chain of command. This is undesirable if it is at the expense of the firefighter on the ground. At times CFA resources have been deployed to the fire without the knowledge of the Incident Controller. This makes it difficult for the Incident Controller to carry out their responsibility. There is sometimes a desire by firefighters to 'do something - anything'. Such rapid response can be at the expense of considered decision-making processes that take account of the consequences of failure."*⁸²

21.4.17 Throughout the 2000 Agreement there are many useful pointers to firstly, the recognition of problems, and secondly, towards both agencies finding solutions. By way of example, on the issue of communication there is some discussion on the perceived problem:

*"Current communications systems are complex and not always well understood. Failure of the communications system is a common occurrence during fire operations. The consequences for safety, effectiveness and efficiency of operations are significant. The system must be designed to cope with both day to day and "peak load" situations. Face to face communication is particularly important in fire situations."*⁸³

21.4.18 Under the heading "Planning" the agencies noted, that the:

*"The complexities of planning communications in a dynamic fire situation, particularly where there is a rapid escalation of resources, cannot be underestimated. The importance of a communications plan continually needs reinforcing. At an incident, the system often focuses on technology, at the expense of adopting a systematic approach to how information flows occur."*⁸⁴

21.4.19 The agencies also drew attention to lack of common radio procedures across their respective departments, different frequencies for day to day operations (common frequencies only adopted in multi-agency operations) and the difficulties of training a volunteer work force.⁸⁵ In the agreement, they both devised an action plan to address the concerns.⁸⁶

21.4.20 AIIMS-ICS and its uptake

21.4.21 DNRE is of the view that effective forest firefighting does require:

*"a high degree of discipline in the registration and deployment of resources to a fire. Where this is lacking inefficiencies can arise and worse, major safety issues can develop on the fireline."*⁸⁷

21.4.22 It considered that the effective operation of AIIMS-ICS *"requires that only resources requested by the Incident Controller should be deployed to a fireline."*⁸⁸ In addition DNRE noted that it strongly supports the achievement of this situation at the earliest opportunity within the CFA

21.4.23 DNRE submitted that following the introduction of AIIMS-ICS into the CFA several years ago and since it *"was first mandated in joint documents in 1995"* the *"uptake has been slower than would have been preferred."* Apparently DNRE officers have, *"for some years"* been required to:

*"operate in joint incidents in ways that attempted to accommodate a varied uptake of AIIMS-ICS within the CFA. The Multi-Agency Incident Management Agreement between the CFA and NRE Chief Fire Officers has assisted in recent years with the implementation of AIIMS-ICS."*⁸⁹

21.4.24 The CFA is of the view that the problem is not with the AIIMS-ICS system but in its delivery and acceptance.⁹⁰ It pointed to the fact that a *"considerable amount has been done to hasten the level of implementation and acceptance"* of the system. This work will include:

examining the question of the democratic election of office bearers in Brigades and Groups; and

*...the broader issue of how the Brigade and Group structures as organs for administration and the delivery of training can best sit alongside AIIMS as a system for incident management (including considering alternative nomenclature)."*⁹¹

21.4.25 DNRE observed, that as implementation of the goals contained in the Safe Forest Firefighting Agreement proceed, it anticipated:

*"the percentage of CFA personnel attending forest fires who are trained and experienced in forest fire behaviour, and in AIIMS-ICS will increase considerably. This situation should help facilitate the achievement of the ultimate objective of integrated chains of command below operations points."*⁹²

21.4.26 The SMR radio network and difficulties for multi-agency work

21.4.27 DNRE noted that at many joint incidents:

*"the SMR (trunking) network becomes congested and is not able to perform to a standard suitable for emergency radio communications. The CFA has often experienced problems with congestion on its conventional radio."*⁹³

21.4.28 Apparently, as a result of these difficulties, DNRE personnel on the fire-line have been reluctant to use the same radio frequency used by the CFA. Whilst some CFA volunteers have:

*"have suggested a greater sharing of simplex channels by NRE and CFA at incidents. NRE does not oppose this, as long as the congestion, radio discipline and procedural issues identified in EX 51D are adequately addressed."*⁹⁴

21.4.29 Thus it is clear that DNRE are receptive, provided the issues identified in the Safe Forest Firefighting Agreement are addressed, to help facilitate a greater sharing of the SMR (Trunking) Network. This would be an important step for more effective delivery of information to and from the fire-line and would help to improve safety.

21.4.30 The CFA's 'Safety First Culture Project'

21.4.31 It is also significant that the CFA has engaged an independent occupational health and safety and risk analysis consultant ("Risk-e") to review its safety systems. It is understood that the focus of the review is to develop the CFA's priority of a "safety first" culture with the "CFA Safety First Culture Project."⁹⁵ This "priority" is one of the CFA's responses to "issues revealed by the Linton tragedy."⁹⁶ The CFA explained that Risk-e has conducted preliminary surveys and that the project is aimed at:

*"introducing cultural change, particularly in an organisation as diverse as the CFA's is necessarily a long-term process. However, by process in the manner described by Mr Roche. CFA management is embracing the concept of cultural change and therefore 'driving from the top'."*⁹⁷

21.4.32 Training post Linton

21.4.33 There have been a number of improvements in the training regime adopted by the CFA. After the Linton fire there has been a significant increase in the training budget for the Authority. Also the CFA's direction (commenced in 1994) towards National Competency Based Training with minimum skill levels has received a significant "movement forward" as a result of the "tragedy of Linton."⁹⁸ Other processes include; changes in training relating to AIIMS-ICS, appointment of new training instructors with a new computer system and procedures to check training materials.⁹⁹

21.4.34 DNRE expertise has been provided for training of CFA personnel on fuel loads and related issues.¹⁰⁰ Also in 1999 DNRE produced an Overall Fuel Hazard Guide with colour illustrations of fuel hazards designed (in part) to assist with "identifying fuel hazards during fire suppression operations" and "increasing safety of fireline personnel, by recognising fuel hazards which may give rise to uncontrollable fire behaviour."¹⁰¹

21.4.35 The introduction of new systems for CFA crew deployment

21.4.36 The CFA indicated that in the past, the selection of Strike Teams for deployment to other regions was left to the “home” region to select the brigade and the “home” brigade to select the crew.¹⁰² It considered that the home area is in the best position to have the information on training, experience and capabilities of local crew.

21.4.37 The CFA advised that the home area would be assisted by more comprehensive briefings (about the risks at the fire), a new database¹⁰³ giving details of training and experience of brigade members, the potential for the IMT or fire-ground to have access to this data and a trial of a system of bar-coding of appliances (and possibly firefighters).¹⁰⁴

21.4.38 Vehicle design and safety

21.4.39 Since Linton the CFA has been involved in a considerable amount of work on tanker safety systems. Its submission noted that the CFA is “*somewhat constrained by the variety of uses to which the CFA vehicle fleet must be able to adapt...*” Also it does not have a fixed view about the type of vehicle most suited to the needs of individual brigades.¹⁰⁵

21.4.40 The CFA have recently undertaken a research project on a prototype tanker (with CSIRO and the NSW Rural Fire Service) fitted with new safety systems.¹⁰⁶ It is also undertaking its own internal extensive review of tanker design and safety systems.¹⁰⁷

21.4.41 In the process of developing safety features for vehicles the CFA cautions, correctly, the “*the importance*” of firefighters “*not getting into an emergency situation in the first place.*”¹⁰⁸

21.4.42 The Bureau of Meteorology

21.4.43 Following the incident the Bureau undertook a report on meteorological aspects of the Linton fire.¹⁰⁹ In summary the report concluded that the “*specific expectation of an evening wind change was known (by the Bureau) well in advance.*”¹¹⁰ However, it also noted that in the first few hours after the change crossed the Victorian south west coast it:

*“did not slow down as much as expected. As a consequence, the arrival of the change at the Linton fire site was earlier than forecast by about 2 hours. This is within normal accuracy standards for forecasting such phenomena.”*¹¹¹

21.4.44 The report indicated that judgements of Bureau staff “*based on the information available were sound, and all operating procedures were followed correctly.*”¹¹²

21.4.45 The Bureau’s report also made some comments on follow-up action. This action included undertaking further analysis of the meteorological aspects of the fire for a more scientific report, consult with the CFA and DNRE to identify priorities for improvement to fire weather service operations and cooperate with those agencies and experts on meteorological aspects of fire behaviour.¹¹³

21.4.46 In its submission at the Inquests the Bureau made a series of additional recommendations for consideration by the Coroner.¹¹⁴ It has undertaken a comparative research study into the accuracy of the respective forecasting models used by the Bureau (European “ECMWF” and the local “meso-LAPS”).

21.4.47 As there was a “black spot” in the number of weather stations in Central Western Victoria creating a time lag for the Bureau in identifying weather changes across this area, two additional “AWS” have been established.¹¹⁵ Where AWS information is not received by the Bureau from the CFA within a certain specified time there is an alarm system to alert the Bureau.¹¹⁶

21.4.48 The Bureau is also testing a new “wind profiler” (a radar beam pointed vertically) at Mount Gambier which can measure “*the wind at many levels in the atmosphere at intervals of approximately every one half hour.*”¹¹⁷

21.4.49 The CFA also conducts introductory training for Bureau forecasters, the Bureau has improved the speed of its computer logging on process and its Wind Change Charts shows an hourly position for the wind change.¹¹⁸

21.5 Conclusion

- 21.5.1** It is recognised that, before Linton, the three agencies¹¹⁹ were jointly working on a number of improvements to their respective systems of work on firefighter safety. The agencies had recognised the importance of a cooperative understanding on weather information. That work is continuing.
- 21.5.2** At an early stage the CFA was involved in the development and partial implementation of AIIMS-ICS. With the introduction of AIIMS both the CFA and DNRE recognised the need for a Multi-Agency Agreement to co-ordinate fire suppression efforts where both agencies are involved as the most effective way of achieving the paramount aim of *“effective and efficient protection of life, property and assets...”*¹²⁰ In 1997, with finalisation of the FAIL report, the firefighting agencies had identified a number of areas for potential improvement in operations, communication and occupational health and safety. Before Linton the CFA had been working towards improving the safety warning systems on tankers as a result of an entrapment incident during the 1997 Creswick fire. It had introduced fibreglass heat shields and rollover protection for the crew.
- 21.5.3** After Linton, through the joint *“Operations Review of the Linton Fire/Midlands Fire”*, a significant number of recommendations for systems improvements were made and are being adopted. The agencies are to be commended for this work. It is also noted that both agencies have been reviewing their systems during the running of the Inquests. For example, the CFA has acknowledged that it may need to develop a system of auditing in order to ensure that *“key features of the operations section of the incident management structure are in place and working in a co-ordinated and appropriate manner.”*¹²¹
- 21.5.4** During the Inquests DNRE presented a 40 page document entitled *“Linton Coronial Inquest”*, which listed a number of new initiatives. It also provided information on developments in information technology and its work on *“FireWeb.”*¹²² Mr. Roche’s 88-page statement also listed a number of initiatives being undertaken by the CFA since Linton.¹²³ Also for the CFA, Douglas Booth provided information on developments in information technology and communication.¹²⁴
- 21.5.5** In submissions the Bureau, CFA and DNRE have made a number of recommendations to the Coroner about issues that should be considered for the future.¹²⁵ These recommendations have been considered in Chapter 23.
- 21.5.6** It is important to restate the point made in the CFA submission that:
*“the pace and the extent of reform. This has been particularly evident in the increasing acceptance of the AIIMS-ICS system of incident management and the introduction of competency based training.”*¹²⁶
- 21.5.7** Whilst it must be acknowledged that the pace of reform has been given a fillip by the Linton tragedy there remains a strong argument, in view of the recognised dangers associated with suppressing wildfire, that some of this work ought to have been completed in the preceding years.

Findings on the Fire and Deaths

22.1 Identity, Date, Place and Cause of the Deaths

22.1.2 The deaths of Stuart John Davidson,¹ Garry Vredeveltdt,² Christopher John Evans,³ Jason Richard Thomas⁴ and Matthew William Armstrong⁵ all occurred at Linton during the evening of 2 December 1998 from 1(a) effects of fire. The fire and the deaths occurred in the following circumstances.

22.1.3 The circumstances of the fire and deaths

The town of Linton

22.1.4 The wildfire near the township of Linton, which is situated approximately 30 kilometres south-west of Ballarat, commenced at about midday on 2 December on a private property in the forested area off Rowlers Road, Snake Valley which is situated north of the town. Linton has a population of about 630.

The cause and origin of the fire

22.1.5 The fire commenced at about midday on 2 December in Rowlers Road on a bush block owned by Mr. Peter James Neyland. The block, Lot 36, is about 64 acres on which Neyland was in the process of building a holiday cottage. During the previous two days Neyland had been burning off rubbish on his property. He had checked as to whether any fire restrictions were in force before commencing the burning off. There were two potential sources of ignition for the Linton fire. Neyland had been burning off rubbish near to his dam and also near a tree some meters east of his partially constructed cottage. At the dam site Neyland had set three piles of rubbish alight on the Monday prior to the Linton fire and, during the day, regularly raked the area. Before going to bed that evening he had made sure these fires were out. During the next day he lit a pile of rubbish nearer to his house. Whilst burning this area of rubbish the bark of a nearby tree began to smoulder and Neyland used buckets of water to douse the tree. This was not successful so he went to a neighbour's place and obtained two fire extinguishers. He used the fire extinguishers and a ladder to climb the tree in order to be assured that the tree was no longer alight. To check that there was not a continuing problem Neyland removed long sections of bark off the tree and hosed the upper part of the tree with one of the extinguishers. During the afternoon he checked on the tree and the general area and did not observe any signs of smouldering.

22.1.6 Mr. Neyland left the property on the morning of the fire after having raked and sieved the coals from the area around the dam, again checked the area of the tree, there were "*no signs of smoke.*" He "*raked the ash of this fire into a pile and sieved it through a couple of layers of chicken wire into a garbage bin. We use this bin full of ash to cover excreta when we use our pit toilet. I filled this bin with fine ash and discarded the larger coals, which by this stage were cold, into the cleared area.*" On driving up the road, he decided to return, to again check an overhanging branch on the tree. By this time there was already a "*moderately northerly wind.*"

22.1.7 The source of the ignition of the Linton fire either began around the area of the dam or from the tree nearer to the partially built cottage. Although, on balance, it was more likely to have

been at the site around the area of the dam. According to the Panel of Experts ignition was caused by the wind igniting *"smouldering combustion from the fires lit by the property owner on previous days."* They also commented that *"smouldering combustion can easily persist overnight in small hollows or crevices without emitting detectable smoke."* Also roots from an old stump could remain alight for weeks, and it is *"common for roots to burn underground and fires might start where the roots come to the surface many meters away from the stump."* The totality of the experts' views on Neyland's actions to extinguish the fires, was that he acted reasonably in the circumstances.

- 22.1.8** The Linton fire was started on 2 December by the wind igniting *"smouldering combustion"* from Mr. Neyland's property. About midday the *"smouldering combustion"* was fanned by strong northerly winds.

Weather, fuels and general background

- 22.1.9** The weather on the day was a typical Victorian summer day with temperatures around Linton of the low 30's in mid afternoon with a relative humidity of about 20%. Wind speeds were about 45 kph gusting to 70 kph from the north west during the afternoon. The speed of the wind dropped to about 20 kph in the 30 minutes before the wind change, which engulfed the Geelong City and Geelong West crews at about 8.45 pm.

- 22.1.10** The fire gradually spread south towards Linton, eventually to burn out about 660 ha. and extended for about 6 km with an average width of 1.5 km. Also during the run of the fire two houses and various outbuildings on the outskirts of Linton were destroyed, a caravan and shed situated on the property where the fire started were damaged, a firefighter's utility was destroyed, the Geelong West tanker was destroyed and two other tankers were damaged. The majority of damage to private property, with the exception of the CFA tankers, was largely complete by 2.45pm when it crossed the Pittong-Snake Valley Road to move into the State Forest north of the township. The perimeter of the fire was eventually contained at 1.20am on 3 December.

- 22.1.11** The fuel loads on the outskirts of Linton were greatly reduced from the loads in the State Forest. The area to the north of town was open and green which allowed the fire to be comfortably contained before it reached the settlement. A fuel reduction burn which was conducted in 1996–97 in an area to the east of Kelly Road, aided in bringing the fire under control after the wind change and the breakaway of the eastern flank with the fire stopping alongside the previously burnt area. It is noted that there was some isolated spotting activity into the township during afternoon of 2 December. Fuels in the State Forest area were generally varied and comprised Messmate, Narrow Leafed Peppermint with grassy areas and ground fuels of Silver Wattle, Bracken Fern, Saw Edge and Tussock grasses. There was also Stringybark and Broad Leafed Peppermint on the ridges and upper slopes. The fuel loads at various points of the fire were considered by experts as being:

- Point of origin – heavily stocked and very dry (extreme fuel load);
- Pittong-Snake Valley Road – high to very high;
- Snake Valley 'A' entrapment site – very high;
- Madden Flat Road between Pittong-Snake Valley and Possum Gully Roads – on the west side of the road fuel loads had been reduced by fire and subculture practices;
- Madden Flat Road extension south of Possum Gully Road and the area around the intersection – high to very high; and
- Geelong West entrapment site – just in the extreme range.

The initial response by the CFA and DNRE to the fire

- 22.1.12** The fire was first observed at about 1pm on 2 December and eventually a number of fire-fighting tankers from CFA Regions 156 and 167 attended in an attempt to control the fire. DNRE resources also attended in the early stages of the fire. As the fire spread south towards Linton it crossed from private land at the Pittong-Snake Valley Road where the CFA had responsibility to State Forest where the responsibility to manage fire rested with DNRE. The State Forest extended to the outskirts of Linton.

The IMT and fire agencies' management systems applying at the fire

22.1.13 At about 2pm CFA and DNRE representatives began to establish an Incident Management Team at Ballarat in a State Government office block called the "Glasshouse." The IMT was jointly set up by the two firefighting agencies in accordance with a Multi-Agency Incident Management Agreement signed by their respective Chief Officers earlier in November 1997 whereby the agencies agreed to operate under a specified incident management system. Among other things this system is intended to ensure the safety of all firefighters on the fire ground. The IMT was part of the management structure established under this incident management system which is called the Australian Inter-Service Incident Management System (AIIMS). AIIMS has an Incident Control System known as ICS. Once the IMT was established at Ballarat it was intended that the fire be jointly managed by the two agencies under the AIIMS system of incident management. The Fire Agencies had agreed that in multi-agency incidents, one "incident organisational structure" would "be adopted for all personnel present at the incident." The agencies "are to ensure that there is no duplication of structure" and the "incident organisational structure will follow AIIMS/ICS principles." On the day, it was agreed between representatives of the agencies that the CFA would become the lead agency and a CFA officer, Mr. Greg Leach, would take on the role of Incident Controller. John Sanders from the DNRE eventually became his Deputy. Other senior positions in the AIIMS management structure were progressively filled by a mixture of CFA and DNRE personnel.

22.1.14 It should be noted that the CFA also had a system known as the Group System, which permitted various local brigades and their parent regions to join together for the purpose of managing wildfire incidents. This system was progressively being supplanted by AIIMS. Unfortunately, the Linton fire was managed under both systems – AIIMS and the Group. The old Group System was operated by CFA Region 15 in parts of the eastern flank of the fire and in the northern section by Region 16. Mr. Roche, the CFA's Chief Officer, indicated that the change from the old Group system, first envisaged in the early 1990s, was undertaken because:

"Experience of incidents during the course of the 1970s and 1980s had exposed weaknesses in the system of incident management based on Brigades and Groups, particularly when faced with larger incidents crossing Group or Regional boundaries or between public and private land."

The fire at Linton crossed both these boundaries. Mr Roche also indicated:

"The Group system has been shown to be incompatible with inter-agency operation. It is impossible effectively to coordinate the resources of two (or more) agencies during an incident, without a system of command and control that effectively supplants the different hierarchies operating within those agencies."

At no stage did management in the IMT at Ballarat take control to ensure that the AIIMS-ICS management system applied throughout the fire. One Group, Region 16, was not aware of the fact that an IMT had been established at Ballarat. IMT management did not ensure that either a written incident action plan or communications plan was distributed to the command structure working on the fire ground. This was required under AIIMS. On the eastern flank, where the Geelong Strike Team were working, the relevant CFA volunteer Divisional and Sector Commanders were not trained in AIIMS-ICS principles and managed their part of the fire under the old Group system. In turn they were managed from the Forward Operations Point which had been established in the Linton Shire Offices. The officer in charge of the Forward Operations Point was Mr. Bob Graham, a DNRE employee. Graham was managing the resources on the fire ground, which included DNRE and CFA personnel. CFA personnel included both full time and volunteer firefighters. However, the CFA resources were largely made up of volunteers. On the fire ground, where CFA resources were concerned, management was taken from a mixture of full-time and volunteer personnel.

22.1.15 There was no system to ensure that only competent firefighters attended at the fire ground. In this sense, competence is defined as training plus experience for the specific task. The CFA relied on the "home brigade" to make up the crew without any knowledge of the task the crew would be required to perform once reaching the fire ground. Eventually, perhaps the

most inexperienced team, which was from Geelong, was tasked to potentially the most dangerous work on the fire ground – building a control line on the eastern flank with a forthcoming wind change due at some time from the south-west.

22.1.16 The CFA relied on a radio “General Message” system for the delivery of important messages (like wind change) to firefighters on the fire ground. This is in spite of the long recognised difficulties with radio communications during previous wildfires, the AIIMS-ICS system of supervision and control. The CFA “Operations Guidelines”, established with AIIMS principles in mind, were the operative guide for its personnel. Briefly, the Guidelines (discussed later) state that it “is vital to carry warning of the actual or estimated wind change to ALL PERSONNEL involved in the firefighting operation.”

22.1.17 There some was confusion between CFA and DNRE management about the meaning of the Multi-Agency Incident Management Agreement. The CFA was of the view that the nature of the operation was “incident based” and not “agency based” with lines of responsibility in accordance with the AIIMS structure. DNRE were of the view that responsibility could be delegated. For example, DNRE argued that the Officer in Charge of the Forward Operations Point could delegate his responsibility to CFA officers. Under AIIMS principles and the Multi-Agency Incident Management Agreement the Officer in Charge of the Forward Operations Point could delegate a duty but not relinquish responsibility.

The critical distinction is that the occupant of the functional role has specified duties and responsibilities under the AIIMS-ICS system. That individual may seek to carry out those duties and fulfil those responsibilities in a number of ways. One of those ways is to engage a deputy and task that person to carry out various actions. If the deputy fails to carry out the action to the extent necessary for the occupant of the functional role to have discharged his or her responsibilities, that person (the occupant of the functional role) has not fulfilled the duty. A deputy does not assume the responsibilities of the functional occupant under AIIMS-ICS.

22.1.18 Reference also needs briefly to be made to Exhibit 71D. This is a document prepared and tendered by the DNRE during the course of the Inquests for the purpose of identifying and clarifying “issues which NRE considers to be of importance.” DNRE stated:

“The Incident Controller must be a competent person from the agency in overall control or a suitably qualified person agreeable to both agencies. At all fires that are operating under the Multi-Agency Incident Management Agreement, the Deputy Incident Controller shall come from the other agency. This is to highlight to all fire fighters that the operation will be fully integrated in decision making and implementation.”⁸

The DNRE paper then goes on to state:

“It is not unusual, nor is it outside the principles of AIIMS ICS, to have sectors or divisions fully resourced by personnel from the one agency.”⁹

22.1.19 It appears difficult for DNRE to argue, in this case, that it was not in a sufficient position of control over the system of work employed at the fire ground to give rise to a potential responsibility for the safety of DNRE officers, CFA employees and volunteers, and any others involved in the Linton wildfire at the fire ground. Specifically, in this particular case, it had a DNRE Officer in Charge at the Forward Operations Point who had control over the firefighters on the fire ground, and was responsible for the safety of the personnel and to supervise the CFA Divisional Commander. In turn the Divisional Commander supervised the Sector Commander, and so on.

Four ‘at risk’ incidents prior to the Geelong West entrapment

22.1.20 During the early stages of the run of the Linton fire a number of additional incidents occurred whereby many firefighters lives were put at serious risk. All told there were four such incidents, commencing at about 2.45pm. The last of incidents occurred at approximately 4 pm. – four and three quarter hours before the two tankers from the Geelong Strike Team were trapped and the five volunteers lost their lives. None of these earlier incidents resulted in any changes to the perception of firefighters on the ground of the

dangers that this fire presented. There was no system in place within the CFA to ensure that incidents occurring during a running fire, where firefighters' lives were put at risk, were reported to the Incident Management Team. None of the incidents were reported to the IMT in a timely way to enable them to re-assess and re-evaluate what was happening on the fire ground and the risk it constituted to the safety of firefighters. The Sector and Divisional Commander, Messrs Lightfoot and Phelan respectively, both volunteers from Region 15, who ultimately came to be in charge of the Geelong Strike Team, were either directly or indirectly involved in at least two of these prior incidents. Thus at least some individuals in a management role had warnings of the erratic behaviour of the fire on its short run through the forest. The AIIMS-ICS "Incident Control System" manual provided personnel should:

"Report Special Incidents and Accidents

- *Indicate the information required:*
nature of event
location
magnitude
personnel involved (no names to be broadcast over radio)
initial action
subsequent action
- *obtain information from:*
subordinates
personal observation
ground or air observers
- *request assistance needed, such as helicopter, ambulance or tow truck*
- *submit report to Incident Controller."*¹⁰

Messrs Lightfoot and Phelan were not trained by the CFA in managing a fire by AIIMS principles. Clearly they both had little perception of the risk that this fire presented on the day.

22.1.21 The CFA had no system to ensure that these incidents (or "near misses") were immediately reported through the chain of command to the IMT. DNRE had introduced an incident reporting system a few months prior to Linton.

22.1.22 The earlier incidents on the fire ground probably occurred in the following order – the Pittong-Snake Valley Road burn over, the Snake Valley 'A' entrapment, the incineration of Sector Commander Lightfoot's utility and the Madden Flat Road extension burn over. An additional, potentially compounding problem was posed by the risks to firefighters by what is now known as the "Hadler burn."

As the head of the fire approached the Pittong-Snake Valley Road between 10 and 12 CFA tankers lined up on the road in an attempt to stop the fire. As the fire moved up hill towards the road it intensified, fanned by the north wind, and crowned in the tops of the trees crossing the road. Some of the tanker crews had to either activate their fog sprays for protection or beat a hasty retreat.

At about 2.30pm the Snake Valley 'A' tanker moved into a bush paddock south of Pittong-Snake Valley Road having observed spot fires ahead of the main front of the fire. When the spot fires became more intense and the head of the fire travelled over the road the tanker almost became trapped in amongst the trees and mine shafts that littered the area. The six crew on the Snake Valley 'A' tanker were lucky to escape with their lives. One crew member received burns to the hands, which required hospital treatment. The whole crew was relieved from further work as a result of exposure to the fire.

At about 3.30pm a Strike Team led by Mr Hadler (who had also been involved in the Pittong-Snake Valley Road line-up) began to light up bush on the west side of Madden Flat Road (which runs north south from Pittong-Snake Valley Road to Possum Gully Road). Over the next 15 minutes about 1.2 km of fire line was lit up. At this time Lightfoot (who later became the Sector Commander in charge of the Geelong Strike Team) was taking another Strike Team a little further south on Madden Flat at the intersection of Possum Gully Road to burn out another section of bush. There was no planning for the first burn (the Hadler burn), which could easily have put at risk Lightfoot and his team. At the time of his undertaking

Lightfoot was unaware of the Hadler burn. It is noted that the IMT became aware of the Hadler burn, undertook some preliminary investigation by air and advised them to stop the work. However, the fire had already got away.

During Mr. Lightfoot's operation, he and another volunteer firefighter were both lucky to escape with their lives when Lightfoot's utility became bogged in a mineshaft, while he was reconnoitring in front of the head of the fire. The advancing head of the fire destroyed the utility and Lightfoot and his colleague had to run for their lives. They both took refuge in the Hardies Hill tanker which, along with a number of other tankers from the Buninyong Strike Team immediately had to activate their fog sprays for survival as the head of the fire also engulfed their trucks. One tanker beat a hasty retreat with fog sprays operating. Parts of this incident were filmed at a distance by a media-crew, who were advised by DNRE to leave. As indicated, this Strike Team, under the command of Lightfoot, was conducting a back-burning operation around the Madden Flat Road extension and its intersection with Possum Gully Road to pinch the head of the fire. The fire head of the fire had already crossed Possum Gully Roads at the time of the back-burn.

- 22.1.23** Each of these incidents demonstrated that those fighting the fire did not fully appreciate the fire behaviour as it related to fuel-loads, topography and weather. The fire was spotting ahead of the main front and the tactics adopted were inappropriate.

The fire intensities and relevance to the methodology used

- 22.1.24** Examples of the fire intensities during these earlier entrapments were – Pittong-Snake Valley line up (4,000–8,000 kw/m) and Madden Flat Road near the intersection of Possum Gully Road (9,400 – 13,100 kw/m).

- 22.1.25** The intensities of the fire raised concerns from the experts about the techniques used by the various CFA crews in an attempt to stop the fire. In particular:

- The attempt to stop the head of the fire along the Pittong-Snake Valley Road;
- The attempt by the Snake Valley 'A' tanker to put out spot fires directly in the path of the head of the fire;
- The burning undertaken along Madden Flat Road; and
- The fires lit around the intersection of Madden Flat and Possum Gully Roads.

The entrapment of the Geelong and Geelong West tankers

- 22.1.26** As indicated, the Forward Operations Point at Linton, established under AIIMS-ICS principles, was managed at all relevant times by Mr. Graham, a DNRE officer. He had responsibility for both DNRE and CFA Strike Teams working south of the Pittong-Snake Valley Road on the fire ground (north of the road was administered by Region 16 without any knowledge of the Forward Operations Point or the IMT). The plan was to build a control line for the southern half of the fire on the eastern flank of the fire and Strike Teams from both CFA and DNRE were tasked to this work. Eventually, early in the evening, the Geelong Strike Team was to relieve one of the CFA teams.

- 22.1.27** The Geelong Strike Team was made up of crews from a number of brigades – Geelong City, Geelong West, Highton, Lara and Corio. The Strike Team was led by CFA Officer Simon Scharf. He was assisted by CFA Officer Malcolm Stepnell. The balance of the crews were made up of volunteers. The volunteers from Geelong West were Messrs. Davidson, Vredeveltdt, Evans, Thomas and Armstrong. Armstrong, aged 17, was a probationary firefighter. The Strike Team, which comprised of five tankers, arrived at Linton at about 5.40pm and reported to the Staging Area on the Linton oval. At about 7.30pm this Strike Team was actually tasked to work on the eastern flank of the fire, building the control line with the help of a bulldozer. They were working with a bulldozer operator who had not previously worked at building a control line at a fire. Earlier, at about 6pm, Phelan told another Strike Team leader to look after the bulldozer operator, as he had not worked on a fire-line previously. Scharf who had also not worked on a control line was not advised of the bulldozer operator's inexperience.

- 22.1.28** It is noted that the Geelong Strike Team arrived at Linton some one and half-hours after the last of the four entrapment incidents. It was tasked to the control line an hour and a half later. The entrapment was approximately four and three quarter hours after the last of these incidents.
- 22.1.29** The relevant communications plan for the CFA, which was delivered by CFA radio at about 3.06pm, was for the fire ground channel to be on 15B and Command on 15A. This message was delivered well before the Geelong Strike Team arrived at Linton. They were not aware of it.
- 22.1.30** After a limited briefing at the Staging Area, which had been established at the Linton oval, Mr Scharf and his Strike Team, along with the Ballarat Team under the command of Rigg, were then directed to go to the Linton cemetery to meet DGO Kavanagh for instructions. Scharf did not receive any information on the communications plan at the Staging Area. The Staging Area logbook indicates they were tasked to the Linton cemetery. The teams left for the cemetery at about 7pm. Apparently it was expected that the two Strike Teams would be positioned along the Linton-Snake Valley Road to put out any spot fires that might occur on arrival of the expected wind change.
- 22.1.31** On arrival at the cemetery Mr Scharf met and received a briefing from DGO Kavanagh. This briefing also involved communications. Scharf informed Kavanagh that he was operating on 15B. He then advised the DGO that his tankers were on channel 7C (this was one of the Geelong “go to” channels). Kavanagh was aware of this fact and did not advise Scharf as to the correct communications channels for the fire ground and command. This decision meant that the Geelong Strike Team had an increased risk that communications directed to personnel on the fire ground may not get through to them.
- 22.1.32** DGO Kavanagh then tasked Scharf to drive up Snake Valley Road for about 1 to 1.5 kilometres to find more tankers and park behind them. Scharf could not find the other tankers and sought instructions from Kavanagh over the radio. Apparently those tankers had been sent back to the Staging Area, as they were no longer thought necessary for the task along the road by their Strike Team Leader, Parker. Parker did not inform Kavanagh of his decision. Meanwhile Lightfoot, who had his Strike Team working on the control line and was seeking to relieve them from the task, had an expectation that Parker’s tankers would relieve his team. He contacted Parker and then radioed Kavanagh requesting that the Geelong and Ballarat teams relieve his team. Initially Kavanagh said no and that they were to continue with the original tasking along the road. However, for some reason, the Geelong and Ballarat Teams eventually ended up being handed over to Lightfoot. At about 7.15pm a “briefing” then took place at Possum Gully Road from Sector Commander Lightfoot and the Geelong Strike Team was then tasked to work north on the control line with the Ballarat Team going south. Scharf and Rigg changed roles with Scharf deciding to go south. In summary, this was how perhaps the most inexperienced team was tasked to potentially the most dangerous section of the fire and ended up building a control line on an eastern flank with a forthcoming wind change expected sometime from the south-west.
- 22.1.33** During the afternoon, before arriving at the fire ground, the Geelong Strike Team leader was made aware of an expected wind change. Like those in the IMT he had differing expectations as to when the wind change would arrive. Apparently, during the work on building the control line his awareness of the forthcoming wind change, and its importance, was to diminish whilst he was concentrating on the work at hand. Eventually, as will be discussed later, he was not to receive the potentially lifesaving “Wickliffe” message on the wind change. In its form as delivered over Radio channels 15A and 15B, in any event, it would probably not have meant anything to the Strike Team Leader.
- 22.1.34** The radio in Mr. Scharf’s command utility was on channel 15B and at the time the “Wickliffe” message on the wind change was delivered (7.53pm) the vehicle was in a dip and there was nobody in it to hear the message. The driver of the vehicle had alighted to check a tree that was split.

At about 8.30 pm, whilst building the control line, the Geelong Strike Team was approached by Mr. Scherger, a DNRE officer, who was reconnoitring in the bush. Scherger instructed

Scharf to build a turn-around for the fire tankers. Scharf agreed and immediately had this work completed by the bulldozer operator. Scherger left, discovered an alternate route for the control line, and a short time later returned and suggested that the Geelong Strike Team divert the line to the east and follow the nearby Homestead Road extension. Again, Scharf agreed and commenced work in the new direction. Scherger was in charge of an experienced DNRE Team working north on the control line slightly to the south of the Geelong team's position. While Scherger was reconnoitring his team was notified of the wind change from the Forward Operations Point and already had instructions about the tactics to be followed once it arrived. The tactics were that once the change arrived they were to flank the fire out to Kelly's Road to the east. Scharf's inexperienced team did not receive the appropriate instruction for their position, which in the circumstances was withdrawing to a safe position and assessing what could or could not be done after the wind change arrived. This was because the wind was likely to push the fire across their position.

- 22.1.35** Apart from Mr. Scherger, after being tasked to work on the control line, the Geelong Strike Team was not contacted by command. The team was not supervised.
- 22.1.36** Shortly after 8.30pm, whilst working on the control line the Geelong City and Geelong West tankers were discovered to be low on water and were sent out to get water from the Linton cemetery by the Strike Team Leader. Rather than send the tankers back along the built control line, Mr.Scharf decided to send to them ahead via an unexplored bush track (the Homestead Road extension) assuming the track would link up with a nearby main road. After having travelled along a bush track for about 70 metres the leading tanker, Geelong City, under command of Mr. Stepnell (a CFA permanent fire officer), stopped, as there was some uncertainty as to the direction of the track. During this time the eastern flank experienced a south-westerly wind change of about 60–65 kph which caused the flank to become a raging head fire over-running the two tankers and killing the Geelong West crew.
- 22.1.37** When sending the tankers out along the track Mr.Scharf did not fully appreciate the danger as he had not been trained in estimating the effect of fuel loads and topography on fire behaviour (earlier during the afternoon many other CFA firefighters similarly did not appreciate the potential and found themselves, *time and again*, in trouble). Additionally, Scharf had never done this work before.
- 22.1.38** The Geelong West crew died at about 8.45pm on 2 December when their 2000 litre (water carrying capacity) firefighting tanker was over-run and destroyed by the fire.
- The intensity of the fire during the Geelong tanker entrapment was 11,000 kw/m (the fire intensity during the Ash Wednesday fires was 70,000–80,000 kw/m).
- 22.1.39** The Geelong West tanker was caught in the fire along with the Geelong City tanker (3000 litre water carrying capacity). The crew on the Geelong City tanker used all their remaining water and fog sprays to survive (on the quarter tank rule Geelong City would have kept 750 litres). It was hit with two waves of fire. It is possible that the Geelong West tanker had little or no water to use for survival protection as they may have used most of their water fighting the fire whilst working on the control line. Alternatively, it is also possible the crew on the back of the Geelong West tanker had survival water and, because of their inexperience, did not see the approaching fire until it was too late to activate the fog spray system. If they had kept a quarter of a tank of water (500 litres) this may not have been sufficient for survival in this fire. The traditional CFA “rule” was for crews to keep “*quarter of a tank*” of water for survival in case of burn overs. Both tankers had a sight gauge for water level but had neither an audible nor flashing device to warn when the water level reached the recommended level for protection. At the time of Linton these devices were in the process of being fitted to CFA tankers following the “*Glen Park*” tanker entrapment during the 1997 Creswick fires (an incident similar to the Snake Valley ‘A’ entrapment). There was no mechanical system to ensure that crews could not use their protective water supply.
- 22.1.40** The Corio crew, the command vehicle and the bulldozer operator survived because they all remained in the turn-around area constructed as a result of Mr. Scherger's advice. Corio also used its fog sprays for its own crew and the command vehicle. The Highton and Lara tankers had earlier left the area, via the burnt control line, to obtain water. They were just entering the control line at Possum Gully Road when the incident occurred.

- 22.1.41** Mr. Scherger's DNRE crew followed the fire out to the east at Kelly Road where it was stopped because of a DNRE controlled burn, which was undertaken during 1996–1997. Other crews burnt out the area between Possum Gully Road and Kelly Road. To the south the fire stopped when it reached open ground just north of the outskirts of Linton.

The role of information on wind change

- 22.1.42** Weather, topography and fuel load are the three factors that influence the behaviour of a fire. Of these three factors a properly trained and experienced firefighter can assess topography and fuel load. Changes in the combination or influences of these three factors can cause significant changes in wildfire behaviour, which can effect safety and the success of the suppression operation (as was shown at Linton on several occasions). In southern Australia wind changes can occur late in the day and, when approaching from the west, significantly effect fire behaviour with potential to turn the eastern flank of the fire into a raging head. Firefighters working on the eastern flank cannot predict the time of arrival of such wind changes and require regular information to undertake the work safely. They may not be able to see the approaching front because they are working in forest.
- 22.1.43** The importance of information on wind change for the safety of firefighters is underscored in the CFA's own Operations Guidelines. The *"Operations Guidelines – A Guide to Operations and Tactics in the Field"* notes that changes *"in wind direction can increase the area burnt and be a safety hazard to firefighters."* Importantly, it notes that it:
- "is vital to carry warning of the actual or estimated wind change to ALL PERSONNEL involved in the firefighting operation. This includes all firefighters as well as incident management team personnel. The safety and security of firefighters and equipment will be a priority concern during and immediately after the wind change. In some cases it may be necessary to suspend firefighting operations temporarily during the change until the new wind direction and strength has been established."*¹¹
- 22.1.44** Information about the predicted time of arrival of wind change for fire management in Victoria comes from the Bureau of Meteorology, various Automatic Weather Stations operated by the CFA and general CFA/DNRE intelligence.
- 22.1.45** Information on the weather for the Linton fire was provided to the CFA and DNRE by the Bureau in accordance with an agreement signed on 2 November 1998 called the *"Fire Weather Directive 1998/99."* This information was in the form of spot weather forecasts and wind change charts, which variously forecasted the wind change to arrive at the fire ground between 3 and 6 hours later than the actual time of arrival. The closest forecast issued by the Bureau to the actual time of arrival was the 7.33pm prediction, which put the arrival of the wind change at about 11pm. The Bureau used its local regional prediction models (LAPS and meso-LAPS) to forecast the weather for the fire agencies. It is noted that the European Model (ECMWF) had correctly forecast the time of arrival of the wind change for southern Australia two days before the fire. The Bureau, in its assessment of the forecast on 2 December, did not concentrate on the European prediction model.
- 22.1.46** During the afternoon of the fire the CFA and DNRE received information about the estimated time of arrival of the wind change from a number of their own sources as well as from the Bureau. As the late afternoon progressed the IMT and firefighters at the fire ground held differing views about when, or if, the wind change would arrive.
- 22.1.47** As indicated, within the IMT itself there were disparate views about the time of arrival. No message in the form of an incident management plan was disseminated down through the chain of command identifying the likely or earliest time of arrival of the wind change and advising of the strategies or tactics to be employed by firefighters as a result of the information. This is in spite of the fact that shortly after 5pm., the Incident Controller had announced over the Australian Broad Casting Commission's public radio network (*"Drive"* with Terry Laidler – 3LO) that the wind change had come through Portland and was expected on the fire ground in *"a couple of hours."* The Incident Controller also stated in the broadcast:

“... And at Portland there was 70 kms winds from the west, which means that if we don't get the east flank secured within the next couple of hours we're going to have, you know, some significant fire movement from the east flank.”

- 22.1.48** This message was repeated on the regional television network, WIN TV, just after 6pm. Apparently, after the initial radio interview on 3LO, it was determined in the IMT, by some contact with the Bureau, that its original estimates of a later arrival of the wind change on the fire ground still applied. Yet nothing was done by the IMT to deliver either the 3LO information or the later Bureau information to those working on the fire ground.
- 22.1.49** At about 5.44pm Mr John Anderson at the Forward Operations Point at Linton, received information that the wind change was at Casterton and formed the view that the wind change was going to come much earlier than the Bureau was predicting. At about 7.50pm Graham became aware that the wind change was at “Wickliffe.” On receipt of that information he was of the view that the wind change was about one hour away. Graham *“put the information into the CFA's communication structure via John Anderson and Neville Britton and made sure that NRE personnel were acquainted with it by contacting the sector commanders.”* The IMT were informed.
- 22.1.50** Instructions were given that a general radio message that the wind change was at “Wickliffe” should be broadcast via the MCV. The text of the message, which was broadcast at 7.53pm on 15B and 7.59pm on 15A, is as follows:
- “This is Linton control with a general message to all divisional commanders weather update the weather change is at Wickliffe wind direction is south westerly wind direction is sooth westerly speed 35 carrying no rain could strike team leaders, divisional leaders please confirm.”*
- 22.1.51** On the positive initiative of the MCV radio operator, Mr Roberts, acknowledgments were sought with the radio message on the wind change and only one was received. There was no CFA system for acknowledgments to be requested and no system for dealing with a lack thereof. Also the message that the wind change was at “Wickliffe” was meaningless to many firefighters on the fire ground, as they did not know where “Wickliffe” was as they had come to the Linton fire from other regions – like Geelong. In addition, the fire agencies were well aware of the fact that communications difficulties occurred in the management of previous wildfire incidents and there were problems with delivering messages via the radio system.
- 22.1.52** The Geelong Strike Team did not receive the “Wickliffe” message and they were not made aware of the estimated time of arrival of the wind change by any other means. It is noted that many firefighters gave evidence that they did not know where “Wickliffe” was. The structure of the message, even if received by the Geelong Strike Team, did not give sufficient information and instruction about its consequences for the work to safely be performed. It was meaningless if the individual receiving the message did not know where “Wickliffe” was. The general message system, used by the CFA, did not comply with the AIIMS-ICS system, which was underpinned by transmission of the message by the immediate supervisor via the chain of command.
- 22.1.53** The information on the predicted time of arrival of the wind change at Linton was not carried to all personnel involved in the firefighting operation. The attempts at disseminating the information on this vital factor with its real potential to create a safety hazard for all of the Geelong Strike Team's firefighters working on the eastern control line were effectively meaningless and could only be regarded as less than satisfactory. By way of contrast, it is noted that the experienced DNRE's crew working on the eastern flank, were personally contacted and relayed the information.
- 22.1.54** **Conclusions**
- 22.1.55** The Linton wildfire was ostensibly being managed by the CFA and DNRE, jointly by agreement, under the AIIMS-ICS system of incident management. In fact, two systems of incident management operated side by side during the management of the fire – AIIMS and the CFA's old Group system. This led to dysfunctional command and control. Vital safety information was not efficiently and appropriately disseminated. Many firefighters and operational managers working on the fire ground did not know of the existence of the IMT.

- 22.1.56** Both agencies, aware as they were of the potentially dangerous and hazardous nature of the work being conducted, did not ensure that their joint management of the operation provided to the Geelong Strike Team, working on the eastern flank of the fire building a control line, the necessary level of supervision, information and instruction to enable them to operate safely.

The Agencies did not ensure that the AIIMS system of incident reporting applied in this fire. Had competent fire officers stationed at the IMT even briefly been told in a timely way of the incidents (ie Snake Valley 'A' and the Lightfoot utility incineration), it is likely that the problems with safety and operational management would have been identified. The dangerous nature of the Linton fire would have been recognised and more careful attention to supervision and safety would have been likely to alter the eventual outcome with the Geelong Strike Team.

- 22.1.57** The DNRE Officer in Charge of the Forward Operations Point, in view of the dangerous nature of the work, did not check to ensure that the Geelong Strike Team were adequately supervised, actually received the information on the wind change and were properly instructed on the work to be performed on the arrival of the change. As indicated, DNRE was involved in jointly managing the fire with CFA and it had a responsibility to ensure that the management systems actually in operation at the fire provided the required level of supervision, information and instruction to firefighters on the fire ground relevant to the task to be performed. Specifically in this case, a DNRE officer was in a position of command at the Forward Operations Point and had control of a number of aspects of work on the fire ground.

In summary, the DNRE's employee, the Forward Operations Point Officer, failed to properly supervise the Divisional and Section Commanders in charge of the Geelong Strike Team.

- 22.1.58** In the case of the CFA, it did not ensure that its Strike Team Leader had sufficient training to recognise the nature of the forest fuel load with which he was working and the level of risk that created when combined with topography and changes to weather. It had no system to ensure that inexperienced firefighters and managers were not tasked to potentially dangerous areas of a fire ground. Having tasked inexperienced personnel, it had no systems to ensure inexperienced crews, crew leaders and strike team leaders were appropriately monitored when working on the potentially dangerous eastern flank of a wildfire pending a south-westerly wind change. It also did not have systems actually working to provide the necessary level of supervision, information or instruction relevant to the wind change and the dangerous work of its firefighters on the eastern flank

In summary CFA failed to properly supervise Mr Scharf. In the circumstances that prevailed at Linton proper supervision involved:

- Mr Phelan (Divisional Commander) supervising Lightfoot in the performance of his duties as Sector Commander;
- After receiving the Wickliffe message, Messrs Graham, Phelan and Lightfoot should have met to determine:
 - the relevance of that message to the arrival of the wind change on the fire ground;
 - the need (if any) to change the existing tactics; and
 - Safety instructions that needed to be given to Mr Scharf.

After discussion had been made about these matters Mr Scharf should have been re-briefed. It is reasonable to conclude that Scharf would have taken instructions as he had earlier promptly responded to DNRE officer Scherger's advice to build a turn-around and alter the direction of the control line.

- 22.1.59** The Strike Team Leader, Mr. Simon Scharf (a full time firefighter) was not sufficiently trained by his employer, the CFA, to the skill level to enable him to sufficiently assess the high fuel loads in the area and to recognise the potential danger for the Geelong and Geelong West crews of sending them out to obtain water along an unburnt track, in the event of a wind change. However, by directing the two fire crews to drive out along a bush track he placed them in a position to be caught in the path of the fire when the south-westerly wind change struck.

- 22.1.60** The Geelong Strike Team (perhaps the most inexperienced team at the fire) was placed in the potentially most dangerous section of a wildfire – creating a control line on an eastern flank facing an imminent wind change from the south west. From the time the Strike Team was tasked to the control line to the entrapment, there was no external supervision from those managing the fire. The Strike Team Leader of the Geelong Strike Team had not worked in this situation previously. In addition, the bulldozer driver working with the Geelong Strike Team, who was building the mineral earth break for the control line, had not been trained nor had he experienced this type of work previously. He therefore could not offer assistance or guidance to the Geelong Strike Team.
- 22.1.61** The Strike Team was not provided with detail on the expected time of arrival of the wind change from the south-west. Nor was it given instruction as to the work to be performed when the wind change arrived. Information on the wind change arrival was delivered by “*General Message*” over the radio and not received by the Strike Team. Although reliance was placed on a general message system for important messages, the AIIMS-ICS system of work provided for a system of supervisors delivering such messages. This was not followed in the case of the Geelong Strike Team. By contrast the experienced DNRE team, also working on the eastern flank, was contacted and provided with the information from the Forward Operations Point at Linton. Earlier, it was given instruction on what to do when the wind change arrived. In view of potential danger in the nature of the operation on the eastern flank and with previous knowledge of communication difficulties, both agencies working jointly to manage the fire operation, should have ensured that the Geelong Strike Team received the necessary level of supervision, information and instruction as to what to do when the wind change arrived. This did not occur. It is noted that had Mr Scharf received just the “*Wickliffe*” message and no instruction, there is no certainty that the circumstances would have changed. His training and experience did not give him the tools to understand the danger he was in.
- 22.1.62** In view of Mr. Scharf’s response to Scherger’s instructions on building a turnaround and in changing direction of the control line, it is reasonable to conclude that he would have taken instruction on the management of his Strike Team on arrival of the wind change. He received **neither** the benefit of instruction as to the work to be performed on arrival nor advice about the expected time of arrival of the wind change. Other than Scherger’s instructions, Scharf received **no supervision** from operational managers from the time he commenced work on the control line. He had not previously worked in the dangerous area of an eastern flank constructing a control and facing a westerly wind change. At the minimum he should have been given a “*mentor*” and supervised with proper instruction. In reality, because of the shortcomings in his training he should not have been there. This comment also applies in respect of the inexperienced Geelong Strike Team.
- 22.1.63** At Linton, acknowledgments were sought with the radio message on the wind change and only one was received. There was no system for acknowledgments to be requested and no system for dealing with a lack thereof. Also the message, that the wind change was at “*Wickliffe*”, was meaningless to many on the fire ground as they did not know where “*Wickliffe*” was. In addition, the Fire Agencies were aware of the fact communications difficulties occurred in the management of previous wildfire incidents and there were problems with delivering messages via the radio system. The CFA should not have permitted this system of delivery of important safety information to operate in the potentially dangerous wildfire environment.
- 22.1.64** Mr. Neyland was involved in burning off rubbish on his property for about two days prior to Linton. He took every reasonable precaution, within his knowledge, to ensure that the rubbish fires were extinguished. Eventually a smouldering cinder from one of the rubbish fires ignited the forest. It is likely that the cinder ignited with the hot north wind. Neyland caused the fire. Neyland’s involvement must also be seen in the context of a significant failure of the fire agencies applied systems of work and intervening factors which could not reasonably have been anticipated. As to the deaths of the five volunteers, there are too many intervening factors occurring throughout the management of the wildfire to extend the causal link for the deaths to Neyland. From the ignition of fire to the deaths the

introduction of the significant failures in the system of work has the effect of breaking the chain of causation.

- 22.1.65** During the relatively short but violent run of the Linton wildfire numerous firefighters' lives were put at risk during incident after incident. One expert, Dr. Neil Burrows, wrote in his report to the Coroner on the Linton fire:

"Frankly, it was a miracle that only five lives were lost at this fire given the numerous other near misses..."

22.1.66 Contribution

- 22.1.67** Mr Peter Neyland contributed to the fire.

- 22.1.68** The State of Victoria by its agent the Department of Natural Resources and Environment contributed to the deaths.

- 22.1.69** The Country Fire Authority contributed to the deaths.

- 22.1.70** Mr. Simon Scharf, Country Fire Authority Fire Officer and Strike Team Leader, Geelong Strike Team, contributed to the deaths.

Graeme Johnstone
State Coroner

Comments and Recommendations

23.1 The Future – Towards a Safer System

“...no one incident, even one as disastrous as that on Piper, can point up more than a few important improvements in onshore safety. Equally in practice exactly the same accident hardly ever repeats itself, so management needs to address the spectrum of possibilities and not just seek to prevent recurrences.”¹ (Lord Cullen in the Public Inquiry into the Piper Alpha Disaster, 1990)

- 23.1.1** The evidence at these Inquests has identified a number of key causative factors in the areas of management systems, supervision and instruction, information transfer, training and experience that have effectively led to the deaths.² The investigation has also discovered a significant number of additional areas where the actual management of operational and safety systems require significant improvement to address a “*spectrum of possibilities*” that may beset firefighters in the work of wildfire suppression. Many of the problems identified at Linton had been evident during the management of previous wildfire incidents.
- 23.1.2** Fires, particularly wildfire, cannot be managed without some risks. However, essentially the suppression of wildfire is about assessing and safely managing the risks. This was not how the Linton fire was managed by the firefighting agencies. Assessing and safely managing risk is at the core of occupational health and safety principles. In the future the firefighting agencies, responsible for the safe management of wildfire, need to have these principles as the main focus of their work.
- 23.1.3** Every summer in Victoria, our community is effected by wildfire. Volunteers and paid full-time firefighters have long risked their lives managing this wildfire for the benefit of the Victorian community.³ They did so on 2 December 1998 at Linton. However, five volunteers tragically lost their lives. In the future these community minded firefighters deserve the best possible risk-management systems to ensure that the risk of death and injury during wildfire operations is significantly reduced. There are established methods of fighting wildfires, which are some of the appropriate techniques for managing the risk. At Linton these were not used to effect.⁴
- 23.1.4** Victoria currently relies on a large band of dedicated volunteers to suppress fire in the outer Melbourne metropolitan area, in rural cities, towns, farming regions and forests. They provide the very necessary boost to the work of the full-time firefighters in the area of wildfire suppression. The safety of our community no doubt will continue to be dependent on their valuable work. These Inquests have not been about the existence or viability of the volunteer firefighter system but about the management, training and safety systems needed for their work to be safely undertaken.
- 23.1.5** Risk management, in the case of wildfire, is predicated on the firefighting agencies and the community working closely together. They already work on fire awareness and fuel reduction strategies to prevent and reduce the risk of wildfire developing to the stage of threatening lives and property. Such strategies require considerable cooperation and understanding throughout all local communities and levels of government.

- 23.1.6** At the time of the Linton fire the operational management procedures and safety systems *actually* followed by the CFA during joint operations with DNRE were seriously flawed. Two fire incident management systems – AIIMS-ICS and the CFA’s Group system were permitted to operate on the same fire-ground. The two systems cannot co-exist. AIIMS should have been used. Had AIIMS been correctly used in all sectors of the fire the outcome may well have been very different. The Incident Management Team did not take control of the fire and ensure that vital safety information and instruction on a forthcoming south-westerly wind change was provided to those working on the fire-ground. There was little effective supervision of inexperienced firefighters working on the fire-ground. A number of major incidents occurred during the fire, of which the Incident Management Team was unaware, which risked the lives of a number of firefighters.⁵ Had these incidents been reported the outcome would have been very different.⁶
- 23.1.7** AIIMS-ICS had been introduced as an incident management and system of work by the CFA in many of its Regions. However, AIIMS had not been introduced in Regions 15 and 16 where the Linton fire took place. These Regions operated under the Group system. Thus in effect, AIIMS-ICS was only a paper system for much of the area affected by the Linton fire. Paper systems are not effective systems of work unless they are *actually* implemented.
- 23.1.8** The CFA’s Geelong Strike Team (perhaps the most inexperienced team at the fire) was placed in the potentially most dangerous section of a wildfire – creating a control line on an eastern flank facing an imminent wind change from the south west. From the time the Strike Team was actually working on the control line to the entrapment there was no external supervision from those managing the fire. The Strike Team Leader of the Geelong Strike Team had not worked in this situation previously. In addition, the bulldozer driver working with the Geelong Strike Team, who was building the mineral earth break for the control line, had not been trained nor had he experienced this type of work.
- 23.1.9** Risk situations for firefighters working in wildfire suppression ought to have been well known by the firefighting agencies well before Linton.⁷ A study of the history of wildfire firefighter fatalities indicates the deaths of the five volunteers at Linton are but an example of the range of risks facing wildfire firefighters. Risks are also inherent in many aspects of firefighters’ work (ie. – in training, in structural fire, in hazardous materials fires, non-fire related natural disasters, emergency rescue, travelling to and from incidents, exposure to toxins, etc.). It is noted that heart attacks are identified as a significant factor in some of the non-accidental deaths.
- 23.1.10** Three studies of firefighter fatalities were presented to the Inquests. Two of the studies relate to wildfire and the third is a broader study about the variety of risks firefighters may face. The first study is by Dr. Bruce Paix entitled *“Improving Burnover Protection for Australian Bushfire Appliances,”*⁸ the second is a document *“Fatalities and Near Miss Investigation”*⁹ by DNRE and the final is the TriData *“Analysis Report on Firefighter Fatalities in the United States in 1994.”*¹⁰ In the acknowledgment to the 1994 US study is the comment by TriData:
- “We acknowledge that firefighting is a dangerous profession, and tragedies will occur from time to time. This is the risk all firefighters accept every time they respond to an emergency incident: however, the risk can be greatly reduced through efforts to increase firefighter safety.”*¹¹
- The following comment is also made:
- “For two decades, the United States Fire Administration (USFA) has kept track of firefighter fatalities and conducted an analysis of the fatalities that occur each year. Through the collection of information on the causes of firefighter deaths, the USFA is able to focus efforts on specific problems and direct efforts towards finding solutions to reduce the number of firefighter deaths in the future.”*¹²
- 23.1.11** The 1994 US study included a special analysis of wildland fatalities *“which claimed an unusually high number of lives this year, and an analysis of risk management and recognition in the fatal incidents.”*¹³ The detail is not examined in these comments but the information should have been well researched by the CFA prior to Linton. It was not.
- 23.1.12** In the Australian context, Dr. Paix remarked that at least 52 *“bushfirefighters have died on active duty since 1980”* and excluding natural deaths *“the majority of the deaths have occurred*

when fire tankers have been overrun and this continues to happen.” He wrote that “five firefighters died at Waterfall in 1980, 16 on Ash Wednesday in 1983, 3 at Grays Point in 1983, 1 at Wingello in 1998 and 5 at Linton in 1998.”

Australian burn overs occurred as “early in the season as September, and as late as April, whilst a number occurred at major fires others occurred during quite times at small fires or burnoffs.” Dr. Paix examined a range of burn over situations in both Australia and the United States and concluded that being:

“overtaken by fire remains a significant cause of death for Australian bushfire fighters. Often the burnover occurs so suddenly there is little time to prepare, and it must be ridden out in whatever location and orientation the appliance is in.”

23.1.13 Dr. Neil Burrows wrote in his report to the Coroner on the Linton fire:

*“Frankly, it was a miracle that only five lives were lost at this fire given the numerous other near misses during the short but violent fire run.”*¹⁴

23.1.14 Accordingly, it is essential that in any wildfire situation, the risk be identified and safely managed. That does not mean that every wildfire requires firefighters on the ground, rather that the risk be identified and balanced both before and during a running or fire to consider whether the commitment of firefighters is the appropriate strategy from both an operational and a safety perspective. In some cases the risk to lives may outweigh the initially perceived benefits of immediate action on the ground. It may, in these cases, be preferable to wait for a more opportune and planned moment. This concept is not novel. It is recognised in CFA documentation:

*“Under extreme conditions most suppression or control methods will be ineffective and firefighting resources are best utilised to protect community assets including life and property until conditions moderate.”*¹⁵

Whilst the Linton fire could not be regarded as occurring in extreme conditions the number of incidents risking the lives of firefighters in the course of its management, may if repeated (even to a lesser degree) in another wildfire, necessitate the rethinking of strategies.¹⁶

In some limited circumstances either not going onto the fire-ground or withdrawal, is an option. This is part of the process of managing risk.

23.1.15 The deaths during the Linton fire occurred in the context of a joint operation by two firefighting agencies with fundamentally different methods of tackling a wildfire. In addition, one agency relied largely on volunteers and the other solely on full-time fire fighters. To be successful in reducing the risk to firefighters, any mixed agency response to a dangerous hazard like wildfire must not only appear to be a seamless operation, but must in fact be seamless. It is clear that the agencies were attempting to work together before the fire to improve management by virtue of a Multi-Agency Incident Management Agreement and, after the fire, by introducing the Safe Forest Firefighting Agreement.¹⁷

23.1.16 However, as has been identified by the agencies in the Safe Forest Firefighting Agreement, the issues raised in management of the Linton fire have exposed some tension between the object of the agreement and the reality of two fundamentally different firefighting agencies efficiently and safely working together. These tensions were evident during the Inquests with differing interpretations by management of the CFA and DNRE about the meaning of the Multi-Agency Incident Management Agreement and its application to fire-ground incident management. If the agencies are in doubt as to the interpretation of the agreement and its application then this could lead to confusion on the fire-ground and effect safety. No doubt the agencies will continue to work together on resolving identified problems with joint operations to ensure safe and successful undertakings. This important aspect of wildfire management will require **regular and careful** monitoring in the future.¹⁸

23.1.17 Safety in the context of managing a potentially dangerous hazard such as fire, and more particularly wildfire, requires timely action. Unfortunately, as already indicated, for a number of reasons, the main incident management system (AIIMS-ICS) developed, to the credit of the agencies, in the early 1990s was not fully operational across all sectors of the CFA at the time of Linton (see Chapter 21 of this Report). Also many of the recommendations in a subsequent

report on a series of fires in Victoria, the 1997 Fire Agencies Improvement Initiatives Project (FAIL), had not been implemented in almost fifteen months between completion of the report and the Linton fire. Both AIIMS and FAIL, if fully implemented, had real potential to change the outcome of Linton.

23.1.18 Working in a high-risk environment with a large contingent of volunteers, requires a far greater degree of attention by the firefighting agencies to safety systems. This is because there are limited opportunities to provide volunteers with that constant level of training and experience necessary to hone skills in wildfire work and develop the full understanding of risk management systems.

23.1.19 Progression of systems to improve the safe management of wildfire also requires that *all* the firefighting agencies, unions and volunteer associations work *effectively and closely* together to help provide a safer working environment for all firefighters. This concept is also not new. Essentially the same point was made in the context of the findings into the Dandenong Ranges Fire that the:

*“developing cooperative approach by all agencies (whether public or private) potentially involved in the management of areas of major risk in our community and following a disaster is to be commended. It should be enhanced at all opportunities. The breaking down of all inter-agency and organisational barriers in the management of risk and disaster makes sense if the community is to receive the full benefits of all-available expertise and resources ...”*¹⁹

23.1.20 This Chapter examines the lessons learnt from the Linton incident and is intended to build on the valuable work already undertaken, both before and after Linton, by the agencies responsible for managing wildfire suppression and control in Victoria. There is still a considerable amount of work required to provide the safety systems that Victoria's community minded volunteer and full-time firefighters are entitled to expect. Many of the problems identified in this investigation are also described in the various chapters to this Report, namely on the entrapments before the deaths, the management of the IMT, the Forward Operations Point and the Staging Area and how communications performed (in particular see the conclusions to each chapter). This Chapter is not intended to cover all of the issues identified but to suggest broad improvements to systems. Many of the problems described in detail in the chapters mentioned above *also require addressing* by the Fire Agencies (see also the Recommendations of the parties in Appendix A4 to this Report).

23.1.21 It is in the broad context of the safety lessons from Linton that the following structural, systems, information, training and engineering comments and recommendations are made. It may be necessary for the relevant parties to examine working with an independent agent, like the *Office of the Emergency Services Commissioner*, to act as a facilitator to bring them together for consideration and development of the recommendations.²⁰ In this Chapter the reference to Peak Unions includes the UFU, the two Volunteer Firefighting Associations and any other relevant union.²¹ From time to time, assistance of other organisations or experts not referred to in the recommendations may be considered necessary.

23.1.22 In this Chapter it is intended to examine the basic philosophy of occupational health and safety as it applies to wildfire suppression, the role of management and the structure of the incident management and control system (AIIMS-ICS), general safety issues (eg: provision of weather information, competency, equipment design) and the need for an audit and incident/near miss investigation system. Issues associated with independent contractors, the media and general community awareness are also raised towards the end of the Chapter.

23.2 Systemic and/or Individual Error

23.2.1 **The relevance of systemic or individual error to Linton**

23.2.2 It was pointed out by DNRE that there is a distinction between systemic and individual failure and that undue concentration by the Coroner on the former may lead to a failure to correctly categorise whether or not any individual contributed to the deaths. This is illustrated by the example given by DNRE of a submission by Counsel Assisting during the

Inquests where Counsel sought to argue that OH&S principles still require supervision even when someone is well trained because they still may make a mistake. That using OH&S principles to support a systemic failure:

“obscures the fact that there may be another potential explanation for why an event occurred other than a failure to supervise, namely a reasoned decision by a well trained person to ignore safety precautions as a matter of convenience.”

That:

*“lack of supervision and human error involving a deliberate decision to undertake a risky course of conduct are separate considerations. Both may account for the occurrence of an event. In many circumstances adequate supervision would not prevent a deliberate act by an employee.”*²²

23.2.3 Again, in this context DNRE cautioned that a philosophy aimed at avoiding tragedies in the future has limited application to the legal task of determining who contributed to the events at Linton. It argued, for the first part correctly, that the:

*“conduct of individuals and their errors of judgement receive comparatively little emphasis when considering the management of the fire and the future. To the extent that the Coroner finds himself bound to identify the causes of the tragedy human errors cannot be set to one side or minimised. If they are the findings of this Inquest will not reflect a full and true explanation of why this tragedy occurred.”*²³

And in the second limb of the argument, that

*“Whilst OH&S principles for good reason focus on management and systems failure, those principles have no place in the process of applying well defined legal principles to determine whether individuals or organisations have failed in their duty towards the deceased.”*²⁴

However, not to confuse the issue, the second limb cannot be correct. As the Coroner is also required to examine all of the relevant facts, management or systemic issues may well form part of the necessary line of legal principles to determine as to whether or not individuals or an organisation contributes to the death.

23.2.4 The content of these submissions has been considered and the Inquests have examined, in the context of a broad ranging and lengthy investigation, the role and conduct of individuals. Considerable time has also been spent in examining systems and the role of occupational health and safety processes (or lack thereof) in the context of the deaths and fire management. Although individuals clearly made errors, for which some accepted responsibility (and are either part of the background circumstances in the outcome or a contributing cause), an extensive examination, unavoidably, has pointed to a significant range of systemic issues, from which it is hoped the agencies will gain knowledge and act promptly to reduce the risk of repeats. The errors of individuals at Linton, to a large extent stemmed from a lack of understanding of risk, fire behaviour, or a failure in training (with experience) and/or supervision.

23.2.5 Any consideration of the Linton fire cannot escape the conclusion that the sheer extent and magnitude of systemic problems overshadowed errors of individual firefighters. Likewise, one cannot escape the conclusion that ultimately, the firefighting agencies are responsible for the failure to safely manage the Linton wildfire. The agencies must face the reality that the safety systems, operating in the context of wildfire, need to allow for the inevitable human error.

23.2.6 The need to manage human/systems error in firefighting operations

23.2.7 There has been much work undertaken by the principal fire fighting agencies to identify and rectify deficiencies in fire management procedures and systems following the Linton fire and the five deaths.²⁵

23.2.8 The firefighting agencies have been somewhat reluctant to adopt a system that will, if properly used, help to reduce the risk of injury and death to those working on the fire ground. That system is a combination of independent safety supervision and systems audit

during a going wildfire.²⁶ A system of safety supervision and systems audit needs to be introduced by the fire fighting agencies to help manage risk in wildfire. The system needs to be independent of those in an operational role who work either in management or on the fire-ground. Properly developed such a system would become a resource for all those working in operational roles at a fire. It would provide a rapid ability to identify and rectify errors before the fire causes harm.

23.2.9 No doubt the system of competency-based training and the *safe person* is important but, as indicated later in this Chapter, it may not be sufficient to ensure adequate safety supervision is undertaken by all those in management roles at a wildfire. Management in this context is defined as ranging from the incident controller to a crew leader on a fire tanker.

23.2.10 The agencies consider that each of the individuals in this management chain have a responsibility to safely supervise those who may be under them. Also each individual firefighter is required to be mindful of safety, and work safely. This is underlined in the competency-based training system. This is *not necessarily an adequate system in the context of working on suppressing a potential hazard such as a wildfire, which has a high risk of injury or death to those working on the fire ground in the event of an error by one or more individuals in the management system or chain*. It still relies on the individuals within the system to work safely and does not create a sufficient management system or structure that works on reducing the risk.

23.2.11 The fire at Linton ought to be a stark reminder to the agencies and firefighters of the sheer number of errors that can occur in the management of a wildfire that was far from being large or exceptional. Management, system and individual errors culminated in a number of entrapments (even hours before the loss of the Geelong West Crew), placing the lives of many more firefighters at risk. The important point is that the most of the incidents (including the loss of the Geelong West Crew) did not result from human error alone – management systems (or lack thereof) played a critical role.

23.2.12 The potential and consequences of human error have long been recognised in the area of injury control. It may come as a surprise to some that the consequences of human error or inadvertence (as distinct from negligence) are also recognised in the law. In *R v Australian Char Pty. Ltd.*²⁷ Justices Phillips (CJ), Smith and Ashley whilst hearing an appeal relating to charges under the Occupational Health & Safety Act 1988 referred to a passage from the judgement of Harper J. in *Holmes v R.E.Spence Pty.Ltd.* Harper J stated:

“...nevertheless remembering that one of the chief responsibilities of all employers is the safety of those who work for them. Remembering also that, in the main, such a responsibility can only be discharged by taking an active, imaginative and flexible approach to potential dangers in the knowledge that human frailty is an ever present reality. This indeed is an element which often turns what would otherwise be a positive result into a negative one, so that for example, the minor but less obvious traps may present a greater danger than the major more obvious one...One must then weigh the chances of spontaneous stupidity, or a fall or the like, against the practicability of guarding the machine so as to maintain its function while preventing the human factor from resulting in injury...”

And the Appeal Court reiterated, as it was pointed out many years earlier in *McLean v Tedman & Anor*,²⁸ in many employment situations:

“the risk of injury...is negligible so long as the employee executes his work without inadvertence and takes reasonable care for his own safety. But long experience has shown that employees do sometimes act inadvertently or without due care for their own safety. It is in this context that an employer must guard against such acts or omissions as may foreseeably cause injury. Foreseeability is not equivalent to probability. The severity of a workplace hazard or risk in the common law context depends, inter alia, upon consideration of the potential for its causing foreseeable injury to an inadvertent or careless worker...”

23.2.13 In a wildfire, it must be remembered that *human error* by an individual who is in a command position may well result in multiple deaths or injuries. The system should be

aimed at ensuring those who are working on eliminating (or managing) the hazard, which is fire, are able to do their work safely and return home uninjured. The recognition of the fact that there is a high risk that human error, in the context of managing this type of dynamic event, when the individuals are working under stress, will inevitably occur is the first step in improving safety. When individuals are working under stress they have difficulty in consistently making good decisions.²⁹

23.2.14 This is not a new idea in the context of wildfire management. In 1995 Dr. Ted Putnam wrote in the United States Wildfire Magazine:

*"Stress, fear and panic predictably lead to the collapse of clear thinking and organizational structure. While these psychological and social processes have been well studied by the military and aircraft industry... the wildland fire community has not supported similar research for the fire line. The fatal wildland fire entrapments of recent history have a tragic common denominator: human error. The lesson is clear: studying the human side of fatal wildland fire accidents is overdue."*³⁰

23.3 Wildfire Management and OH&S Principles

23.3.1 It is clear that the Victorian Occupational Health and Safety legislation applies to firefighting and, in particular, a wildfire operation. There is nothing in the legislation to indicate firefighting agencies or individual firefighters are exempt when involved in wildfire management. The agencies have recognised this point. Occupational health and safety is referred to in the manual for the incident control system for AIIMS:

"Within each agency, safety health and welfare must be continually stressed by managers. All personnel have a responsibility for their own welfare, their workmates and the people they may be supervising.

*The occupational health and safety policies of the combatant authority must be adhered to during the incident."*³¹

It is the extent to which it is practical to apply traditional occupational health and safety risk management principles to the management of wildfire on the fire-ground that is at issue.

23.3.2 The need to work from risk assessment

23.3.3 Risk assessment or analysis is a precursor to effective removal, control or mitigation of risk. Risk assessment requires awareness of the potential risks of a work process and a person undertaking a risk assessment must have knowledge and experience of the work process. The UFU submitted:

"Proper risk analysis involves both the identification of risks and the estimation of the magnitude of those risks (Noonan, B 246–7). In a rapidly changing and dynamic working environment such as a wildfire, such analysis must be ongoing and must be performed by persons trained in the techniques of risk analysis (Noonan, T10360)." ³²

The Union also pointed to the need to undertake the assessment in "accordance with established models designed for that purpose." It gave by way of example the model developed by the United States (National Fire Protection Handbook – NFPA 1500 Standard of Fire Department Occupational Safety and Health):

*"regular re-evaluation of conditions; pessimistic evaluation of changing conditions; and experience based on previous incidents."*³³

23.3.4 Whilst the use of NFPA 1500 has been challenged by DNRE as not being adopted for wildfire the list is a useful pointer to some of the practical rules for assessing and reassessing risk. The use of information on previous incidents is an important part of the process of risk assessment. Where the potential hazard (wildfire) is likely to generate a risk to safety it becomes a far more essential element in the process. Thus investigation, research and knowledge of prior incidents is a necessary precursor for accurate risk assessment.

23.3.5 Risk assessment may include considering the type of work, assessing the adequacy of training or knowledge required to enable the work to be performed safely and considering

the way the work is to be conducted. In the context of managing wildfire, risk assessment should be a continual part of the process – built into every aspect of the way a firefighting organisation and its firefighters conduct the work.

23.3.6 The firefighting agencies need to work from the state of knowledge about the wildfire hazard or risk and examine ways of removing or mitigating that hazard or risk. This requires consideration of risk assessment as a broad concept. A risk assessment is also required for every wildfire and needs to be regularly reviewed during the management of a going fire.

23.3.7 Working on risk control – application of the hierarchy of controls

23.3.8 Risk control or mitigation is normally undertaken in accordance with what is known, in occupational health and safety parlance, as the “*hierarchy of controls*.” This hierarchy provides a series of steps or control measures as a guide for managing risk. The traditional hierarchy of controls, used in risk management for decades, is usefully summarised in DNRE’s “*Attachment C*” (also see CFA’s Risk-e draft report ³⁴):

- “ 1. *Elimination – controlling the hazard at its source.*
2. *Substitution – replacing a substance or activity with a less hazardous one.*
3. *Engineering – the installation of a protective device such as guards on machinery.*
4. *Administrative – policies and procedures for safe work practices.*
5. *Personal Protective Equipment – clothing, eye protection, helmets, respirators, ear plugs, etc.*” ³⁵

23.3.9 A hazard is not a machine or fire, such items or events are merely the mechanisms by which death or injury can be caused to an individual. In occupational health and safety terms the hazard to be protected against is the danger of injury or death that can result from a particular way of doing a job, ie: the interaction between the machine or fire and the person working it or on it. In the context of a fire, by way of example the hazard is:

- Smoke inhalation;
- Radiated heat;
- Being engulfed in the fire;
- Exhaustion

that can occur when certain methods of fire suppression are not followed.

In relation to each option the hazard should be identified and addressed as – acceptable/not acceptable. It is interesting to note that many of the hazards associated with fire suppression activities are referred to in chapter 4 of the Australian Fire Authorities Council’s publication “*Wildfire Suppression 2*”.

Obviously, the most effective method for controlling a risk or hazard is to eliminate the risk or hazard. This process of eliminating the hazard is in accord with the normal process of managing a risk – the control measure is commenced by an elimination selection from the top of the list, wherever practicable. In the case of wildfire elimination by suppression control of the hazard is at the very core of a firefighting agencies work. The fire is a given, the fire agency is there to put it out. The analysis ought to be – how to deal with the risk (being burnt by fire) in a safe way and avoid injury to the firefighter? The assessment should be about how to control (or suppress) the fire in a safe way to avoid the hazard by using tried firefighting methodologies like mineral earth control lines and burning out.

When a fire agency is making the assessment, known problems for the methodology should be factored in to the decision and management (ie: are the firefighters on the eastern flank sufficiently experienced, have they been instructed as to the work to be performed when a wind change arrives, do they know the time of the arrival of the wind change?). This is all part of managing the human interaction with the hazard (and starting the process of control). However, in its reply DNRE argues that because of the nature of the work:

“Firefighting, by its very nature, precludes the elimination of the hazard and brings the firefighter into close proximity to it. It is by nature an undertaking which severely restricts the application of most of the hierarchy of control.” ³⁶

23.3.10 Accepting for the moment that DNRE's line of argument is correct, then one would move to the second control, substitution, which might mean, in the case of wildfire, back burning (attempting to substitute one fire for another). In reality, this should be part of the first control – part of the initial assessment of risk and how to deal with the job of suppression (control). Examples of the third control (engineering) are fog sprays on tankers, which are problematic and have limits for effective and safe operation. The fifth control, Personal Protective Equipment, also has a limited, but none the less important safety role in the wildfire environment.

23.3.11 DNRE indicated that it was *"committed to the application of OH&S principles on the fire ground."*³⁷ It pointed out that the issue is not about whether OH&S principles (like the hierarchy of controls) should apply on the fire-ground but *"how and to what extent they should apply."*³⁸ It also alluded to a tension between two groups of experts, Noonan and Packham, on the one hand, who considered that OH&S principles applied fully to the fire-ground, and Tolhurst, Cheney and Burrows on the other who were of the view that *"such principles could only apply to the fire ground in a modified form."*³⁹

23.3.12 This argument turned on how far the hierarchy of controls should be applied in a wildfire. In considering how these traditional occupational health and safety risk management controls should be viewed in the wildfire situation, DNRE made the point that the hierarchy of controls must be largely inverted when applied to the fire ground. This is because:

"at the top of the hierarchy the ideal way to deal with the hazard is to eliminate it. This cannot be done on the fire ground. Failing elimination of the hazard one looks to implement engineering controls. This can only be done to a limited extent on the fire ground. The third course is administrative controls which also have limited application on the fire ground. Consequently, the emphasis must be on a "safe person" approach."

DNRE acknowledged that the safe person approach was recognised by Mr. Noonan. It also pointed to the fact that the UFU acknowledged (while maintaining an approach that all OH&S principles applied on the fire ground):

*"acknowledged that the "safe person" approach may have to receive a greater emphasis, as it is not always possible to commence at the top of the hierarchy of control on the fire ground. This accords precisely with the evidence given by Dr. Tolhurst as to the modification of the principles of the hierarchy of control to the fire ground."*⁴⁰

Mr. Noonan pointed to the fact that *"when control measures other than the elimination of the hazard are adopted, the probability of exposure is increased. Where any one of these elements listed above for the safe person approach fail, then there is nothing between the person and the hazard, ie. the exposure."*⁴¹ These elements, which Noonan referred to included:

- the correct equipment;
- sufficient training and experience;
- adequate information and instruction;
- effective supervision;
- knowledge and skills required by the circumstances; and
- support from all members of management.⁴²

However, in the alternative as the firefighter's job is to control (suppress) the hazard the argument is that it is the system of work (or particular firefighting methodology structured to avoid the firefighter coming into contact with the hazard) designed to control the fire which is at the top of the hierarchy. There may be an increased probability of exposure but that is managed by a sound system of work combined with a range of other methods (including training and experience – the safe person).

23.3.13 As indicated, the other (and perhaps more traditional) method of viewing the hierarchy is to start at the first control and work down. This is the method referred to by Risk-e and also DNRE in *"Attachment C"* to its submissions.⁴³ In this attachment DNRE argued that to control the health and safety risks in a workplace to prevent injury and illness it is necessary to:

*"identify and assess the risks then decide on the best way to control (ie. Remove or reduce) them by applying the Hierarchy of Control."*⁴⁴

And that when:

*“deciding on the best way to control a risk one should start at the top of the ‘hierarchy’ (ie. investigate if the risk can be eliminated first, for example by changing the way the work is done, or by using safer substances or equipment). This is the most effective way to control a hazard. If these methods are not possible one should use engineering or administrative controls to reduce or minimise the risk.”*⁴⁵

- 23.3.14** On the other hand, DNRE also argued in “Attachment C” that the key “to success with firefighting is to attack the fire aggressively before it has the opportunity to develop impetus and threaten life or assets.”⁴⁶ As we have seen demonstrated in the Linton fire this is not always possible. DNRE submitted that there are “numerous hazards at a wildfire with the main hazard being the fire itself.” Progressively checking off the hierarchy list DNRE submitted that “it is not possible to eliminate the fire once it has commenced.” And at the next level – substitution:

*“indirect or parallel attack are options however they may expose firefighters to a further hazard.”*⁴⁷

Another substitution method (aircraft) is not an option as aircraft only retard the intensity of the fire to enable ground attack.⁴⁸ DNRE concluded by making the point that:

*“in contradiction with its normal approach to risk management (ie remove the hazard), NRE is reliant upon a combination of the remaining levels in the ‘Hierarchy’ ie Engineering controls, Administrative controls & the use of Personal Protective Equipment.”*⁴⁹

- 23.3.15** DNRE appeared to be inconsistently arguing two different approaches to “Hierarchy of Control” in its submission. DNRE stated “the emphasis must be on a “safe person” approach” (the inverted view of the hierarchy). On the other hand it was also saying that it “is reliant upon a combination of the remaining levels in the ‘Hierarchy’ ie Engineering controls, Administrative controls & the use of Personal Protective Equipment.”

- 23.3.16** The hierarchy of control method still requires, in the case of wildfire, as put by DNRE “Engineering controls, Administrative controls & the use of Personal Protective Equipment.”⁵⁰ In discussion on its “Application of Occupational Health & Safety Principles to Fire” DNRE pointed to the fact:

*“The process in NRE which underpins occupational health and safety management involves systematically identifying hazards, assessing and controlling risks, and reviewing activities to make sure they’re working to keep the risks controlled. Effective consultation, training and information management are essential parts of this process. This systematic approach is used by NRE in risk management (see Attachment C).”*⁵¹

- 23.3.17** In noting that it tends to reverse the Hierarchy of Controls when dealing with fire suppression DNRE observed that, to “correctly assess the options available staff must not only be properly trained in fire behaviour and fire suppression but also the application of the OH&S principles.” It does this by providing:

*“training programs which are relevant to the task and delivered by competent instructors; competent supervisors who are trained and accredited...”*⁵²

- 23.3.18** The concept of the “competent supervisor” is not only part of a safe person approach but is one of the main administrative controls used in any safety management system. It is also observed that the agencies’ own incident management system (AIIMS-ICS) provides a structure for managing a wildfire (or any other incident) that has as its core – supervision.

- 23.3.19** By contrast, as indicated earlier, DNRE argued that when “deciding on the best way to control a risk one should start at the top of the ‘hierarchy’ (ie. investigate if the risk can be eliminated first, for example by changing the way the work is done, or by using safer substances or equipment). This is the most effective way to control a hazard. (Emphasis added). Clearly the way the work is done is the essential element in the argument. The hazard (fire) is only a risk when the firefighter is in a position to be burnt. Control lines being carefully constructed by experienced firefighters who are supervised by competent supervisors, have the correct information on weather fuel, etc is one work method that will

either significantly reduce or eliminate the risk. By contrast, albeit using a different technique, many of the firefighters at Linton used the wrong work methods to suppress the fire ie: attacking the head of the fire on the Pittong-Snake Valley Road when the fire was too far advanced (spotting over), fuels, topography and weather were not conducive.

The preferable position is that the traditional hierarchy of controls applies to managing wildfire and that the issue is “*deciding on the best way to control*” the risk by starting at the top. The traditional firefighting methodologies are the first controls to be considered in the process.

23.3.20 There was some argument about the degree to which the *safe person* or *safe workplace* approach should apply to wildfire safety (this will be discussed in more detail later in this Chapter under the sub-heading – Benefits/limits of fire agencies’ safety approach).

23.3.21 The safe system of work

23.3.22 The provision of a safe system of work by use and development of work practices and procedures is an essential element of risk control.⁵³ The first element of a safe system of work for a particular wildfire incident is the planning process. The AIIMS system acknowledges that:

*“Effective action planning will also result in a safer and more efficient working environment at the incident.”*⁵⁴

23.3.23 The other important elements of a safe system of work also includes not only the relevant firefighting methodology but also many of the additional aspects referred to in the hierarchy of controls such as equipment design and procedures for safe use, provision and use of personal protective equipment, incident reporting procedures, etc. One of the procedures (methodologies) for a safe system of wildfire work that has received considerable attention during the Inquests is the issue of the use of “*burnt ground*”, “*working to the black*” or keeping to “*a safe anchor point*.” Working to the black appears to be one of the appropriate methodologies for a safe system in the context of wildfire suppression or control.⁵⁵ The methodologies are discussed in Chapter 6 of this Report.

23.3.24 However, the UFU appropriately cautioned that, working to burnt ground “*is relatively safer than unburnt ground*.” For this proposition it cited Mr. Rigg’s evidence that:

“it is not correct to say that the safest place to be is in a burnt out area; that is the safest place if you are on a control line.”

And that there:

*“was considerable evidence about the hazards associated with seeking refuge on burnt ground. For example, firefighters may be hit by falling limbs or trees: Cheney T8689–90. Packham T8682; may be exposed to sparks and burning embers: Packham T8682; or may step into burning stump holes: Cheney T8690. More fundamentally, there is a serious question about whether “burnt” ground can re-ignite. Cheney refers in his article ‘Dead Man Zone’ to certain fuel types that may reignite (see further T8779). Further, the extent to which the area between a control line and a fireline has been burnt and blacked out will determine the likelihood of it re-igniting.”*⁵⁶

The UFU pointed to the need, when relying on the use of burnt ground as a safe system of work, to ensure that:

- the crews involved are adequately experienced and trained for the tasks involved (including tasks giving rise to unforeseen risks);
- they are appropriately briefed and instructed;
- the crews are effectively supervised.⁵⁷

23.3.25 Another potential element of a safe system of work is for the system to recognise that ***withdrawal*** may be an option in some limited circumstances. In some cases the risk to lives may outweigh the initially perceived benefits of immediate action on the ground. It may, in these cases, be preferable to wait for a more opportune and planned moment. As already indicated this concept is not novel. It is recognised in CFA documentation:

“Under extreme conditions most suppression or control methods will be ineffective and firefighting resources are best utilised to protect community assets including life and property until conditions moderate.”⁵⁸

23.3.26 The need for a modified ‘hierarchy of controls’ for wildfire

23.3.27 The examination of the conflicting arguments about how far occupational health and safety principles extend to wildfire operations indicates that it may be necessary to revisit the traditional hierarchy of controls to improve definition and understanding of the principles.

23.3.28 Linton demonstrates that a delicate balance between a multitude of controls is necessary for any safe system to manage a wildfire. The traditional hierarchy of controls used for workplace occupational health and safety is a useful place to start. The confusion of approaches stems from the belief that the core of the firefighter’s job is at the top of the hierarchy that is to *eliminate* the hazard – fire. Therefore it may be necessary to re-define the hierarchy of controls and explain how the methodology of controls specifically links to firefighting. In that sense Dr. Tolhurst is right – the hierarchy requires modification. The starting point to modification should be a focus on managing the exposure to the risk created by and during wildfire. Managing risk is part and parcel of occupational health and safety theory and practice. The first control for the suppression of wildfire is to select the relevant work system (suppression methodology) for the circumstances. In firefighting, in part, it is undertaken by the use of the type of methodologies set out in the Australian Fire Authorities Council’s document *“Wildfire Suppression 2.”*

23.3.29 In the context of developing a hierarchy of controls specifically applicable to firefighting it must be remembered that there are a range of other options aimed at reducing the risk of wildfire starting and modifying the consequences once a fire has commenced. These are community education and controls focusing on fire lighting risk, education programs about managing and reducing the effect of wildfire in communities and DNRE’s approach to controlled burning.

23.3.30 Once a wildfire starts its risks are more immediate and difficult to control. Thus it requires a far greater degree of attention to the risk management approach and the safety systems. It requires the pro-active interaction of management and work systems, information, supervision, monitoring of systems during a going fire, together with properly trained, equipped, experienced and fresh individuals (the safe person) to reduce the risk of injury or death. Protective equipment and engineering solutions are a backup in the event that the safety management system and/or the *safe person* concepts fail. The safety systems should be under regular audit and subject to continual and timely improvement. It is in all of these broad senses that the hierarchy of controls require modification – in each of the sub-headings practically applicable to a going wildfire the controls need to be further explained. The necessity to enhance the relevant controls in the hierarchy specifically for firefighting comes from the need to ensure a better level of understanding by all those working in the area of firefighting of occupational health and safety principles.

23.3.31 In conclusion, the nature of the potential hazard in wildfire dictates a combination of all practicable systems to ensure the risk of injury or death is reduced. The lessons of Linton are that it is a combination of all systems that are likely to best achieve elimination of the risk. The general occupational health and safety principles of risk management are also applicable to wildfire management as they are in any other potentially hazardous workplace. It is in the detail, extent and balance of the application that variations may occur.

Recommendation 1

The CFA and DNRE develop a modified set of ‘Hierarchy of Controls’ relating to firefighting and wildfire to assist all those working in the area towards improving the general understanding of the application of occupational health and safety and related risk management principles.

The controls would specify that the system of work or fire suppression methodology (technique) is at the top of the hierarchy (and give examples). Examples of advantages and disadvantages (risks) of particular firefighting control techniques for certain circumstances would be demonstrated. Options like withdrawing where the standard technique would be likely to put firefighters at unnecessary risk would also be specified. Examples of other control methods in the hierarchy table would also be listed.

The modified set of 'Hierarchy of Controls' should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority. Also the assistance of occupational risk management specialists may be necessary.

It also may be necessary to include some brief explanation of occupational health and safety principles in the CFA's Operations Guidelines – A Guide to Operations and Tactics in the Field. Other publications should be reviewed to ensure consistency of approach.

23.4 Benefits/Limits of Fire Agencies' Safety Approach

23.4.1 'Safety first' without fire-ground safety supervision – a potential flaw

23.4.2 To its credit the CFA has engaged a risk consultant to review its practices and procedures. The draft report by Risk-e entitled the Safety First Culture Project ⁵⁹ is confidential. It is confidential because it was a draft, which had neither been finalised nor accepted by the CFA Board at the time of completion of evidence at the Inquests. The draft does not recommend the use of safety officers. The draft did highlight that safety should not be regarded as a priority in the organisation but as a core value. This is because core values do not change as readily as organisational priorities.

23.4.3 The CFA argued that it has a *"safety first"* approach to its culture. In its submission the point was made that the CFA has *"always taught that safety must come first"* and since Linton it *"has identified emphasising a culture of 'safety first' as a priority in its response to issues revealed by the Linton tragedy."* ⁶⁰ However, if *"safety first"* is the organisational cultural emphasis then there appears to be a tension with the CFA's strong opposition to the *"concept of safety officer with a power of veto."* The CFA's submission highlights Mr. Roche's view that such a power:

"would duplicate the operational chain of command and could seriously undermine the capacity of the Incident Controller and the operations section to manage the firefight." ⁶¹

It is questioned whether this view by the CFA, rather than place the emphasis on safety first, focuses the priority towards operations. No doubt, in limited circumstances, there may be a balancing between taking risk and continuing an operation. However, any significant risk taking potentially compromising safety for the benefit of an operation must be exercised with extreme caution and only after appropriately qualified, experienced individuals have considered all the facts and assessed the risks.

23.4.4 Unfortunately, by its very nature, wildfire management does mean that there are limits to the available engineering or systems solutions. Without removing the firefighters from the area of risk, inevitably significant reliance is also placed on safe behaviour and the interaction of the firefighter with the system of work. There also needs to be recognition by the firefighting agencies that inadvertence or human error can still occur even following introduction of competency-based training and the adoption of a *safe person* or *safety first* culture concept. As already indicated, without this recognition, not enough is being done to ensure reduction of the risk of death or injury to firefighters. The incidents occurring during the Linton fire are examples of where the safe person concept in operation at the time did not work to ensure safe-working principles applied.

23.4.5 There is a danger that the concept of organisational *safety first* (or the narrower individual concept of the *safe person*) can become but a mantra unless the concept is firmly linked to the relevant firefighting agency maintaining full systems under constant pro-active audit in order to protect against inadvertence or systems errors. Obviously, deliberate acts, which are outside the rules and have some aspect of total and blatant disregard for the consequences are more difficult to prevent in any system.

23.4.6 By the time of the Linton fire it ought to have been patently clear to any firefighting agency that the wildfire hazard has significant potential to cause *"injury to an inadvertent or careless worker"* as entrapment deaths of firefighters at wildfires have occurred over a number of years. Combined with multiple systems errors (or, in some circumstances, no system at all) and a lack of pro-active supervision by those in immediate command of the Strike Team Leader the potential for disaster was multiplied.

23.4.7 The 'safe person' or 'safe work place' approach to wildfire safety

23.4.8 During the evidence and in the submissions there was discussion about the *safe person* as compared with the *safe workplace* approach to safety systems. DNRE suggested that:

*"the efforts of Victoria's two rural fire services to ensure that every firefighter and every fire manager embrace the 'safe person' approach to all fire management activities be supported as the best way to bring about a safe forest firefighting culture in Victoria."*⁶²

The Volunteer Associations also support the safe person system.⁶³ So does the CFA.⁶⁴ On the other hand the Firefighters' Union adopted a wider view when it submitted that it is the employers' responsibility to:

*'provide a safe system of work for its workforce. A system of work includes its organisation in all respects, co-ordination of activities, safety instruction of personnel, provision of safety equipment, training and instruction in its use, supervision of work practices, regulation of working hours, etc.'*⁶⁵

And that, significantly:

*"a safe system of work does not merely involve the discrete provision of safety equipment, instructions, etc. It requires that all aspects of work safety be managed simultaneously."*⁶⁶

But it is "...not acceptable for an employer to leave to its employees the task of devising and implementing a safe system of work."⁶⁷

23.4.9 There is no doubt that any effort by the agencies to ensure that all those working in firefighting and related management activities embrace the safe person approach should be supported. However, this is not the core issue, as it is necessary to examine the two approaches (safe person and safe workplace) to determine whether they are, in reality, mutually exclusive.

23.4.10 One of the problems, is that when examining the respective arguments for and against the *safe person* or the *safe workplace* approach one can see that the agencies have in fact adopted (and are continuing to adopt) a combination of the two systems. For example, the agencies have had in place AIIMS – ICS for a number of years, the CFA are now developing a "*Safety Culture Project*"⁶⁸ and are considering a "*checking (or auditing)*" function at some wildfires.⁶⁹ At Linton it was the failure to enforce the safe system that led to the deaths.

23.4.11 It is the extent of the overlying *safe workplace* or safety/supervision systems in place that is the issue. One of the potential problems needing to be carefully monitored is that the focus on *safe person* does not abrogate ultimate agency responsibility for safety. The submission by the CFA that "...in wildfire in particular, a firefighter must ultimately take responsibility for his or her own safety on the fire ground"⁷⁰ has the danger of changing that important emphasis.

23.4.12 Ultimately, the adequacy of the argument that a firefighter must take responsibility for his or her own safety on the fire ground, depends on significant individual variables such as levels of training, experience, frequency of exposure to the particular type of situation, understanding and appreciation of risk, capacity to be able to exercise the function when concentrating on the potentially stressful job of firefighting, availability of appropriate information, etc. By example, the volunteers in the Geelong Strike Team had not been exposed to building a control line in the eastern flank of a wildfire and the Strike Team Leader had not been trained in one critical area. The Geelong Strike Team was not effectively supervised from above the position of Strike Team Leader and did not receive any warning of the impending wind change or instruction on how to work on arrival of and following the change. Thus the '*safe person*' approach, without appropriate experience and strong supporting safety and related supervision systems, is potentially flawed in the situation of wildfire. The UFU, in its submission, drew attention to the report of Mr. Noonan where he observed that for the safe person approach to be effective, then firefighters must be provided with:

- the correct equipment;
- sufficient training and experience;
- adequate information and instruction;

- effective supervision;
- knowledge and skills required by the circumstances; and
- support from all members of management.⁷¹

Mr. Noonan also pointed to the fact that *“when control measures other than the elimination of the hazard are adopted, the probability of exposure is increased. Where any one of these elements listed above for the safe person approach fail, then there is nothing between the person and the hazard, ie. the exposure.”*⁷² That is the risk that needs to be managed by the Fire Agencies.

23.4.13 Obviously, in the case of the first response, practicality dictates heavy reliance on well-trained and experienced firefighters led by a competent supervisor. In the first response scenario some of the additional safety precautions added during a developing wildfire by the upgrading of the operation may not be brought into play. But principles of risk assessment and control are still crucial to safe operation in the early stages of a fire.

23.4.14 Under the heading *“hierarchy of control and the role of management”* the CFA submitted that when considering:

*“safety systems in a fire, and in particular in relation to the Linton fire, it is therefore important not to rigidly and slavishly employ industrial health and safety principles which are used in static industrial settings. As we have shown, and indeed as is a matter of common sense, those principles do require significant modification and adaptation when applied to suppression of a fire. If the principles were applied by an agency rigidly and without such modification, those suppressing the fire would be at significant risk. A rigid application, for example, of the hierarchy of control would not work. It would cut dangerously across the safe person approach which is integral to AIIMS and to safe firefighting.”*⁷³

Part of this argument is sound. It is important not to have a narrow approach that *“slavishly”* employs *“industrial health and safety principles, which are used in static industrial settings.”* Equally it is important to ensure that the *safe person* is experienced and well supported by adequate systems of work, training, supervision, information, instruction, auditing and safety equipment appropriate to the risk. These are all part of the hierarchy. In part, AIIMS through the operational system of work (ICS) demonstrates the need for these additional requirements. Also the various firefighting suppression methodologies described in Chapter 6 of this Report provide the first control in the hierarchy. Had these methodologies been correctly used at Linton the outcome would have been very different.

23.4.15 The emphasis on the *safe person* approach also has its dangers. Those dangers have been well illustrated by the incidents that thread throughout the fire that was Linton. Where training and/or experience fall down, or the inevitable human error surfaces, too much of an emphasis on the safe person in the inverted hierarchy of control may have led the firefighting agency into a false sense of security in the value of this concept. The converse may be equally true, where there is too little emphasis on combining training with experience by a firefighting agency (ie: the entrapment of the Geelong Strike Team) the lack of adequate application of already existing work systems is a recipe for disaster.

23.4.16 Given the dangerous nature of a fire it may be too much for even the experienced and well-trained firefighter, who may not have been to many wildfires, may be fatigued or physically distressed to be always aware of the many competing factors affecting safety. The firefighter may also be focussing on *“getting the job done.”* These are the problems where a safety management system, focusing on safety supervision, provides the best practicable avenue to further reduce risk. These issues are highlighted in 1990 by the National Wildfire Coordinating Group in the United States in a document entitled *“Firefighter Safety in Wildland and Urban Interface Fires.”* The US Group commented:

*“Remember, as structure and wildland fire fighters are increasingly called on to assist one another in wildland/urban interface fires, your safety and survival may depend on knowing not only your capabilities, but your limitations.”*⁷⁴

And importantly the NWCG identified the problem of emotions:

“Emotions may pose one of the biggest obstacles to avoid. Unwilling to accept defeat when it’s time to evacuate, fire fighters may try to stay dangerously long in

deteriorating conditions. You must, however, always be prepared to move before your egress is cut off.

Learning to think of everything that might be going on around you on a fire scene can be hard when you're concentrating on getting your own job done – but you should train yourself to be aware of the big picture.”⁷⁵

23.4.17 The NWCG also identified the need for a strong incident management system as being one of the “*most important things in managing any fire.*”⁷⁶

23.4.18 Clearly there may also be times when the *safe person* approach is the only protection lying between the firefighter and the prospect of injury or death. The firefighter might be scouting seeking intelligence on a fire or caught in a localised wind shift. The system of work, supervision and support may not have allowed for an unusual event or the system may not be correctly enforced (as demonstrated in Linton). To its credit DNRE value added to its concept of the *safe person* by recognising that training in “*the application of the OH&S principles*” is important. The correctly trained and experienced *safe person* ideally would also have the ability to recognise how topography, fuel loads and wind effect fire. That firefighter would also have the experience to be in a position to manage difficult wildfire safety situations. However, it is noted that because of the fact that there are relatively few wildfires not all firefighters receive that very necessary element to the *safe person* concept – experience. Again, the entrapment has identified the lack of experience of those leading the Geelong Strike Team as a critical factor in the deaths.⁷⁷

23.4.19 In conclusion, there is also a need for a degree of caution, as undue emphasis on the *safe person* does not make sufficient allowance for human error.⁷⁸

23.5 CFA’S Management Structure and Review of AIIMS

23.5.1 ‘Safety’ – a priority for senior executive and board level management

23.5.2 Many of the structural issues discussed under this sub-heading need to be raised but are ultimately a matter for the CFA Board and its management. Structural issues related to management are important for any organisation operating in a potentially high-risk environment to consider.

23.5.3 The evidence of Mr. Denis Noonan touched on an issue, which if developed, would see a fire-fighting agency such as the CFA significantly altering its management structure as it relates to occupational health and safety. The issue was having safety management considered as a priority at Board level.⁷⁹ This is not a new idea.⁸⁰ In 1995 in “*Making Safety Work*” Dr. Andrew Hopkins wrote:

“...in one large organisation the OHS manager had an extraordinary degree of access to the top. He meets weekly with one of the four directors of the company and more often if he wishes. On top of this, there is a corporate Health, Safety and Environment committee. Chaired by the managing director, made up of the four directors and the HS&E manager. This group meets quarterly and reviews all policy and performance. This is clearly a company where safety has a high priority.”⁸¹

And that the:

“...more senior safety specialists are within an organisation the more effective they will be. Their impact will be maximised if they can talk regularly and easily to the chief executive officer. In relatively small firms safety specialists may have easy access to the chief executive, but in many of the larger firms I looked at health and safety managers did not have direct access to the chief executive but reported perhaps to a human resources manager...”⁸²

23.5.4 Also, in March 1998, in the case of Attilio Unali the Coroner wrote, under the heading “*The need for senior executive (managing director) representation on H&S Committees and regular (independent) review of safety policies*”, that:

“the Managing Director of XL Pre-mix is now a member his company’s Health & Safety Committee and regularly attends meetings. Also on a regular basis during the year a consultant is employed by XL to advise and overview the direction of the company’s health and safety policies. These initiatives (the managing director on the OH&S Committee and regular review of safety policies by an outside consultant) by the senior management of a small company are to be commended.

Successful occupational health and safety policies must be driven (and seen to be driven) by the senior executive of any corporation. Not only must the policy be driven from the top but also from other senior and middle management together with the balance of the work force in the organisation.”⁸³

23.5.5 Mr. Roche stated that the CFA’s Board is comprised of a part-time Chairman, representatives of DNRE, municipalities (one urban, one rural), two representatives respectively of the urban firefighters association, the rural association and the insurance industry. The Authority is managed by an Executive Management Team – a part-time Chairman, a full-time Chief Executive Officer, the Chief Officer, Director of Human Resources, Director of Finance and Administration, Director of Support Services and Director of Community Safety.⁸⁴ Occupational Health and Safety is a Unit within the Human Resources Department.⁸⁵

23.5.6 Certainly within the current CFA management structure, the Human Resources Director as a member of the EMT, has access to the Chief Officer and thus there is a demonstration of the level of importance of the issue of occupational health and safety.⁸⁶ Whether in the future, in view of the level of risk of the hazards managed, the structural positioning and relative importance of the OH&S Unit within the organisation is pitched at the right level is another matter.

23.5.7 Where safety (safety of the community) is one of the core reasons for the existence of an agency such as the CFA high level and continual commitment by management to the development of sound occupational health and safety practices for the firefighters makes sense. Linton may demonstrate that the firefighting agency’s management should consider placing the focus of occupational health and safety (and community safety) at board and senior executive level. It is noted that “Community Safety” has its own director on the Executive Management Team⁸⁷ whilst occupational health and safety is a unit within the Human Resources Department (that department has its own director on the EMT).

23.5.8 The Risk-e report identified a difficulty (safety verses operations) when it commented that although:

“community safety and risk management is a fundamental consequence of CFA activities, the business does not consistently use these as a fundamental philosophy. A philosophy of risk management would shift the business focus to emphasise more preventative measures to community safety and the safety of CFA personnel, without threatening readiness for fire suppression and incident response.”⁸⁸

23.5.9 To its credit the beginnings of an upgrading of the OH&S role within the CFA has also been recognised by the commissioning of the Risk-e report. The Board has provided funds to assess the areas of strengths and weaknesses in its organisation’s culture. However, Risk-e also commented that:

“OH&S resources are very lean for the size and complexity of CFA. The Corporate OH&S unit is consumed by reactionary work with very limited time for prevention strategies and improvements to legislative compliance and safety management systems.”⁸⁹

It recommended that an organisational OH&S strategy and objectives be developed which should “cascade from the Board to all levels of CFA as part of the business planning and performance management cycle.”⁹⁰ And that in order to:

“create a sense of urgency around OH&S and demonstrate senior management commitment, an OH&S strategy and set of organisational objectives for OH&S should be developed. These in turn should be launched and cascaded through personal objectives starting with EMT and moving down through the line management objectives to the front line.”⁹¹

- 23.5.10** Whilst not suggesting a significant upgrading of the management structure to include OH&S as a division of senior management, Risk-e alluded to some of the problems of the past and potential for the future in the comments “*cascade from the Board*” and “*demonstrate senior management commitment.*”
- 23.5.11** For OH&S direction and related safety culture in any firefighting organisation to be sustained it may be important for OH&S to be far more than a relegated to a *unit* within the human resources section. The question is whether the OH&S management structure should permeate the Board and one of the Executive Management Team should be primarily responsible for the role. In the context of managing dangerous hazards and being involved in disaster control it may not be sufficient for any agency to argue that OH&S is integrated into all aspects of the organisation’s work. It may be more appropriate that OH&S be seen to be a significant part of the organisation’s structure with it being one of the principal goals, responsibility and roles of the most senior management of the organisation.
- 23.5.12** To ensure that the Board has all of the relevant information on OH&S at its disposal and is across the detail, perhaps consideration should be given to the member of the Executive Management Team responsible for this area attending relevant Board meetings.
- 23.5.13** It may also be necessary to consider regularly reporting on OH&S and related safety issues at Board meetings. Consideration should be given to the Board regularly studying a particular incident (and how it happened).⁹² Incidents should be explained to the Board by the OH&S team in order to illustrate where systems failed (or worked) and suggesting countermeasures where appropriate.
- 23.5.14** One way of ensuring that the Board and the Executive Management Team’s approach to safety is underscored constantly and consistently to middle management and all firefighters is for both the CFA Board and EMT to regularly visit the Regions. The reason for the meetings ought primarily to be to exchange information (and help to deal with problems) on safety related issues.

Recommendation 2

The CFA consider ensuring that OH&S and incident reporting, investigation and related research become a regular part of the agenda of Board meetings.

23.5.15 The AIIMS system of incident control and its potential for safety

Introduction

- 23.5.16** The Australian Inter-Service Incident Management System AIIMS and its Incident Control System (ICS) is designed to provide to a common system of incident control or management for disaster organisations. This system was developed by the Australian fire services in the early 1990s who adapted the system from the United States because it was recognised that more emergencies required the “*coordinated efforts of several emergency services working together.*” The system was designed to more effectively utilise existing resources in a common approach to the management of these resources in combating all types of emergency incidents.
- 23.5.17** The AIIMS system has been acknowledged during the running of the Inquests as a basically sound method of work for managing an incident such as a wildfire. This is to the credit of the agencies involved in its original development in the early 1990s. One of the identified problems at Linton was that many of the firefighters working on the fire-ground were either not trained in the system or inadequately trained and operated under the old Group System. Command did not take management control of the whole of the fire ground as envisaged in AIIMS. There is no doubt that the AIIMS should have been used as the only incident management system at Linton.

Safety and AIIMS

- 23.5.18** The inquiry has also identified a number of areas where the AIIMS system could usefully be improved. In this regard, AIIMS provided a structure of command and span of control (through an operating system – the Incident Control System), which if effectively managed and supervised, with an appropriate focus on safety would probably have improved the

chances of avoiding some of the events that occurred on 2 December 1998. The incident management system of AIIMS (called ICS) provides for management by objectives which is:

“a process of consultative management where the management team determines the desired outcomes of the incident. These outcomes or objectives are then communicated to those involved, so they know and understand the direction being taken during the operation.”⁹³

- 23.5.19** The “span of control” concept recognises that there are limits to “to the number of groups or individuals which one person can successfully supervise.” The detail of the principles behind ‘span of control’ in the ICS manual are that:

“At emergency incidents, the environment in which supervision is required can rapidly change and be dangerous. A maximum of (5) reporting groups or individuals is considered to be the optimum, as this maintains a supervisor’s ability to effectively task, monitor and evaluate performance.

The supervising officer needs to be able to quickly receive reports, evaluate information, communicate orders, and mobilise and redeploy crews at the same time as overseeing their safety and welfare. Responsibility for more than 5 teams or persons begins to jeopardise the safety of personnel and the effectiveness of the operation.”⁹⁴

- 23.5.20** The AIIMS system provides that the ICS is divided into four functional areas (Control, Operations, Planning and Logistics). It does not provide that safety should be a separate functional area. Under the heading “safety, health and welfare” is the note:

“1.11 (vii) Safety, health and welfare

Designated responsibility for this important function will assist in effectively meeting the needs of the incident personnel.

Effective action planning will also result in a safer and more efficient working environment at the incident.”⁹⁵

- 23.5.21** At Linton there was no individual “designated” with “responsibility” for safety and the “action planning” was not effective in providing for a “safer and more efficient working environment.” In view of the dangerous nature of the hazard that the firefighting agencies are seeking to manage, combined with the understandable management focus on operational issues at any wildfire, another functional area needs to be added to the ICS – **Safety**.⁹⁶

- 23.5.22** *Safety* should be added to the other four functional areas as an additional and discrete objective. It should also become one of the primary objects of each of these four functional areas (Control, Operations, Planning and Logistics). How safety relates to each of these areas should be specified and explained in the chapter relevant to the function concerned.

- 23.5.23** Any alteration of the structural nature of AIIMS-ICS needs to be owned by both management and firefighters (full-time and volunteers). Accordingly, it is essential that firefighters be involved in the development of any practices, procedures, training and audit of this new functional area for the AIIMS-ICS structure.

- 23.5.24** It is noted the Australasian Fire Authorities Council is reviewing the AIIMS-ICS Manual and associated training packages with a particular emphasis on occupational health and safety principles. DNRE requested that the Coroner endorse this approach. The following recommendations are intended to complement this work.⁹⁷

Recommendation 3

The Victorian Fire Services consider introducing the additional function of ‘Safety’ to the other four ‘functional areas’ of the Incident Control System of AIIMS.

The ICS manual would need to be amended and an appropriate chapter dealing with the functions and responsibilities of the Safety Section be scoped (safety may need to include ‘community safety’ as well as ‘occupational’ safety). This should be undertaken with the assistance of emergency services, occupational health and safety specialists and the Peak Unions/Associations.

Also the other four functional areas (Control, Operations, Planning and Logistics) should include the objective of ‘safety’ (and how it is to be achieved) clearly specified in the chapter relevant to the particular function.

The Safety Section would also be responsible for the audit function envisaged in Recommendation 4. The amendment to the system would need to be developed in consultation with the Australian Fire Authorities Council.

Supervision with systems audit

- 23.5.25** Linton has brought into sharp focus the fact that supervision and systems audit are essential base line components for the safe management of a wildfire. The role played by supervision was already clearly recognised in the firefighting agencies own system of work – AIIMS. As indicated the “*span of control*” concept in AIIMS recognises that there are limits to “*to the number of groups or individuals which one person can successfully supervise.*” Also the principle behind “*span of control*” in the ICS manual is that:

“At emergency incidents, the environment in which supervision is required can rapidly change and be dangerous.”

And provides for a maximum of five reporting groups or individuals to maintain “*a supervisor’s ability to effectively task, monitor and evaluate performance.*” As the “*supervising officer needs to be able to quickly receive reports, evaluate information, communicate orders, and mobilise and redeploy crews at the same time as overseeing their safety and welfare.*” From above the Strike Team Leader in the case of the Geelong Strike Team there was little in the way of effective tasking,⁹⁸ monitoring or evaluation of performance. There was little or no “*overseeing of safety and welfare*” (effective supervision). The Geelong Strike Team had the reasonable expectation that the AIIMS system was operating at Linton. It was not operating across the fire-ground as the Group System was the management system interposed between the Forward Operations Point at Linton and some of those working on the eastern flank.

- 23.5.26** Systems audit during a fire is one of the missing components of a safe system of work. Supervision with the addition of systems and fire-ground procedures auditors should be seen as the minimum to ensure that sound operational management principles and procedures are in place and operating throughout the management system and on the fire-ground. Although these two components are the minimum to ensure that the system is operating effectively and therefore safely, in an environment that is highly dangerous with the ever-present potential for death or serious injury, it may not be sufficient. Additional risk management techniques such as a “*Safety Officer*” system may be necessary to ensure that the risk to firefighters is reduced (see discussion under the sub-heading in this Chapter – ‘*The need for a ‘Safety Officer’ at a wildfire – using AIIMS-ICS*’).

- 23.5.27** During the Inquests there was considerable discussion about having safety officers at a wildfire. The CFA is against this concept and, in the context of this discussion, the CFA and volunteers raised, as an alternative, the potential for a system of audit.⁹⁹ For example the CFA submitted that it:

“does need to develop a process of checking (or auditing) in order to ensure that key features of the operations section of the incident management structure are in place and working in a co-ordinated and appropriate manner. That concept emerged during the inquest. In a sense, it seemed to grow out of difficulties which were perceived to exist with the appointment of a safety officer. There is merit in the proposition the CFA should, at least at some wild fires, institute a process to ensure that key structures are in place and operating, which structures themselves are designed to ensure the safety firefighters.”

And that it would work to ensure:

“...key responsibilities of the operations point are carried out, including such matters as sectorisation. For example: they would check that any MCV is appropriately briefed and resourced; they would check that the staging area is appropriately briefed and equipped; they would from time to time check that the staging area has sufficient and up to date information with which to brief resources; they would also check that key persons in command, and in particular division and sector commanders, are appropriately informed as to matters relating to the communications plan, strategy, weather information and the like.”

That such a concept:

“would not supplant AIIMS; rather, it would ensure that command and operational structures like AIIMS and FAII are properly functional, so that the system itself can help deliver safety to firefighters.”¹⁰⁰

23.5.28

The proposal for systems audit in a going fire has potential to ensure, as far as is practical, that the management and information systems being delivered to a fire-ground are in place and working. It does not tackle the issue of reliance on the *safe person* concept at that most dangerous and hazardous area – the fire-ground. However, the system of audit also has merit and should be adopted as an additional safety system for AIIMS-ICS. A system of timely audit during a wildfire operation could assist to ensure, by way of limited example, that the:

- command structure is appropriately established and staffed (and all the functional areas are operating effectively);
- operations plan is correctly documented and being delivered throughout the structure (including the fire-ground) in a timely way;
- communications plan is correctly documented and being delivered throughout the structure (including the fire-ground) in a timely way;
- operations point and staging area are correctly established, have sufficient personnel, and are operating efficiently;
- communications on important operational and safety issues were being received (in a timely way) and understood by those working within the system;
- supervision, in accordance with the requirements of AIIMS-ICS, is occurring;
- weather information is being delivered in a timely and practical way to all relevant personnel (also received and understood); and
- systems are in place and working to ensure that only accredited (and appropriately experienced) firefighters are being delegated to fire-ground tasks.¹⁰¹

Recommendation 4

The Victorian Fire Services consider introducing an audit function straddling the functional areas of the Incident Control System of AIIMS.

The audit function would be conducted during the fire by a small team of auditors under the auspices of the Safety Section (see Recommendation 3). The auditors' role would be to regularly check on the operation of the other AIIMS-ICS functions with a focus on how the range of systems integral to safety (including information flows) were operating both within the Incident Management area and on the fire-ground.

In the event that systems problems are identified the auditor would advise the Safety Section. The Safety Section would have a role to assist in resolving the identified problem through the Incident Controller.

The amendment to the system would need to be developed in consultation with the Australian Fire Authorities Council.

Recommendation 5

The Victorian Fire Services develop the position description and responsibilities for the members of the Audit Team.

The role, position description and responsibilities of the Audit Team should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

Recommendation 6

The CFA and DNRE develop training packages for the Audit team function.

The training packages for the role of Auditor should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

Recommendation 7

The CFA and DNRE should deliver, as part of training for firefighters (volunteers/full time) and incident managers, a full explanation of role of the Audit Team.

The training for firefighters/incident managers should underscore that the role of the Audit Team is as an important adjunct to the 'Safety First' culture and that the allocation of such positions at a wildfire does not alleviate individual responsibility for safety.

Recommendation 8

The CFA and DNRE should develop standards relating to the number of Audit Team members required at a particular type of fire. The standards should be aimed at ensuring sufficient human resources are at the fire to assist in appropriately managing the audit function.

This standard should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

23.5.29 The need for a 'Safety Officer' for 'wildfire' – using AIIMS-ICS

23.5.30 The AIIMS-ICS structure provides for a "Safety Officer" to be appointed by an Incident Controller during a "Type 3 fire." Apparently this post has never been filled for any wildfire operation under AIIMS.

23.5.31 The CFA sought to argue that fundamentally the position of safety officer was meant to apply to structural or hazardous materials type incidents and not to a wildfire.¹⁰² This is not explained in the AIIMS document. Both the CFA and DNRE argued strongly against the concept of a safety officer.

23.5.32 The DNRE's "Fire Management Training Package" for "Operations Officer Level 3"¹⁰³ essentially dealt with training for wildfire (although other types of incidents were also specified¹⁰⁴) and discussed the respective roles of the Incident Controller and Operations Officer and their responsibility for safety. Under the heading "Safety Officer" the Learner's Guide comments that when appointed a Safety Officer "is responsible for ensuring that adequate safety provisions are implemented and maintained at incidents." The guide envisaged that the Safety Officer would deal with issues such as:

- correct wearing of protective clothing;
- safe use of equipment;
- integrity of structure affected by an incident;
- ensure proper procedures are being followed, for instance with hazardous materials;
- accidents and incidents are reported and investigated;
- instigate critical incident stress management procedures.¹⁰⁵

The Safety Officer must be "clearly identified" and liaise with the Operations Officer in regard to operational safety. The guide envisages the appointment of "more than one person to the Safety Unit" where, by way of example "accident investigations need to be carried out" or "specialists need to be brought in." In this case the "Unit leader reports to the Incident Controller."¹⁰⁶ This is the earliest (and only) suggestion in any of the pre-Linton Australian documentation provided to the Inquests of a "Safety Unit." It is also the only guide to the potential role of a safety officer. The guide does not exclude the role of safety officer from "Type 3" wildfire incidents.

Also the manual "Incident Control System – The Operating System of AIIMS" provides under Chapter 6 "Incident Action Planning – Planning Section" for an optional "Safety Officer" to "Participate in planning meetings and review Incident Action Plans."¹⁰⁷ It is noted that the manual does not seek to exempt the role of safety officer from wildfire.

23.5.33 The CFA and DNRE also argued that the appointment of a safety officer to a wildfire would risk firefighters losing focus on their own safety as such matters were the responsibility of the "Safety Officer." Also the Volunteer Associations were not convinced a safety officer system was necessary (although they would welcome the opportunity to further analyse the issues with the other parties).¹⁰⁸ The argument against the safety officer system received support from Messrs Roche and Edgar. To a limited extent, the argument is also supported

in the TriData Wildland Firefighter Safety Awareness Study (see discussion below – as to the potential difficulties).

- 23.5.34** During evidence Mr Roche acknowledged that safety officers had not previously been used by the CFA in wildfires.¹⁰⁹ However, there had been a use of safety officers in “*structural firefighting for hazardous materials incidents...*” but not in a structured way.¹¹⁰ He did not “*contemplate the general use of safety officers in a wildfire situation.*”¹¹¹ Also Roche consulted regularly with other agencies, read texts from overseas, discussed the issue with counterparts from other states, and:

“...there are significant variations in the desire or otherwise or the application or otherwise of having safety officers, and I remain to be convinced that a safety officer in a dynamic wildfire ...as to how that person can influence line decisions which change from minute to minute, from mile to mile or sorry, kilometre to kilometre, with tactics that are constantly changing.”¹¹²

And Mr. Roche considered that the difficulty of the safety officer role is “*having the right people in the right place at the right time.*” He indicated that in “*any fire, particularly a wildfire*” the environment changes:

“...rapidly, minute to minute. You can audit a task or an action or a system at a particular stage and suggest to the line commander, “This ought to occur to fix it”, and hopefully he will say “There is nothing wrong here, it is fine”, but five minutes later, or 30 seconds later even that can change.”¹¹³

- 23.5.35** Mr. Roche identified one of the other arguments in favour of the CFA not adopting the proposition for a safety officer as:

“...there is also a view that suggests that one of the dangers associated with that is that it makes someone else responsible for safety.”¹¹⁴

- 23.5.36** Mr Anthony Edgar, Regional Manager for DNRE¹¹⁵ stated that safety officers (reporting to the incident controller) were used at fires in the United States. The role of a Safety Officer in the States was reported as being:

“responsible for monitoring and assessing hazardous and unsafe situations and developing measures for assuring personnel safety. The Safety officer will correct unsafe acts or conditions through the regular line of authority, although they may exercise emergency authority, to prevent unsafe acts when immediate action is required.” (p.81, Fireline Handbook, National Wildfire Coordinating Handbook, January 1998, NWCG Handbook 3).¹¹⁶

Mr. Edgar commented that, during his stay in the United States, he:

“encountered a degree of ambivalence amongst a number of USA fire managers about the use of this position. From discussions and observations it was obvious that the role is performed inconsistently. The practice in the US is to have one Safety Officer at each fire and this position operates at the Incident Control Centre, and in the field.”¹¹⁷

- 23.5.37** Mr. Edgar argued that if safety officers were to be considered for wildfire in Victoria “*a number of matters would require resolution.*” These are:

“it would be very important to ensure that such an officer would be a highly experienced firefighter and that he or she, as in the USA, be placed within the formal chain of command; the accountability issues in often dynamic and rapidly changing situations would require resolution; and the possibility that firefighters would adopt an attitude that “safety is someone else’s responsibility” would have to be addressed. An analysis of the overall impact on forest fire suppression, any consequential increased risks to the community, and the impact on suppression costs should also occur.”¹¹⁸

Also the above considerations “*involving as they would modifications to AIIMS-ICS, would require negotiations with the Australian Fire Authorities Council.*”¹¹⁹ Mr. Edgar supported Roche’s view on this issue.

23.5.38 Exhibit 71D is a document compiled by DNRE¹²⁰ in order to:

*“identify and clarify further issues which NRE considers to be of importance to the provision of rural firefighting services in Victoria in general and to the findings and recommendations to be made in the Linton Coronial Inquest...”*¹²¹

23.5.39 DNRE raised considerable concerns about the role of a Safety Officer in Exhibit 71D. It recognised that it is:

*“inherent in the task of forest firefighting that there will necessarily be risks associated with many of the activities. As such, occupational health and safety principles must assume paramount importance in the approach, and actions of all those involved...”*¹²²

And continued:

“...Clearly fire controllers, and all forest firefighters have to balance the risks they face with those faced by the wider community. In forest firefighting even the best systems and safety practices cannot eliminate all risks. Risk must be reduced however to an acceptable level, through appropriate risk management strategies.

*35. Forest fires are usually rapidly evolving events, where a great many variables interact, such as fire behaviour elements (including the effect of fuels, topography, weather, microclimate etc) and human behaviour factors (including the productivity of fire crews under various weather conditions and altitudes). Many of these variables, and certainly their interactions with each other, are currently imperfectly understood.”*¹²³

23.5.40 Rather than look at external (to operational command) safety supervision systems DNRE restated the “fundamental rationale within AIIMS-ICS” which is that to move up through the ranks firefighter to Sector Commander one requires “greater training, and importantly greater experience of the way the forest fire variables interact, and how those interactions impact on firefighter safety.”¹²⁴ DNRE argued that the appointment of a “safety officer, even in limited circumstances raises serious concerns” which have yet to be “adequately addressed.”¹²⁵ It argued that to:

*“effectively operate as a safety officer for example, would require considerable training and experience. Placing that experience outside, or parallel to, the chain of command potentially ‘dilutes’ the incident management structure.”*¹²⁶

And more significantly that in:

*“a dynamic and rapidly changing situation, is the question of how disputes are to be quickly resolved between, for example, a Sector Commander and a safety officer. Does the safety officer, once concerned about safety, then become the tactical decision maker? And how is confusion avoided in rapidly changing and potentially life threatening situations?”*¹²⁷

There may be fires that are “rapidly changing” but they occur in extreme conditions when the firefighters should be withdrawn for their safety.

23.5.41 DNRE considered that safety should be “built into every level in the chain of command.” It developed ‘WATCHOUT’ guidelines for firefighters some 20 years ago, in conjunction with the United States Forest Service. That for:

*“many years all NRE firefighters have been trained and instructed to monitor fire behaviour, their team’s behaviour and information flows, and not to put themselves in high risk situations when fighting wildfires. The safety philosophy underpinning the ‘WATCHOUTS’ forms the core of NRE’s fire training.”*¹²⁸

23.5.42 DNRE argued that its training program “which the CFA is committed to adopting” is designed to:

*“equip firefighters at all levels with the skills to assess the inherent hazards encountered during fire suppression and prescribed burning operations, and to minimise the risk to them and their colleagues. The approach is designed to embed risk management into all levels of the incident control organisation, and particularly on the fireline.”*¹²⁹

23.5.43 Mr. Noonan also indicated some support for this argument when discussing a structural approach to safety:

*"Might it also have another advantage – tell me if I'm wrong, it is something I thought about overnight – and that is that it would also give a systemic approach to safety in the sense that every part of it, such as the training and the material that is handed out, the manuals that are used, can be looked at by a particular person with that function within the organisation as opposed to a safety officer at the scene on a day who takes what he gets?—Yes, exactly."*¹³⁰

The UFU commented:

*"Noonan's evidence about the need for one or more safety officers at a wildfire is based on the existence (since 1992) of such a position in the AIIMS Incident Control System...One of the claimed benefits of AIIMS is 'safety, health and welfare' of firefighters... As the AIIMS manual itself recognises, 'designated responsibility for this important function will assist in effectively meeting the needs of the incident personnel'."*¹³¹

And made the point:

*"Under AIIMS the Incident Controller ('IC') 'is responsible for the safety of combating crews. Supporting personnel and the public who may be involved in the incident.' However, the IC is not practically able to carry out this entire role personally. That is no doubt why. Under AIIMS/ICS, the IC is able to appoint an officer for specific activities such as safety 'to support incident operations'."*¹³²

23.5.44 The UFU argued that the difficulties raised by the agencies (disruption of chain of command, enhancing firefighters' attitude that "safety is someone else's responsibility" and that they are inappropriate in the dynamic situation of a wildfire) do not withstand scrutiny. The argument does not withstand scrutiny because:

"First, the chain of command argument. It is envisaged that the safety officer would generally operate within the chain of command. Any veto power is only to be exercised in extreme cases to save lives. As such it is entirely consistent with existing statutory powers in Victoria.... The view that the chain of command is best able to protect firefighters assumes, of course, that existing mechanisms are able to achieve that goal...

...The second concern may be met by an appropriate process of introducing safety officers. Part of the role of a safety officer would be to emphasise that everyone has safety responsibilities and that the safety officer is there to make that work in practice as well as theory....

*...The final concern is in fact an argument for safety officers: the dynamic nature of the fire means that people become focussed on the job at hand to the exclusion of proper risk analysis."*¹³³

23.5.45 The approach by the firefighting agencies appeared to ignore the facts of Linton. It could not be argued that Linton was a dynamic fire¹³⁴ yet confusion reigned – incident followed incident. The AIIMS-ICS management system, which had been in use for many years, did not provide that umbrella of safety supervision necessary for firefighters. It was not used in all management sectors of the fire. The IMT at Linton was dysfunctional.

23.5.46 At Linton many trained individuals made errors of judgement. This is not unusual – experience over years in highly hazardous industries has shown that even well trained and experienced individuals make errors either by inadvertence or otherwise. Unfortunately individuals will continue to make errors whilst working in the stressful environment of a wildfire.¹³⁵ This is because individuals may be overly concerned with the safety of their family or their community and understandably concentrating on operational issues of containment or control of the fire. They may be fatigued. They may not recall all of their training at the relevant time. They may be concentrating on issues not related to safety. They may not have all the relevant information. Also individuals may not have had sufficient experience to respond to their safety training intuitively. Alternatively, individuals may not have had sufficient training and experience to appreciate the danger. Incorrect management

decisions may be made under stress. A 1996 US investigation into a near miss incident during a wildfire, which if correctly reported, nicely illustrates the benefits of having a Safety Officer on the fireline.¹³⁶

23.5.47 What is required is another layer of highly trained and skilled occupational safety/firefighters to help advise and oversee the safety systems operating at a wildfire. This should be in addition to a risk management approach embedded into all levels of the “incident control organisation” and “particularly on the fireline.” The addition of a “Safety Officer” and supporting “Audit Team” should make the risk management approach that much easier and far more effective.

23.5.48 The argument that a wildfire is dynamic and a situation can rapidly change is an indication of a situation of potential danger. If this is a true characterisation of wildfire then it is in exactly this situation where highly trained risk managers in the guise of Safety Officers are most needed. A trained Safety Officer would be in a far more advantageous position with direct knowledge than a manager at the Operations Point or in the IMT to assess immediate risks and make rapid decisions (in limited circumstances). The concern that a Safety Officer position with a limited decision-making role dilutes the command structure is an indication that operational command is elevated above safety. What is needed is a system of linking Safety Officers to operational command to ensure that problems for operations are minimised.

23.5.49 Towards the end of the Inquests, DNRE produced a series of additional documents from the United States, which appear to offer some support for the concept of a safety officer for larger wildfire operations.¹³⁷ The documents also highlight some difficulties. This material dealing extensively with firefighter safety during wildland fire covered research work undertaken between 1995 and March 1998. Apparently it was not researched or actioned by the CFA prior to Linton.

The United States material is a culmination of an extensive research project aimed at improving firefighter safety and directed by the five Federal Agencies “most involved in wildland fire fighting.” The TriData Corporation of Arlington, Virginia undertook the work. The culmination of the work was the “Third Phase” which contains “implementation recommendations.” There are striking similarities between many of issues discussed in the United States material and those raised during the Linton Inquests. One of the issues considered was the role of Safety Officers. The TriData report stated:

*“We believe that the Safety Officer position is important and can positively impact safety on the fireline. However, though the position has been in existence for a long time, the Safety Officer’s role has been slow to develop its full strength and potential. The Safety Officer position task book...generally seems up to par, but the Safety Officer is not, and is not approved by NWCG. With the current focus on safety, the timing is right to strengthen the Safety Officer role.”*¹³⁸

Seventy percent of the firefighters who responded to a survey conducted by TriData “believed that the use of the Safety Officer position is a strength of the system.” Apparently only five percent considered the position required strengthening. Some survey respondents considered firefighting culture “belittles Safety Officers because of the occasional trivialization of their role in practice: some safety officers give too much emphasis to minor hygiene issues, and not enough to safety from the fire.”¹³⁹

23.5.50 TriData identified the goal of defining the “position responsibilities, priorities and independence” of the safety officer.¹⁴⁰ In the Incident Command System the safety officer worked directly for the Incident Commander (IC). In the process of re-examining and clarifying the role and organisational placement of safety officers the comment is made that fundamental differences of opinion exist as to whether this arrangement is best.

*“Some say that having the Safety Officer on the Command Staff develops an important level of trust and gives the Safety Officer more direct access to the IC and more influence on the IC’s decisions. Others argue that the Safety Officer should come from outside the Incident Management Team to provide a more objective perspective, although this displays a lack of organisational trust and sets up a potential adversarial relationship between “safety inspectors” and the Incident Management Team.”*¹⁴¹

Importantly, TriData noted that a:

*“... related question is the ability of Safety Officers to adequately detect and correct safety problems on the fireline where risk exposure is greatest – or whether they should even try to do so. The most effective, highest leverage way to influence safety is by not selecting a tactical option that is likely to put people in harm’s way. The Safety Officer’s input to command decisions is critical. However most Safety Officers find it difficult to simultaneously discharge their Command Staff duties and also observe and influence safety on the fireline.”*¹⁴²

Rather than remove the safety officer position because of the difficulties, TriData recommended that *“the appropriate strategy is to build on the strengths of the current system.”* The report considered that maintaining:

*“... the Safety Officer position as a key member of the Command Staff but supplementing them with field Safety Officers ordered to the fire as single resources. Ideally, a field Safety Officer would be assigned to each division or group on a major fire. The field Safety Officer should be tactically savvy and trained to assist crews. Strike Team/Task Force Leaders, and Division/Group Supervisors to assess risk and implement risk controls.”*¹⁴³

23.5.51 TriData considered that safety officers should first *“focus on firefighting safety”* and secondly *“on other safety and health issues (eg: hygiene).”* Safety officers should also be *“alert to symptoms of extreme fatigue and dehydration.”* TriData also recognises as a key point that the *“use of Safety Officers must not diminish the responsibility of all firefighters and incident management teams for safety.”*¹⁴⁴ Also it was suggested that the first principle should be *“to strengthen the safety awareness of everyone”* and not *“reflexively depend on Safety Officers.”* This approach *“will ultimately have more impact and lasting change on the culture than relying on Safety Officers ‘to inspect in’ safety.”*¹⁴⁵

23.5.52 The report also formed the strategy of setting *“higher standards for Safety Officers”* and suggested that Safety and Health Working Team reviewed the training and standards. As a minimum TriData suggested that the program should:

“Establish a corps of Safety Officers who are physically able (moderate fitness level) and willing to work on the fireline, where they can directly observe and influence the safety of firefighters and fireline Incident Management Team.

Require a rigorous training and experience regimen that includes prerequisite training and performance in key command and operations positions....

*Require successful completion of a Safety Officer course that has been thoroughly evaluated and approved by the NWCG.”*¹⁴⁶

23.5.53 TriData noted that to be most effective *“Safety Officers must not be looked down upon in the culture as people who have been put out to pasture. The higher standards and restored focus of Safety Officers on fireline safety should help restore the status of the Safety Officer position.”*¹⁴⁷

23.5.54 TriData also highlighted a difficulty with the role for all fires (especially smaller fires). The report notes that expert firefighters interviewed:

*“recognised initial and extended attack as the riskiest of fire operation environments. Many firefighters...share a strong perception that they face greater risk while fighting small fires that are growing and transitioning to larger operations than they do on large fires that are continuing to grow. The transition can be especially dangerous because not only is the fire situation becoming more complex, but the command function changes from ‘fire fighting’ to managing an emergency situation.”*¹⁴⁸

In this situation TriData considered that the agencies should require the *“Initial Attack and Extended Attack Incident Commanders to designate a very experienced (perhaps the most experienced) person on their fire as an ad hoc Safety Officer to monitor safety during transition periods.”* TriData does not consider, in these situations a trained safety officer is needed. However, in many cases it is likely the officer would arrive too late to observe the transition.¹⁴⁹

- 23.5.55** The UFU also pointed to a safety manual in the US entitled “*National Wildfire Co-ordinating Group Fireline Handbook*” which was attached to Mr. Edgar’s statement. That handbook provided for the appointment of one or more safety officers “*to monitor and assess hazardous situations and develop measures for ensuring safety of personnel.*” UFU drew attention to the role of the safety officer in the handbook:

*“The Safety Officer, a member of Command Staff, is responsible for monitoring and assessing hazardous and unsafe situations and developing measures for assuring personnel safety. The Safety Officer will correct unsafe acts or conditions through the regular line of authority, although they (Safety Officer) may exercise emergency authority, to stop or prevent unsafe acts when immediate action is required.”*¹⁵⁰
(Emphasis added – in UFU submission)

- 23.5.56** As has been demonstrated in many previous incidents and in Linton, the consequence of a failure in the management system may mean death or serious injury to firefighters. Training, no matter how comprehensive will only have a limited effect on reducing the risk. This is because firefighters and incident managers, no matter how well trained, will continue to make errors. Likewise, although an organisation may have a strong safety culture, errors by individuals can still be made. Engineering solutions also have limits – generally, by the time the engineering solution comes into operation firefighters already have a significant safety problem. In certain circumstances the engineering solution may not be adequate to protect against injury or death. Panic may result in the engineering solution either not being used or not being used to full effect. Technology solutions on information flow are also limited. Technology depends on the quality of the information provided by individuals (who can make errors) and in its use in remote locations. We have all experienced times when technology fails even during the calm environment of normal business operations.

Thus it is important that reliance is not placed on a single solution or even a limited number of behavioural based systems (like training and/or a safety culture). All management safety systems (operational management, behavioural, engineering, technology and safety supervision) should be used in combination to afford maximum protection to those working on the fire-ground. Because of the serious nature of the hazard and risk all practical countermeasures are necessary. As an additional protection the general concept of “*Safety Officer*” for wildfire incidents should be developed. This should be done in consultation with all relevant parties to ensure, as far, as is practicable, that the concerns of the agencies are considered. For a Type 3 wildfire incident the position of “*Principal Safety Officer*” should be established with a supporting “*Safety Officer*.” The issue of a linked Audit Team has been considered earlier.

- 23.5.57** The general positions of *Safety Officer* and *Principal Safety Officer* (and Audit Team) need to have links to the Occupational Health and Safety Department of the agency concerned with line management control for general procedures and training through that department.
- 23.5.58** The role, position description and required qualifications of a “*Safety Officer, Principal Safety Officer*” need to be developed in conjunction with all interested parties (ie: the agencies, peak unions, etc). Ideally a *Principal Safety Officer* would need to be an experienced firefighter with occupational health and safety/risk management qualifications. A *Safety Officer* would need to have a sound knowledge of risk management and occupational health and safety principles.
- 23.5.59** *Safety Officers* and *Principal Safety Officers* should be trained to a high level of efficiency and knowledge as their decisions or input may well effect the safety of firefighters working on the fire-line. An appropriate training package should be developed and delivered with the regular assistance of independent occupational/risk management specialists. The training should be regularly updated and audited.
- 23.5.60** It is important that sufficient numbers of *Safety Officers* be tasked to the fire-ground to ensure that safety is well managed. Accordingly standards should be developed relating to the number of these positions required at a particular class of fire. The standards should be

aimed at ensuring sufficient human resources are at the fire-ground to assist in appropriately managing safety. The standards should be developed in conjunction with relevant parties (ie: peak unions, volunteer associations, WorkCover Authority, etc.).

- 23.5.61** A *Safety Officer* at a wildfire should have the ability to effect an operational decision in limited circumstances where that decision is reasonably likely to put the lives of firefighters at immediate unnecessary and unjustified risk. Ideally, if time permitted, this would need to be carefully managed in conjunction with the Incident Management Team to ensure that other consequences for operations are balanced.
- 23.5.62** A Principal Safety Officer should be in command of the important function of Safety in the Incident Control System (the operating system of AIIMS).¹⁵¹ During the management of an incident, if the Principal Safety Officer raises a safety issue with the Incident Controller that requires modification to the system of work on the fire-ground (or elsewhere) and the Controller decides not to follow the advice, the issue and reasons for decision should be documented in the incident log.
- 23.5.63** No doubt it could be argued that the involvement of the Australian Fire Authorities Council in the establishment, role and operations of the *Safety Officer* concept is an important issue. However, in the future the issue of occupational health and safety management on a fire-ground rests clearly with individual States or Territories. It is for this reason that it is important for the future safety of firefighters that the development of the safety officer concept be undertaken in a timely way. Also it is for this reason that, in each of the relevant recommendations, the involvement of the national body is not specified. However, that does not exclude the involvement of the Council at some levels.
- It is noted that AIIMS application to multiple agency incidents is subject to “the legislation and policies of individual agencies participating in the management of the incident.”¹⁵² Thus although intended as a national system it also allows for individual variation.
- 23.5.64** Whilst the agencies argued forcefully against the recommendation for a safety officer function at a wildfire the difficulties posed are capable of sensible resolution and, from a risk management perspective, there appears to be no logical alternative. In conclusion, the Safety Officer function should be seen by the agencies and all firefighters as an important risk management resource on the fire-ground both to enhance their safety and as fitting in to the core value of safety of a modern firefighting agency.

Recommendation 9

The CFA and DNRE consider a requirement that a Safety Officer be appointed to assist in the management of safety at every wildfire incident (it is recognised that in the early stages of a fire this might not always be possible).

Once the wildfire escalates (or is likely to escalate) to a ‘Type 3’ incident, safety at the fire should be managed by a Principal Safety Officer. Also when a wildfire escalates to a ‘Type 3’ fire a Safety and Audit Team should be formed to assist the Principal Safety Officer in the management of safety at the incident (the role of the Audit Team has been considered separately).

Recommendation 10

A ‘Safety Officer’ at a wildfire should have the limited ability to effect an operational decision and only where that decision is reasonably likely to put the lives of firefighters at immediate unnecessary and unjustified risk.

During the management of an incident, if the ‘Principal Safety Officer’ raises a safety issue with the Incident Controller that requires modification to the system of work on the fire-ground (or elsewhere) and the Controller decides not to follow the advice the issue and reasons for decision should be documented in the log.

Recommendation 11

The CFA and DNRE develop the position description and responsibilities for the respective roles of Safety Officer and Principal Safety Officer.

The roles, position description and responsibilities of Safety Officer and Principal Safety Officer should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

Ideally the Principal Safety Officer should have Occupational Health and Safety qualifications as well as experience as a senior firefighter. Safety Officers would have both appropriate firefighting training and experience combined with a sound knowledge of occupational health and safety principles.

Recommendation 12

The Safety Officers and Principal Safety Officers should have strong links with the Occupational Health and Safety Department of the relevant agency. They should also have links to the Audit Team.

Recommendation 13

The CFA and DNRE develop training packages for the respective roles of Safety Officer and Principal Safety Officer.

The training packages for the respective roles of Safety Officer and Principal Safety Officer should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

Training for each of the roles should include a significant component of occupational health and safety with a 'risk management' focus. In view of the importance of the roles, some aspects of the training should also be given by independent occupational and risk management professionals. Regular updated revision of training should also be delivered.

Training should be regularly audited to ensure appropriate levels of delivery, understanding and relevance to firefighting, occupational health and safety and risk management.

Recommendation 14

The CFA and DNRE should deliver, as part of training for firefighters (volunteers/full time) and incident managers, a full explanation of the respective roles of Safety Officer and Principal Safety Officer.

The training for firefighters/incident managers should underscore that the role of Safety Officer is as an important adjunct to the 'Safety First' culture and that the allocation of such positions at a wildfire does not alleviate individual responsibility for safety.

Also training of all firefighters/incident managers in the general roles of 'Safety Officer' should be regularly audited to ensure appropriate levels of delivery and understanding of firefighters/incident managers to the concept and position as it applies to occupational health and safety and risk management.

Recommendation 15

The CFA and DNRE should develop standards relating to the number of Safety Officers required at a particular fire. The standards should be aimed at ensuring sufficient human resources are at the fire-ground to assist in appropriately managing safety.

This standard should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

23.6 General Issues Associated With Wildfire Safety

23.6.1 Training, supervision and occupational health and safety

Introduction

- 23.6.2** The training materials provided by the agencies, and in particular the CFA, are generally recognised as being of a high standard. Unfortunately, not enough work was undertaken on one important area – training CFA firefighters to effectively recognise the true nature of fuel loads in the forest environment. This is one of the important elements for safe operations. It was recognised by the CFA in its “Operations Guidelines – A Guide to Operations and Tactics in the Field”:

"FOREST FIRE

Forest fire behaviour is influenced by:

- *Complex fuel structure – fine and heavy fuels, often distributed vertically, with potential for tree crowns to become available fuel also.*
- *Often there is a big range in local areas of fuel quantities and fuel moisture contents, as influenced by topography, streamside effects."*¹⁵³

23.6.3 The CFA had effectively moved to Competency Based Training prior to Linton. Commendably, following Linton the CFA has introduced a specific course focussed on training firefighters to recognise fuel loads and related issues such as the effect of topography.

23.6.4 It must also be recognised is that supervision is an important element for not only sound occupational health and safety management but also to assist in bolstering the *safe person* concept.

Occupational Health & Safety and training of firefighters for wildfire

23.6.5 As already discussed there are potential problems with relying on emphasising a *safe person* concept as a panacea for a safe system. However, it is none the less essential that training does focus on providing for a safety conscious and well informed firefighter. The right experience for the task is the added factor necessary for competence. As already indicated, there may be times, during the fighting of a wildfire that sound training (combined with appropriately structured experience) stand between the firefighter and injury.

23.6.6 In the context of improving safety training and providing for the safety conscious and well informed firefighter DNRE has provided a potential solution. It notes that, to "*correctly assess the options available staff must not only be properly trained in fire behaviour and fire suppression but also the application of the OH&S principles.*" It does this, in part, by providing:

*"training programs which are relevant to the task and delivered by competent instructors..."*¹⁵⁴

23.6.7 Training firefighters (full-time and volunteers) and their supervisors in occupational health and safety principles is a sound way of adding to the understanding of risk management techniques. It provides additional value adding to the agencies' *safe person* approach. Occupational health and safety training would need to be professionally developed with a focus on a general understanding of the principles as well as an specific focus on firefighting. Such training would have wider benefits far beyond wildfire fighting to other areas that CFA firefighters (volunteers and full-time) are required to manage.

23.6.8 All firefighting training publications would need to include and explanation of occupational health and safety principles and practices as applying generally and specifically to wildfire (see also Recommendations 28 and 29).

Recommendation 16

The CFA (with the assistance of DNRE) develop, as part of its training program, a package of information focusing on general occupational health and safety issues aimed at improving the knowledge and understanding of firefighters (full-time and volunteers) and supervisors of this area. Also the package should explain how occupational health and safety principles apply to firefighting (and in particular, wildfire suppression).

The occupational health and safety training package should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

All firefighting training publications would need to include an explanation of occupational health and safety principles and practices as applying generally and specifically to wildfire.

The training in this area should be regularly audited to ensure appropriate levels of delivery, under-standing and relevance to firefighting, occupational health and safety and related risk management.

The training of 'supervisors' in 'supervision' skills

- 23.6.9** One of the important threads that ran through the interaction between firefighters and those in an immediate management role on the fire-ground was the issue of supervision. Again DNRE noted in its submission that, to *"correctly assess the options available staff must not only be properly trained in fire behaviour and fire suppression but also the application of the OH&S principles."* This is achieved by providing:

"training programs which are relevant to the task and delivered by competent instructors; competent supervisors who are trained and accredited ..." ¹⁵⁵

- 23.6.10** There was no sense that actual *supervision* by way of regular overseeing was an element that factored into the management role on the fire-ground. Supervision response tended to rely on the manager in the position below advising his superior of any problem or need. For example, although there was a responsibility in the Strike Team Leader to regularly provide situation reports to the Sector Commander¹⁵⁶ in the event a report was not received there was no indication that any structured action would be taken to check on safety.

- 23.6.11** Those in the supervisory role immediately above the Geelong Strike Team Leader were not trained or expected to regularly inquire of the Strike Team Leader as to issues developing in his area of operation. There were no supervisory visits to the eastern flank to check on progress while the Geelong Strike Team was working in this area.¹⁵⁷ There was no checking to see whether the Strike Team Leader had the updated information on wind change. There was no overseeing of the Geelong Strike Team from upper level command.

- 23.6.12** In the hazardous environment of wildfire those in a supervisory role are effectively part of an overall management *"buddy"* system or team to help to ensure safety. Linton has demonstrated that a supervision system that waits for reporting upwards is potentially riddled with problems. The supervisor should not only regularly initiate positive action to check on the officer/s being supervised but there should be an early warning system to provide the supervisor with the tools to act. In a wildfire the failure to receive regular situation reports should be the trigger for some supervisory inquiry or action.

- 23.6.13** There may be a need for the CFA to introduce a training package specifically aimed at the generic role of supervisor. It would need to be developed in consultation with occupational health and safety and management training specialists. Ideally it would be designed to assist with the basic skills necessary for competent supervision. This package should be delivered to all those who are likely to be in a management role during a wildfire. The specific role as applicable to wildfire firefighting would be contained in the respective training packages for Crew Leader, Strike Team Leader, Sector Commander, Divisional Commander, Operations Officer, Incident Controller, etc.

The training would also need to focus on the difficulty individuals have when making decisions under stress.¹⁵⁸

Recommendation 17

The CFA (with the assistance of DNRE) develop, as part of its training program, a generic package focusing on delivering the skills necessary for competent supervision required by individuals acting in a range of management positions during a testing incident like a wildfire.

This package should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority. It may also require input from management or other experts.

Recommendation 18

The provision of regular and timely situation reports should be considered by the firefighting agencies and all firefighters as vital for efficient and safe management of a fire. The CFA and DNRE should ensure that supervisors check with their teams in the event that situation reports are not regularly forthcoming from the fire-ground (or elsewhere in the management structure).

Management systems should be developed to assist supervisors with this important function. Also auditing of the provision of situation reports during the fire should be considered by all firefighters as important to efficient and safe operation.

23.6.14 Training with experience – towards the competent wildfire firefighter

Introduction

- 23.6.15** It is commendable that the CFA had recognised well before Linton the need for firefighters to be trained to appropriate standards of competency. If anything, Linton has demonstrated the necessity for this approach. Competency needs a combination of sound training (for the particular task) *and* appropriate experience. There needs to be a practical way and safe way of providing structured experience to firefighters who may be new to a particular type of fire or to the management role. Mentoring is one way of undertaking this important introduction.

A system of ‘mentors’ for enhancing training and experience

- 23.6.16** DNRE have suggested that both it and the CFA “formally embrace” the mentor system.¹⁵⁹ It commented that, for many years “NRE has used an informal system in its fire management activities whereby more experienced officers have played a role in mentoring less experienced officers, particularly, in operational and command positions.”¹⁶⁰

And that recently this approach has:

“become somewhat more formalised as a result of the adoption of AIIMS-ICS. Mentoring has particularly been practised in relation to Incident Controller and key Operational and Planning positions.”¹⁶¹

DNRE noted that scope exists “to further expand this system and to extend it formally to other key fireline positions. This expansion is currently under consideration.” It cautioned that practical constraints do “restrict direct mentoring (ie: side by side) in all situations. The location of the fire, and the availability of suitable personnel to provide a mentoring role within close proximity to a fire, may limit the practice.”¹⁶²

- 23.6.17** The practical and resource implications in extending the system are recognised. However it is also noted that the firefighting agencies concept of *safe person* would require such a process to guide and enhance experience levels in potentially life threatening fire situations. However, it must be recognised that a structured system of “mentors” is but one of the available and necessary management tools to enhance the *safe person* concept.
- 23.6.18** Basically, in the context of an entire package of safety systems, this initiative of mentoring is sound. However, consideration also needs to be given to further expansion of the initiative by both agencies to all new firefighters or those going into a new firefighting environment for the first few times. Linton has shown that firefighters in this position require this type of guidance to enhance training, understanding and experience. They need practical on the job guidance and structured experience to become competent in the difficult and potentially hazardous role of fighting wildfire.
- 23.6.19** The role of *Mentors* should be defined and they would need to receive training and be accredited. Auditing of the process would be necessary to ensure that the appropriate guidance was being given to the new firefighters.
- 23.6.20** To ensure that the *Mentoring* system is workable, practical, delivering appropriate levels of guidance and experience to all new firefighters the Peak Unions would need to be involved at the outset and at all levels of system development and auditing. System development may also require guidance from occupational health and safety and/or training specialists.

Recommendation 19

The CFA consider introducing a system of ‘mentors’ to ensure that new firefighters and firefighters going into a new firefighting environment for the first few times receive appropriate guidance and directed experience. DNRE should also consider extending its mentoring system to its firefighters who fall into this category.

In order to ensure the ‘Mentoring’ system is workable, practical, delivering appropriate levels of guidance and experience to all new firefighters (or firefighters going into a new firefighting environment for the first few times) the Peak Unions/Associations would need to be involved at the

outset and at all levels of system development and auditing. System development may also require guidance from occupational health and safety and/or training specialists.

Also, where practicable, DNRE may consider seconding experienced firefighters who are 'mentors' for short periods to the CFA to assist in the process of broadening the experience base of CFA firefighters.

Recommendation 20

Both CFA and DNRE should consider developing a standard, a training package and an accreditation system for 'mentors'.

Recommendation 21

Both the CFA and DNRE train an appropriate number of 'mentors' to the standard referred to in Recommendation 20.

Recommendation 22

The CFA and DNRE consider developing an audit process to ensure that appropriate and effective guidance is being delivered by the mentoring system to firefighters.

23.6.21 Fire-ground management – ensuring a competent mix

The need for competent wildfire fighters

23.6.22 As can be amply demonstrated by the Linton fire it is essential that the CFA and DNRE ensure that in the main, only competent firefighters, supervisors or outside contractors (ie: bulldozer operators) are working on the fire line. Competency, in this context means training plus experience relevant to the task.

23.6.23 In relation to firefighters and their supervisors it is vital that sufficient information is delivered from the Incident Management Team to those dispatching crews and their supervisors. This information should include detail on the type of fire, location of the fire and current weather conditions. In accordance with the Safe Forest Firefighting Agreement "Operations Competencies" there is a desired situation which provides:

- Minimum wildfire competencies will be agreed by the agencies;
- DNRE and CFA will have agreed competencies for all roles in the incident management system;
- All fire personnel will be competent to undertake their assigned role;
- The competencies of all fire personnel will be recorded and made available to the Incident Control Centre;
- There will be commonality in the training materials used to develop core competencies in forest firefighting;
- Programs to maintain competency will be managed.

These proposals in the agreement should be adopted by the agencies as soon as possible. Provided that there is an adequate system of mentors there should be no difficulty in permitting new, appropriately trained firefighters, being introduced to the fire-ground for that necessary element to gain competency – experience.

Recommendation 23

The CFA and DNRE, ensure as soon as possible that:

- minimum wildfire competencies are agreed;
- agreed competencies are developed for all roles in the incident management system;
- all fire personnel are competent to undertake their assigned role;
- the competencies of all fire personnel are recorded and made available to the Incident Control Centre in a timely way;

- *the training materials used to develop core competencies in forest firefighting are common; and*
- *programs to maintain competency are introduced and managed.*

Ensuring that competent wildfire fighters are correctly tasked

- 23.6.24** It is essential that competent firefighters are working in all key positions on the fire-ground. There will be a need for most crew to be competent. *All* crew leaders, Strike Team Leaders, Sector Commanders and Divisional Commanders need to be competent. The safety of firefighters working on the fire-ground depends upon competent management. Where firefighters are placed in command positions for the first few times, careful, structured and constant mentoring will be necessary.
- 23.6.25** The CFA has identified part of the problem evidenced at Linton by introducing new systems for crew deployment. Linton has demonstrated:
- There was no standardised training;
 - There were no proper records kept of training and experience on which competence can be determined;
 - The responsibility to evaluate competence was placed on a person who does not know exactly what task will be allocated to a person or unit;
 - Those who knew what task is to be allocated did not make appropriate enquires but merely assumed competence; and
 - There was no control on the fire-ground to ensure that people or units did do the job allocated.
- 23.6.26** The CFA indicated that in the past, the selection of Strike Teams for deployment to other regions was left to the “home” region to select the brigade and the “home” brigade to select the crew.¹⁶³ It now considers that the home area is in the best position to have the information on training, experience and capabilities of local crew.
- 23.6.27** The CFA has advised that the home area would be assisted by more comprehensive briefings (about the risks at the fire), a new database¹⁶⁴ giving details of training and experience of brigade members, the potential for the IMT or fire-ground to have access to this data and a trial of a system of bar-coding of appliances (and possibly firefighters).¹⁶⁵
- 23.6.28** Unfortunately these new systems still rely heavily on the assessments of the person allocating the team from the home brigade *who does not know exactly what task* will be eventually given to the team. There is potential that competence will still be incorrectly assumed by those allocating the work on the fire-ground. There is still a real risk that allocation at the Staging Area and the actual task eventually given at the fire-ground may be different. Therefore, additional systems are necessary to ensure that the problems demonstrated at Linton are not repeated.
- 23.6.29** Additional systems would need to provide for a person responsible at the home brigade to be available for inquiries from the fire-ground about the competence and appropriate tasking of the team and its members. There may need to be a special management position established at the Staging Area to assist with allocation and the auditing processes. There needs to be regular audit by the Incident Management Team of the competence and actual tasking of individuals and crews. The use of information technology is an essential element of the audit process enabling timely checking of elements of training and competence.
- 23.6.30** It is also essential that all crews (whether CFA or DNRE) report to the Staging Area (once established) on arrival at a wildfire. This is necessary for safe tasking and management of the overall operation. For crews that have been working on the fire-ground before a Staging Area is established there needs to be early attention to reviewing competence and appropriateness of current allocation. Systems of registration for existing crews and timely audit of competence therefore need to be established by the CFA and DNRE. These comments also apply in the case of other levels of fire, where the Control Point is the relevant reporting area.

It is noted that the ad hoc problem of self-deployment of CFA fire crews is dangerous and operationally inefficient. It is **not** acceptable.¹⁶⁶

Recommendation 24

The CFA and DNRE, ensure that training and management processes re-enforce the necessity for all crews to report to the Staging Area or Control Point (if established) for registration and allocation of tasks. This process is essential for safe tasking and management of resources in a wildfire operation.

For crews that have been working on the fire-ground before a Staging Area is established there needs to be early attention to reviewing competence and appropriateness of current allocation. Systems of registration for existing crews and timely audit of competence therefore need to be established by DNRE and CFA (see Recommendation 25).

The historical, ad hoc problem of self-deployment of fire crews is dangerous and operationally inefficient. Procedures need to ensure that this problem is addressed.

Recommendation 25

The CFA establish, as soon as possible an audit system to ensure that there is regular, timely checking of competence of crews and individuals who are working on the fire-ground and in incident management positions.

Not only is it necessary to ensure that initial tasking is correctly undertaken, but the actual allocation of the task is checked as against the initial process.

Ideally, the Audit Team referred to in Recommendation 4 would be delegated this task.

Recommendation 26

The CFA ensure that an officer be available at the 'home' brigade to answer inquiries from the Staging Area (or Control Point) and/or Audit Team about the training and experience of local brigade crews and individuals allocated to the wildfire.

As these inquiries may be made at any time, allowance would need to be made for shift change and hand-over of information between home brigade officers. A system of after-hours contact via telephone and/or pager may be necessary for smaller brigades.

The importance of accurate, up to date recording of training/experience and rapid access via computer links between the IMT and Brigades cannot be underestimated. Other technological solutions such as an identity card or 'T card' with bar coding of relevant information on competence also need to be explored.

Recommendation 27

The CFA (and where necessary with DNRE) consider establishing the position of Allocations Officer at the Staging Area to help ensure that trained and experienced firefighters are appropriately tasked to the fire-ground and to provide:

- *a contact point for those working on the fire-ground (including Safety Officers);*
- *a contact point to and from a home brigade for inquiries about the developing nature of the fire and tasking of its crews;*
- *assistance to the Audit Team, etc.*

23.6.31 'Standard Fire Orders', 'Watchouts' and 'Operations Guidelines'

Standard Fire Orders and Watchouts – a Review

- 23.6.32** *The Joint Operations Review of the Linton Fire/Midlands Fire recommended that "Standard Fire Orders and Watchout Situations should be jointly reviewed by the CFA and NRE on a regular basis to ensure consistency with current experience." ¹⁶⁷ This suggestion is essential if these important safety reminders for firefighters are to continue to remain relevant, simple to understand and are used.¹⁶⁸*

- 23.6.33** In addition, it may be necessary to review the sheer number of orders and watchouts to determine whether, in the pressure of an operation, each order/watchout is likely to be remembered and therefore remain of some safety use. This may require some expert input from a specialist in the communication of messages and ideas.

Recommendation 28

The CFA and DNRE review the Standard Fire Orders/Watchouts to determine current relevance and safety effectiveness during an operation. The number of orders/watchouts may be an issue.

The Standard Fire Orders and Watchouts should be reviewed on a regular basis to determine relevance, simplicity of message and effectiveness for safety.

**“Operations Guidelines – A Guide to Operations and Tactics in the Field”
– a Review**

- 23.6.34** In view of the importance of the CFA’s “Operations Guidelines” for the guidance and instruction of its firefighters a similar review of this document may be also necessary (note also Recommendations 16 and 17 on occupational health and safety training and supervision).

The input of experts in the communication of ideas may also be necessary for this important safety instruction document.

Recommendation 29

The CFA review the Operations Guidelines to determine current relevance, level of awareness and simplicity of message for safety effectiveness during an operation.

23.6.35 Meteorological information and ‘wildfire’

Introduction

- 23.6.36** Meteorological information on messages such as estimated time of arrival, speed and direction of a wind change is vital for successful and safe operation of wildfire. Thus it is important that, in the context of current knowledge, the systems operating between the Bureau of Meteorology and the firefighting agencies provide timely and as accurate as possible information on weather and wind changes to those managing a wildfire. The firefighting agencies also need to provide the Bureau with accurate and updated intelligence on weather to assist in its forecasting process.

- 23.6.37** The firefighting agencies also need to ensure that relevant information about the weather is given to all firefighters on the fire-ground in a timely, understandable form that helps them to safely carry out their work. Also this information needs to be tailored for particular areas of the fire and combined with appropriate instruction relevant to the task.

CFA’s communication system for vital safety and operational information

- 23.6.38** The system of “General Messages” used by the CFA to deliver important safety messages via radio transmission to the fire-ground is, from a safety perspective, seriously flawed. It did not guarantee that those who needed information on issues such as wind change for their safety actually received, let alone understood, this vital information. The general message system did not require acknowledgments of receipt of the information. In addition the “Wickliffe” message depended on firefighters actually knowing where “Wickliffe” was in relation to the fire. Also the message gave no advice as to the speed of the wind or direction of the wind change.

- 23.6.39** The CFA’s “Operations Guidelines – A Guide to Operations and Tactics in the Field” noted that changes “in wind direction can increase the area burnt and be a safety hazard to firefighters.” Importantly, it noted that it is:

“vital to carry warning of the actual or estimated wind change to ALL PERSONNEL involved in the firefighting operation. This includes all firefighters as well as incident management team personnel. The safety and security of firefighters and equipment

will be a priority concern during and immediately after the wind change. In some cases it may be necessary to suspend firefighting operations temporarily during the change until the new wind direction and strength has been established.”¹⁶⁹

The important radio notification of the vital fact that the wind change was at Wickliffe was probably not received by the Geelong Strike Team. Even if it was, it is problematical as to whether those who needed to understand it would have appreciated its meaning. Clearly this is not a satisfactory way of delivering a vital safety message.

- 23.6.40** The CFA has introduced a “Red Flag” system following Linton to ensure that vital radio information such as wind change details is actually received by key areas on the fire-ground. However, there is still potential for error as the system does not ensure that the warning of actual or estimated wind change is carried to ALL PERSONNEL involved in the firefighting operations. Reliance on radio messages has problems even if receipt of the information is acknowledged – it does not ensure that the real nature and importance of the message is both understood and transmitted down the line. In reality, the “Red Flag” system does not solve the potential problems.
- 23.6.41** The “Red Flag” system **must** be used in conjunction with the AIIMS-ICS structure to ensure that this type of vital safety information is carried to ALL PERSONNEL involved. AIIMS-ICS provides the safeguard in that the direct supervisor should ensure the message is carried to all personnel “involved in the firefighting operation.”¹⁷⁰ This system of work was in place prior to Linton (but not used at the fire).
- 23.6.42** Where a message on wind change is vital for safety it is essential that all relevant information is included in the message. This includes potential direction, speed and estimated time of arrival. To underscore the nature of the message for operational safety it may also be necessary to include a brief reinforcing safety message like “keep to the black” or “keep to a safe anchor point.”
- 23.6.43** Also it is important to note that safety messages may need to be different, depending on where a crew is working on the fire-ground. For example, operational and risk management reaction to an expected south westerly wind change for firefighters working on an eastern flank may differ from the planning necessary for those working on the western flank.
- 23.6.44** It is important to remember that there is **no** substitution for direct supervision and appropriate instruction by qualified and experienced management personnel.

Recommendation 30

The CFA examine other methods of delivering information which is vital for safety (in addition to radio) to ensure that the message contains sufficient and accurate detail and is not only delivered to all personnel involved in firefighting operations but that its relevance to safety is clearly understood. The role of supervisors under AIIMS-ICS is critical in this regard. New information technology in fire tankers may also provide additional (but limited) potential.

For example, information on weather (wind speed) should give, estimated time of arrival (with appropriate variables), speed and direction. Consideration should be given to enhancing safety aspects of the message by additional simple safety instructions like ‘keep to the black’ or ‘keep to a safe anchor point’, etc. The message may need to allow for different work environments on the fire-ground.

It should be clearly noted that, in developing methods for more effective delivery of safety messages, there should be no substitution for direct supervision, communication and instruction at all levels of the chain of command.

Respective safety roles of the Bureau of Meteorology, DNRE and CFA

- 23.6.45** The inquests into the deaths of the six yachtsmen during the 1998 Sydney to Hobart Yacht Race illustrated the importance of information provided by the Bureau for the safety of all those engaged in that endeavour.¹⁷¹ The Linton fire is yet another stark reminder of the potential role in safety played by the meteorologist in the unfolding events of an incident such as a wildfire.

23.6.46 The Bureau, in its submission, examined a number of issues addressing future improvements in the way it works with the firefighting agencies.¹⁷² It is noted that the CFA acted on information from its own sources to accurately predict wind change arrival. Thus, although the investigation has disclosed a number of problems with the collection and delivery of weather information and potential for improvement, no real causal link to the deaths can be laid at the feet of the Bureau for its work on 2 December.

23.6.47 Following the incident the Bureau undertook a report on meteorological aspects of the Linton fire.¹⁷³ In summary, the Report concluded that the *“specific expectation of an evening wind change was known (by the Bureau) well in advance.”*¹⁷⁴ However, it also noted that in the first few hours after the change crossed the Victorian south-west coast it:

*“did not slow down as much as expected. As a consequence, the arrival of the change at the Linton fire site was earlier than forecast by about 2 hours. This is within normal accuracy standards for forecasting such phenomena.”*¹⁷⁵

The Report indicated that judgements of Bureau staff *“based on the information available were sound, and all operating procedures were followed correctly.”* In spite of this comment, there was real potential for the Bureau to identify an earlier arrival with the information it had. In addition, as indicated in Chapter 19, there were *“no normal accuracy standards”* for the Bureau’s forecasting.

23.6.48 Unfortunately, one of the significant problems was that the Bureau did not have three pieces of information that may have highlighted the developing potential for forecasting error and assisted it in providing a more accurate forecast of the arrival time of the wind change. The Bureau argued in its submission this information (in the hands of the CFA) was:

- (a) Westmere Group 7.15pm – that the change was at Dunkeld;
- (b) Westmere Group 7.45pm – that the change was Wickliffe; and
- (c) Mr. O’Rourke’s (the pilot) information that the change was at Skipton at 8.28pm.

Whilst not critical in the circumstances of the Linton fire, the failure of the CFA to provide the Bureau with timely updates of information from its own sources, may in other circumstances, have potential to effect safety. Both the CFA and the Bureau have recognised this problem and are working to improve the system. It is essential that this information is passed on to the Bureau *immediately*. This is particularly important when a fire is running. The information should also be *immediately* analysed by the officers of the Bureau and the updated forecast provided to the firefighting agencies.

23.6.49 The Bureau’s Report also made some comments on follow-up action. This action included undertaking further analysis of the meteorological aspects of the fire for a more scientific report, consulting with the CFA and DNRE to identify priorities for improvement to fire weather service operations and cooperation with those agencies and experts on meteorological aspects of fire behaviour.¹⁷⁶ These developments are essential for the learning about the reliability of the forecasting system and for safety of firefighters.

23.6.50 The Bureau also indicated that *“it would be possible to do some spot checks during the fire season.”*¹⁷⁷ It is essential that it regularly audit its performance as that performance may well be a factor effecting safety of firefighters.

23.6.51 In its submission at the Inquests the Bureau made a series of additional recommendations for consideration by the Coroner.¹⁷⁸ It has undertaken a limited comparative research study into the accuracy of the respective forecasting models used by the Bureau (European “ECMWF” and the local “meso-LAPS”). In the interest of improving the accuracy of forecasting for wildfire this research is important. It relates to a potential safety issue and needs to be undertaken as a long-term project.

The need for this research is underscored by the comments of Dr. Reeder:

“Accurately predicting synoptic and local scale atmospheric features is of major importance to fire agencies in their fire prevention and fire fighting activities. Despite the general improvements of operational and NWP models, there are still significant difficulties in accurately forecasting the timing and strength of cool changes. Most of these difficulties are probably due to two problems:

- *An inadequate representation in the models of the interactions between cold fronts and the land/sea thermal contrast at the coast line, the influence of topography on the structure and movement of the front, and the representation of surface processes; and*
- *An inadequate representation of the initial state of the atmosphere.”*

And Dr. Reeder considered that research should be undertaken to *“improve the representation of these important physical processes in the models and to improve the way in which the observations are assimilated into the models.”*¹⁷⁹

23.6.52 As there was a “black spot” in the number of weather stations in Central Western Victoria which created a time lag for the Bureau in identifying weather changes across this area, two additional “AWS” have been established.¹⁸⁰ Where AWS information is not received by the Bureau from the CFA within a certain specified time there is an alarm system to alert the Bureau.¹⁸¹ This system needs to be under **regular** audit to ensure that safety is not compromised during the fire season.

23.6.53 The Bureau is also testing a new “wind profiler” (a radar beam pointed vertically) at Mount Gambier which can measure *“the wind at many levels in the atmosphere at intervals of approximately every one half hour.”*¹⁸²

23.6.54 Also the CFA now conducts introductory training for Bureau forecasters, the Bureau has improved the speed of its computer logging on process and its Wind Change Charts shows an hourly position for the wind change.¹⁸³ The use of highly trained firefighters who also have weather forecasting training (Weather Reporting Fire Officer) at a Staging Area during a major wildfire to directly advise and brief operational staff and firefighters may be of benefit.

Recommendation 31

The firefighting agencies and the Bureau of Meteorology consider undertaking an audit to identify potential gaps in the AWS network.

Recommendation 32

In the event that unacceptable gaps in the AWS network are identified by audit then the agencies (firefighting and Meteorology) should consider providing the equipment to fill the gaps. In this context unacceptable should be taken to mean that it has potential to effect safety.

Recommendation 33

The Bureau (with assistance of CFA/DNRE) continue to undertake regular research and auditing into the accuracy of the respective forecasting models used by the Bureau (European ‘ECMWF’ and the local ‘meso-LAPS’). The Bureau should also continue other general research into weather and wildfire behaviour as this information has potential to effect safety.

As this research is both in the interest of improving the accuracy of forecasting for wildfire and has potential benefits for safety it is vital that adequate resources be made available.

Recommendation 34

The Bureau undertake regular auditing of its forecasting performance for the fire season (as any lessons learnt may have potential to improve firefighter and community safety).

Recommendation 35

The firefighting agencies consider introducing the position of ‘Weather Reporting Fire Officer’ to be stationed at the Staging Area (for Type 3 wildfires) with a role to assist in providing that a consistent (and informed) level of information is delivered to those working on the fire-ground.

Recommendation 36

The firefighting agencies consider introducing a weather briefing by a trained ‘Weather Reporting Fire Officer’ at the Staging Area (for Type 3 wildfires) to ensure consistency of information delivered to those working on the fire-ground.

The role of the Grimmers (Westmere Group)

- 23.6.55** The role of the informal weather collection groups such as that run by Mr. and Mrs. Grimmer from the Westmere Group need be encouraged, supported and enhanced. Dedicated individuals like the Grimmers provide a potential resource to enhance the accuracy of forecasting models for the Bureau and the firefighting agencies. In turn, more accurate information will enhance the ability to safely manage the risk.

Recommendation 37

The CFA, DNRE and the Bureau consider working together to provide a management and support structure for the informal weather collecting groups.

The individuals or groups need to be identified. The agencies should work with the groups to ensure that appropriate resources (training, equipment, etc) are made available to provide for timely information on weather to enhance firefighter safety.

23.6.56 Timely delivery of clear Communications/Incident Action Plans

- 23.6.57** It is essential that the Incident Management Team ensures that clear, understandable written Communications and Incident Action Plans are delivered through the management structure to all firefighters working on the fire-ground in a timely and efficient manner. This did not happen at Linton. It should have occurred.
- 23.6.58** Linton should deliver a clear message to fire agencies that any failure by management to ensure *timely* delivery of written plans to firefighters at a fire-ground can lead to misunderstandings which effect safety. Firefighters and line managers may not know what is expected because they have not received the documentation. Also they may not be aware of other groups working on the fire-ground, which may be vital for safety, or as was the case at Linton with the Geelong Strike Team, they did not know who was in charge of them at Sector Commander level.
- 23.6.59** One important aspect of safe wildfire management is quality information delivered in a clear, understandable and timely way. To ensure that this process occurs in the future management of wildfire under the AIIMS structure, quality standards and time-lines need to be developed for delivery of this potentially important information. Obviously the development of time-lines would depend on a number of practical variables which may be difficult to quantify. Some of the variables may need to be ascertained at the local level when the IMT is beginning to be established.
- 23.6.60** Once the Communication/Incident Action Plans are developed and being delivered checks would need to be made from the IMT of line management to ascertain whether or not the plans have been received and understood. This type of checking would also need to be made of firefighters at the fire-ground.

Recommendation 38

The CFA and DNRE (in conjunction with the Peak Unions/Volunteer Associations) develop standards for the content and time-lines for delivery of Communications and Incident Action Plans, for wildfire incidents.

Also accurate preparation by the management team and timely delivery of these documents to firefighters through the management structure should be subject to audit.

23.6.61 Engineering solutions – the last resort

- 23.6.62** There are two distinct methods utilised by the agencies for forest firefighting. DNRE uses “dry firefighting” techniques and the CFA “relies heavily upon the application of water to suppress fires.”¹⁸⁴

These different techniques resulted in differing equipment being relied on by the agencies. Since 1981 the CFA had been examining equipment design through the Chief Officer's Equipment Design Committee. The role of the committee was to recommend “the development and new design of pumpers, tankers, firefighting equipment and other appliances”¹⁸⁵

and monitor performance. At the time of Linton CFA owned vehicles were fitted with rollover protection, fibreglass heat shielding and low water sight tubes.

- 23.6.63** There is an engineering solution that provides some limited degree of protection for firefighters caught in a burn over. This solution is the use of firefighting water on tankers to provide a protective spray against radiant heat. The CFA relies on the crew keeping a quarter of a tank of water for survival. According to Mr. Roche this rule had been “*drummed into personnel as part of basic safety and survival training*” at least since he became a volunteer in 1963.¹⁸⁶ Before the Linton fire the CFA had:

*“not undertaken any scientific research to verify the adequacy of that allowance for different fuel conditions, based on different pump pressures etc. However, the pump pressure rates required to achieve the most appropriate fog patterns and the amount of water consumed using different pump pressure rates and different nozzles etc, was well understood and formed part of basic training.”*¹⁸⁷

And:

*“the first time that a requirement that crews keep a reserve of water was put in writing was with the publication of the Operations Guidelines in 1995 (page 14.5). There was no mention of the minimum quarter tank. This is now dealt with in the new Chief Officer’s Standing Order 3.05...”*¹⁸⁸

- 23.6.64** Mr. Roche explained that the history of the use of quarter of a tank rule resulted from the old mainstay tanker of the CFA fleet, which was:

*“the 400 gallon tanker, which is equivalent to today’s 2000 litre tanker that still makes up the bulk of the CFA’s tanker fleet. Thus, the quarter tank rule was and is aimed at the lowest common denominator of 500 litres.”*¹⁸⁹

- 23.6.65** Following a burn over incident in the Creswick fire in 1997 the CFA decided to progressively install a low water alert and water management system in its tankers. The water alert operates when the tank water level reaches $\frac{1}{4}$ full.¹⁹⁰ The water management system comprises a panel displaying five lights, which indicate full, $\frac{3}{4}$, half, $\frac{1}{4}$ and empty.¹⁹¹ At the time of Linton not all CFA tankers were provided with this system. Mr. Roche’s statement indicated that inquiries were recently made on the quarter tank rule of the NT Fire and Rescue Service, the NT Bushfires Council, the Queensland Fire and Rescue Authority (Rural and Urban) and the WA Department of Conservation and Land Management which do not have:

“any standard operating procedures or guidelines for the retention of water. The main reasons given for the lack of relevant protocols were that:

- (i) no research has been conducted to define a figure and thus agencies are not confident about putting an arbitrary figure in a formal protocol;*
- (ii) a figure may not be appropriate to all fuels;*
- (iii) the organisations concerned have identified this as an issue and are in the process of reviewing their positions.”*¹⁹²

- 23.6.66** Apparently two other firefighting agencies (ACT Emergency Service Bureau and NSW Rural Fire Service) do not have formal protocols but either have a rough rule of thumb of 20% to 25%¹⁹³ or 500 litres¹⁹⁴ as minimum reserves. The SA Country Fire Service has an operational procedure introduced in January 2000, which requires that “*if there is any doubt about the level of safety of the firefighters, 20% of the tank shall be maintained.*”¹⁹⁵

- 23.6.67** DNRE conceded that the CFA’s “Quarter Tank Rule”, which was referred to extensively during the Inquests, has been developed “*to deal with the wide range of circumstances and incident types in which CFA crews and tankers can find themselves.*”¹⁹⁶ It also made the point, by way of caution, that:

“it needs to be appreciated that Australia is a dry continent with very limited water supplies in most forest areas. As such, reliance must be placed upon ‘dry firefighting’ techniques, implemented in association with ‘lower risk’ tactics in undertaking fire suppression, rather than relying primarily upon water extinguishment and associated

*firefighter protection, using higher risk tactics. Dry firefighting is the suppression of the fire without the significant use of water. This is achieved by using hand tools and/or machinery to remove fuels from the path of the fire so as to create a break in the continuity of fuel.”*¹⁹⁷

And as to the basic difference between the agencies’ methods of suppressing fire:

*“The CFA relies heavily upon the application of water to suppress fires whereas the NRE generally uses dry firefighting methods. NRE does use water on fires, but its use is secondary to dry firefighting methods, NRE accordingly does not train its crews to retain a minimum quantity of water for safety purposes, but rather it emphasises training in fire behaviour and in the need for crews to avoid placing themselves in high risk situations.”*¹⁹⁸

- 23.6.68** DNRE provided detail on the design differences between its smaller four wheel drive utility or twin-cab type tankers called “*Slip on Units*” and the larger four wheel drive truck tanker with a water carrying capacity of 4000 litres. *The Slip on Units* are equipped with either 400 or 200 litre tanks depending on vehicle design. The 200-litre vehicle is more of a support unit and not considered as a primary firefighting unit. The larger truck tanker carries 2700 litres in the front section and 1300 litres in the rear. The larger tanker is fitted (or plumbed) with fog sprays:

*“to provide vehicle protection from radiant heat, particularly during the conduct of high intensity prescribed burns.”*¹⁹⁹

DNRE commented, of the dual tank water system, that:

*“when the tanker crew physically change the water supply from one tank to the other, they are aware they are using the last 1300 litres of water on the tanker. Providing they are located in a safe position and the predictable fire behaviour is not threatening, they are not currently prohibited from using this secondary tank.”*²⁰⁰

- 23.6.69** The smaller *Slip on Unit* is DNRE’s main fire suppression support vehicle and because of its smaller size is “*faster and more manoeuvrable*” than the larger tanker. *Slip on Units* are “*quicker in arriving at a fire and can vacate at a similar speed should the need arise.*”²⁰¹

- 23.6.70** On the differences between the DNRE and CFA tankers, DNRE explained that its tankers are designed for forest firefighting in:

*“remote and difficult terrain. Whereas the CFA tankers have been designed as multi-purpose vehicles suitable for incidents in crops, grassland, scrub and forest. CFA tankers also attend hazardous material incidents on highways, motor vehicle accidents and structural fires.”*²⁰²

- 23.6.71** DNRE illustrated that the benefits of retaining water for survival may have some limits. The manufacturer’s specifications indicate (with everything in working order):

*“a 400 litre tank would empty in 3.4 minutes and a 200 litre in 1.7 minutes. However, the new large NRE tankers with two fog nozzles deployed, would empty the 2700 litres in 9 minutes and the 1300 litre tank would empty in 4.33 minutes.”*²⁰³

It is noted that the Geelong Crew used all of their available water to save their lives. They faced two waves of fire - the second wave was more severe than the first.

- 23.6.72** DNRE are of the view that a formal policy requiring its tankers “*to retain a certain volume of water would have little safety benefit on the operation of the large tankers, and could have the adverse effect of prohibiting the use of the more numerous 400 and 200 litre rapid response smaller ‘Slip on Units’.*”²⁰⁴ It should be noted that, with the proviso that all of DNRE’s larger truck tankers are actually fitted with fog sprays (and not just plumbed), it is not intended to recommend any alteration of the operation of DNRE’s *Slip on Units*.

- 23.6.73** The tension between the two distinct firefighting methodologies is again highlighted by DNRE’s request that the Coroner should consider making the following recommendation that:

*"a water retention policy for fire tankers involved in forest operations is considered inappropriate where competent forest firefighters are involved."*²⁰⁵

It is not appropriate to make this recommendation where a truck type tanker has sufficient water for both operational work and for the provision of water reserves for additional safety protection. Water retention (even for DNRE truck type tankers) provides for additional protection in the event of human error.

23.6.74 Fog sprays on firefighting tankers are a last resort option. The CFA agreed.²⁰⁶ It cited the evidence of Mr. Cheney:

*"I don't believe that firefighters should rely on any engineering solution for their safety in these critical stages. I believe that if they do that sooner or later they will get caught in a situation which is beyond the capacity of whatever they have engineered for their safety to cope with."*²⁰⁷

Also the joint "Operations Review" noted that the estimated intensity of the Linton fire (in the Geelong Strike Team entrapment) was between "4,000 and 11,000 kW/m" and "flame heights averaged between 8 and 11 m, but it also crowned in trees 21 m tall immediately in front, of the tankers." Importantly, the Review referred to a 1998 paper by Cheney, and observed:

*"Without the aid of water, a tanker could only be expected to withstand forest fireline intensities of up to 3,000 kW/m."*²⁰⁸

Also Dr. Paix's recent study "Improving Burnover Protection for Australian Bushfire Appliances"²⁰⁹ raised a number of variables and concerns about the protection afforded by tankers during a burn over. He concluded:

"The protection afforded by the present appliances is not optimal and can be significantly improved by the fitting of:

- *radiant heat shields to the exterior of the driver's cabin*
- *heat reflective curtains inside the cabin*
- *properly engineered fixed self defense sprinklers, with appropriate*
- *water reserves*
- *radiant heat protection for the pump."*²¹⁰

And, in addition "reasonable steps should be undertaken to minimise the flammability of exterior structure and reduce the vulnerability of vital systems, eg brake lines." That Australian bushfire fighting:

*"is largely mechanised and most burnover incidents have involved mounted crews. Bushfire appliances should be engineered for maximum crew protection. Personal fire shelters may still prove useful if crews are caught away from their vehicles, require additional protection during a severe burnover, or are forced to bail out into still hostile environments during or after a burnover."*²¹¹

23.6.75 When discussing the benefits of personal fire shelters for firefighters the United States National Wildfire Coordinating Group said:

"Do not get over-confident that shelters are an easy recourse. They are not. They are to be used when everything else has failed. 'The best fire shelter' said one supervisor, 'is the one that never has to be used.'" ²¹²

The above is also illustrative, in a different context of relying on engineering or personal protective devices, of the problem that once fog sprays on CFA tankers are activated "everything else has failed." The firefighters on the tanker are having an accident. At this stage the management systems have failed and survival will depend on the level of intensity and duration of the fire, the amount of available water and, in some circumstances, how well the tanker has been designed to withstand fire. Fog sprays no doubt saved a significant number of lives during the Linton fire. Fog sprays were used in a number of incidents (as well as the Geelong Strike Team entrapment) within the fire. The system saved the Geelong Crew, but because of either insufficient water or an inexperienced crew not being in a position to observe the approaching fire, did not save the Geelong West Crew.

23.6.76 It is essential in every wildfire, wherever a crew has been required to activate the fog spray for potential protection, that the use be reported and thoroughly investigated by the agency

concerned (initially there should be an immediate report to the IMT). The later detailed investigation should be broad ranging and consider why it was necessary to use the fog sprays, whether there are any potential improvements in the safety systems or procedures operating in the lead up to the incident which necessitated use of fog sprays. It should also examine issues associated with the design, use and training associated with the fog sprays, etc.²¹³

- 23.6.77** While the CFA continue to use a different system of suppressing wildfire to the DNRE and rely on multi-purpose tankers the issue of final protection by way of tanker and fog spray design requires urgent and continual improvement. The use of personal shelters may also need examination for circumstances where they may be of safety benefit.
- 23.6.78** During the Inquests the CFA demonstrated a tanker fitted with some of the additional engineering solutions raised by Dr. Paix. It is also noted that the CFA have recently undertaken a research project (with CSIRO and the NSW Rural Fire Service) on the issues associated with tanker design and related safety systems. Whilst it has already introduced audible and flashing warning devices indicating that the available protective water level has been reached, further consideration should be given to a two stage water carrying capacity on all CFA tankers (similar to DNRE tankers). Two stage water tanks would assist in further reducing the risk of a crew, concentrating on the job of fire suppression, inadvertently using some of their protective water supply.
- 23.6.79** The limits of survival with the use of the fog spray system of protection on tankers needs to be scientifically researched, and regularly re-enforced in firefighter training. Where fire intensity is likely to surpass the known limits for survival then alternative risk management strategies may be necessary. Recommendation 39 should be seen as an interim measure pending accurate assessments about the limits of safety for fog spray systems on tankers (depending on fire intensity).
- 23.6.80** It is noted that the CFA is currently undertaking a range of work on issues such as: reserve water tanks; heat reflective curtains; purpose built firefighting vehicles; improving the safety features of brigade owned vehicles; looking at using smaller *Slip on type* units for wildfire fighting.²¹⁴ It is also undertaking literature searches associated with design issues.
- 23.6.81** Also the work by the CFA's "COEDC" committee on a range of issues related to tanker design is supported. These issues include separate reserve water tank; separate reserve-pump and supply; separate reticulation arrangement; an appropriate type of delivery system and outlets; single action emergency activation from either "in-cab" or "on-tray."
- 23.6.82** Because of the importance of engineering and equipment design for safety it may be appropriate that the CFA and DNRE consider jointly establishing a permanent, well resourced, Fire-equipment Safety Design and Development Unit. This unit would also have links to the Research Unit and the respective Occupational Health and Safety Unit or Department of each agency. It would have a role to pro-actively examine safety design improvements in fire tankers and other protective equipment. This idea may need to be developed in conjunction with the MFESB (as there may be some common design issues).²¹⁵
- 23.6.83** It may be useful to consider linking the Design and Development Unit with a university engineering school and accident research specialists (ie: Monash University School of Engineering and Monash University Accident Research Centre). This would assist in developing a pro-active unit with potential for access to the latest technological and related research solutions.
- 23.6.84** Lastly, crews must be *regularly* trained in the use of this last line of defence safety equipment. They must be in the best position to use the equipment automatically in the highly stressful and potentially life threatening environment of a burn over.²¹⁶ This requires far more attention to training in this area than is apparent at this time.

Recommendation 39

The CFA consider specifying 1000 litres as the minimum amount of water to be retained on firefighting tankers for protection of firefighters during potential or actual wildfire operations.

In view of the reliance of CFA training on the use of water fog sprays on a tanker as a last resort engineering solution for an entrapment, tankers that have a water carrying capacity not allowing for the minimum of 1000 litres to be kept for protection of firefighters should not be used.

This should be seen as the minimum interim measure pending accurate scientific design research indicating the safety limits of the fog spray systems (depending on fire intensity).

Recommendation 40

The CFA consider, in addition to warning lights and audible devices, a requirement that future design of CFA tankers include a two stage water tank capacity (similar to large DNRE tankers).

Two stage water tanks would assist in further reducing the risk of a crew, concentrating on the job of fire suppression, inadvertently using some of their protective water supply. It is an essential element to further reduce the risk of crews using the protective water supply (eg: Geelong West).

Recommendation 41

The CFA continue to examine the design issues associated with its firefighting tankers to pro-actively aim at a process of continual improvement in protective safety design. The types of issues raised in the research paper by Dr. Paix need to be constantly reviewed with the aim of design improvement.

In the context of design improvement research is vital in relation to the safety limits (depending on fire intensity) of the fog spray system for tankers used by firefighting agencies.

It may be necessary to consider (with DNRE and Standards Australia) the development of a protective safety design standard for large firefighting tankers that are to be used in wildfire.

Recommendation 42

*The CFA and DNRE consider establishing a reporting system that ensures all situations where fog sprays are used during operations for personal protection are regarded as an 'incident', thus reported and thoroughly investigated looking at root cause analysis. The activation of 'fog sprays' during a wildfire suppression operation should **immediately** be reported to the incident controller.*

In the event that this recommendation is followed the CFA and DNRE should ensure that all firefighters are informed of the benefits to safety of reporting this type of incident. Firefighters should also be regularly advised of the outcome of investigations and of any resultant improvement to safety systems.

Recommendation 43

The CFA and DNRE consider jointly establishing a permanent, well resourced, Fire-equipment Safety Design and Development Unit (with links to the Research Unit and the respective Occupational Health and Safety Department of each agency to pro-actively examine safety design improvements in fire tankers and other protective equipment. This may need to be developed in conjunction with the MFESB (as there may be some common design issues).²¹⁷

It may be useful to consider linking the Design and Development Unit with a university engineering school and accident research specialists (ie: Monash University School of Engineering and Monash University Accident Research Centre).

23.6.85 The use of information technology – the need to collaborate

23.6.86 The use of information technology by both DNRE and CFA has been touched on during the running of the Inquests. Obviously both agencies are looking at developing their respective technologies in communications, information transfer and fire technology. As the agencies are also working on jointly managing fires it is critical that the technologies are compatible (as far as is practicable). This is another area where the principal wildfire firefighting agencies need to be very closely involved in review of systems, design, development, implementation and evaluation.

It is understood there is a proposal that in-board computer systems will be installed in firefighting vehicles. This is supported.

- 23.6.87** Although technology should be regarded as but one of the many tools at the firefighter's disposal to help manage a wildfire it must be remembered that, in limited circumstances, the safety of firefighters may depend on the common application, quality and efficiency of the systems used.

Recommendation 44

Where practicable, the firefighting agencies (CFA/DNRE) should consider working together on joint reviews of technology and communications systems as well as design, development, implementation and evaluation of systems.

This recommendation should not exclude other agencies that may have a potential need for common systems (ie: MFESB, SES).

23.6.88 Agency OH&S Committees – a Joint Steering Committee

- 23.6.89** The Occupational Health and Safety Committee formed under the umbrella of the Victorian OH&S legislation and working within the operational boundary of either the CFA or DNRE should consider, as a major part of the work, issues associated with wildfire management. It is important that OH&S committees be seen as a vital contributor and part of the overall approach to a safe system of work in the area of wildfire management. Any OH&S committee needs to be well resourced and supported by the relevant agency. It is also important that Volunteers are represented on the CFA's OH&S Committee.

- 23.6.90** As common safety and management issues may be raised by the respective OH&S Committees of CFA and DNRE it may be necessary to ensure that a management structure by way of a joint Steering Committee is in place to maximise the benefits from the work of the two Committees.

Recommendation 45

Wildfire safety should be regarded as one of the major issues for the respective OH&S Committees of the CFA and DNRE.

As there may be common issues being discussed by the two Committees, the CFA and DNRE (in consultation with their respective OH&S Committees) should establish and resource an overarching Steering Committee to assist in the efficient, timely consideration and management of common safety issues between the Committees.

It is important that the Volunteers be represented on the CFA's OH&S Committee.

23.6.91 Fire-line safety – the media, support personnel and contractors

- 23.6.92** DNRE have indicated that both agencies are now committed to ensuring “that all contractors, other fireline support personnel, and media representatives are properly trained and accredited, or are supervised by suitably trained and accredited personnel...”²¹⁸

- 23.6.93** It is essential for the safe management of any wildfire that contractors and fireline support personnel are trained, accredited **and** supervised. As with firefighters effective supervision is a required component of a safe system of work. It is not an alternative. At Linton one contractor, a bulldozer operator, worked on the most dangerous area of the fire (the eastern flank with an impending wind change) with no previous fire fighting experience. He was tasked to work with a Strike Team that also had a lack of experience in this work. This was unacceptable. This problem had been identified by the agencies before Linton.

- 23.6.94** It is noted that the media have an important responsibility to inform the public of the issues associated with a particular fire and can assist emergency agencies in delivering timely safety messages and warnings to the community. However, the Linton fire has also disclosed that some members of the media entered and filmed on the fire-ground without any safety controls or supervision being exercised. This was unacceptable. In the event that media are permitted to enter a fire-ground for the purpose of their work, continual supervision by an experienced firefighter should be the minimum requirement for safety.

23.7 Independent Safety Audits, Internal Audits and Incident Investigation

23.7.1 The need for independent 'Wildfire Safety Audits'

Why have a wildfire safety audit?

23.7.2 The investigation of the Linton fire has disclosed significant deficiencies in the management of safety systems by the principal fire fighting agencies. Some limited examples of the deficiencies are:

- (a) inadequate supervision of the running of the Incident Control Centre, the Operations Point and the work on the fire ground to ensure that safety was properly managed;
- (b) inadequate systems in place to ensure that matters referred to in (a) occurred;
- (c) there was no process to ensure that the operations plan and the command structure was known to all firefighters working on the fire ground;
- (d) there was no process to ensure that critical safety messages on issues such as forthcoming wind change were received by all firefighters working on the fire-ground (and that the messages were in an understandable form);
- (e) there was no process to ensure that properly trained and experienced firefighters were directly managing the building of a control line on potentially the most dangerous section of the fire – an eastern flank with an incomplete control line facing a forthcoming south westerly wind change;
- (f) the CFA did not have an incident reporting system at the time of Linton; and
- (g) insufficient research into fire safety management systems occurring in the United States prior to Linton.

It is doubtful whether any of these deficiencies would have been identified or rectified in a timely way by the agencies without the events at Linton. Accordingly a system of continual improvement for safety needs to be introduced by the agencies responsible for managing wildfire in this State.

23.7.3 Part of continual management for safety would include regular, detailed independent safety audits of a *very limited number* of wildfire incidents. This would be in addition to agency internal audits and conducted independently of the agencies by experienced risk managers having an occupational health and safety focus.²¹⁹ Auditors would need to be rotated to ensure, as far as practicable, that differing views of wildfire safety management were regularly imported into the management system. Wildfire Safety Audit standards would need to be developed to ensure that all issues were thoroughly examined. The auditors would need full access to all information, staff and volunteers for the purpose of the audit. Such safety audits need to be rigorous and, where necessary, critical of issues associated with the management of wildfire. A rigorous audit process would *hunt for errors* in management systems and suggest areas of improvement. The issue of blame for individuals would need to be minimised or eliminated to ensure that maximum information was obtained.

23.7.4 Audits into a limited number of fires (by AIIMS fire type classification – ie 'Type 3') would need to be randomly selected and performed, at the least, biannually. Ideally the auditor would be involved in the random selection of the fires to be the subject of this audit process. Sufficient resources would need to be made available to ensure that the audits adequately investigated all of the issues.

23.7.5 A targeted independent Wildfire Safety Audit *hunting for errors* should become part of the due diligence of the fire fighting agencies in the management of safety at a wildfire. The audit reports should also become part of a continual management process aimed at improving safety for firefighters.

23.7.6 The issue of safety audits in the area of fire management relating to buildings is not new. However, it may be a new issue for those managing wildfire. In the Inquest into the deaths

of nine intellectually disabled residents in the building fire at Kew Residential Services on 8 April 1996 the Coroner said the:

*“benefits of a regular and systematic audit process are obvious. The failure to review regularly fire safety and management systems can only operate to increase potential for exposure and risk of any agency to disastrous fire. As procedures become too entrenched in daily work life or hardware begins to become obsolete, the need for regular audit increases.”*²²⁰

23.7.7 Areas of high risk of death or injury (such as wildfire) need pro-active systems to identify safety management deficiencies and introduce appropriate countermeasures in a timely way. A targeted (and timely) pro-active Wildfire Safety Audit system is one method of assisting the firefighting agencies with due diligence and providing another element in a safety system that is truly designed to reduce risk. That audit must **hunt for errors** in systems and suggest potential countermeasures.

23.7.8 An agency introducing a safety audit process needs to be mindful of the fact that, unless rigorously and thoroughly conducted at the appropriate levels, an audit may still miss critical errors in systems. Even if a safety audit identifies problems there must be a system to ensure follow-up of the auditor's recommendations.²²¹ In *“Managing Major Hazards – the Lessons of the Moura Mine Disaster”* Dr. Hopkins pointed to some of the potential problems in safety audit and delivered a word of caution.

“Auditing is one of the most widely used (and abused) ideas in the area of safety management today. It covers anything from a ten-minute exercise ticking boxes on a questionnaire, done by an administrative assistant whose boss is too busy to do it, to a three-week inquiry by a team of six high-powered managers from company sites or headquarters in other parts of the world.

*Just as financial auditing provides no guarantee against fraud, so safety auditing to date provides no guarantees against disaster. All too often, inquiries following disasters reveal that safety audits that had been carried out failed to identify the problems that led to the disaster.”*²²²

Dr. Hopkins illustrated his point by some case examples. Referring to the 1988 Piper Alpha oil fire where 167 individuals lost their lives he stated:

“Inadequacies in the ‘permit to work system’ meant that there was a lack of coordination between shifts. As a result, someone tried to operate a pump that was undergoing maintenance and started a fire.

Moreover, the water deluge system did not work, one of several problems with the system being that the nozzles were blocked with rust. The deficiencies in the permit to work system and in the fire control system should have been picked up in audits, but weren’t. As one of the inquiry panel noted (Appleton 1994:181):

“Compliance with the permit to work procedure was monitored each day and had been one subject of a parent company audit just six months before the disaster. No deficiencies were reported. An annual fire safety audit was undertaken but its report had not referred to the problem of blocking deluge heads.”

He went on:

*“Clearly there was no shortage of auditing of the Piper platform and the way it was being operated. What was deficient was the quality of that auditing. Not only were departures from laid-down procedures not picked up, but the absence of critical comment in audit reports lulled senior management into believing that all was well.”*²²³

And by way of another illustration, Dr. Hopkins referred to two gas monitoring audits conducted by an expert external auditor at the Moura Mine. These audits (1990 and 1992) were critical to identification of problems in the system designed to detect spontaneous combustion at the mine:

“The 1990 report notes, for instance, that when a gas alarm occurs “the alarm is accepted by the entering of the respondent’s cap lamp number.” Each individual had

a unique cap lamp number and the system was intended to make it possible to identify who it was that acknowledged the alarm. However, it was revealed in the inquiry that people acknowledged alarms by entering any randomly chosen pair of numbers, thus defeating the purpose of the system. The auditor had simply relied on what he was told and had not picked up this practice.

The system had two alarm levels. According to the auditor: "At alarm level 1 any available personnel accepts the alarm and follows up with an underground supervisor (probably an undermanager). If alarm level 2 occurs the manager is contacted and mine emergency procedure comes into play.

But again the auditor was simply reporting what he was told. The inquiry found that alarm level 1 had been breached on several occasions in the days prior to the explosion and acknowledged by unknown persons without any follow-up with an underground supervisor." ²²⁴

Dr. Hopkins also pointed to the failure of follow up of the auditor's recommendations in the 1992 report. Hopkins wrote that auditor had commented:

"There was no written gas alarm emergency procedure available in the control room. The procedure was known by personnel but a written procedure avoids any mistakes or critical omissions with regard to an emergency response." He suggested, too, that "emergency trial alarms ... should be carried out on a regular basis." These were useful suggestions but they were never implemented, in part because the inspectorate failed to pass on the audit report to the mine's management!" ²²⁵

Dr. Hopkins commented on the two failures in the audit system. Firstly, the 1990 audit simply *"reported what was supposed to happen and, secondly, with the 1992 audit there were no follow-up procedures to ensure that audit recommendations were implemented."* ²²⁶

Finally, Dr. Hopkins related an audit problem relating to "Quality Assurance Auditing" in the airline industry. Apparently on:

"23 February 1995, an aircraft owned by British Midlands Airways had just begun a routine flight when the oil pressure in both engines dropped to zero and it was forced to carry out an emergency landing. Subsequent investigation showed that both engines had just undergone maintenance and that the oil sealing system had inadvertently not been refitted. Engine test runs, which would have revealed the problem, had not been done. How did this happen?

The airline had recently moved from a system of quality control to quality assurance. This meant that maintenance work was no longer examined at critical stages by inspectors before the next step could begin. Rather, those doing the work certified on paper that they had completed all the necessary tasks involved in the maintenance process. To implement this system, maintenance planning engineers had specified the tasks to be performed for each maintenance job and devised a corresponding set of task cards. Maintenance workers signed off on each card as the task was performed. This was the system. The airline's QA department had the job of making sure that this system worked. It did so by collecting the signed cards and ensuring that the paperwork was in order, so as to satisfy the requirements of the regulatory agency." ²²⁷

Dr. Hopkins suggested two solutions. Firstly, *"spot checks on work in progress to ensure maintenance workers were doing what they said they were doing"* and, secondly, to critically evaluate the task description cards *"to ensure that they represented a satisfactory set of procedures."* ²²⁸

23.7.9

The above illustrations are some of the potential lessons for future audit procedures by the agencies dealing with safety and wildfire management. An examination of the factors involved in the Linton fire is illustrative of the fact that had the training recommendation for "Sector Commanders" in the "1997 F.A.I.I. Project Final Report" been adopted with a degree of urgency there may have been potential to alter the outcome (depending on the degree and quality of the training).²²⁹ That recommendation was that a training package be developed that is *"specifically aimed at increasing the knowledge of tactics for Sector Commanders."* At the time of the Linton fire there was no training package for Sector Commanders.

- 23.7.10** Where the independent auditor made a recommendation on a particular fire (or series of fires) the relevant agency would need to both consider and address the recommendation in a timely way. The lessons from the incident audit process should become part of a continuous improvement process. Where, after due consideration a particular recommendation (or series of recommendations) is not followed, then the agency should report on the matter to the relevant Government Department as to the reasons for not following the auditor's recommendation. Also, where appropriate, alternative ways of addressing a rejected recommendation by an auditor should be considered by the relevant agency.
- 23.7.11** It is not envisaged that the Wildfire Safety Audit process would become common practice. Ideally it would be used *sparingly* and in a *targeted* way.

Recommendation 46

That the CFA and DNRE consider establishing a system of regular (in the sense of a permanent part of the safety system), detailed, independent safety audits of a limited number of randomly selected wildfires of different levels of incident classification.

Such a limited Wildfire Safety Audit system needs to:

- *be adequately resourced;*
- *be conducted by professional risk analysts (with specialist occupational health and safety expertise);*
- *ensure that the auditors had full access to individuals and relevant fire agency information;*
- *be undertaken, as far as is practical, in a blame free environment for individuals with the intention of receiving maximum information on the management of an incident;*
- *form part of rigorous process of audit would include 'hunting for errors' in systems (or no system at all);*
- *ensure that the auditors test any relevant system (not just examine the paperwork) to ensure that the system was working;*
- *be undertaken in accordance with developed standards (see Recommendation 47);*
- *provide for the auditors to be rotated to ensure that the potential for differing views on wildfire safety management is maximised;*
- *become part of the due diligence of the fire fighting agencies in the management of safety at a wildfire. The Wildfire Safety Audit reports should also become part of a timely, continual management process aimed at improving safety for firefighters. Auditors' recommendations should be identified and followed-up; and*
- *ensure that where an auditor's recommendation is not followed then the reasons (and alternative solutions – if relevant) are reported to the appropriate Government Department.*

The discovery of errors in systems following a pro-active safety audit should be regarded by the entire organisation as a positive result for the process.

The need to develop an audit standard for Wildfire Safety Audits

- 23.7.12** During the 1996/97 investigation into the Kew Residential Services fire one critical issue was the limit of application of a particular fire audit. The Coroner pointed out that:

"The failure by a branch of DHS (Department of Human Services) to act on all of the recommendations in the 1993 Dibben Report was a critical factor leading to some of the systemic problems surrounding this fire. Many of the pertinent recommendations in the Dibben Report were not acted on because the report was incorrectly considered to be "technically flawed". This reasoning may have flowed partially from a lack of appreciation of the holistic approach being adopted by Dibben. It may have resulted from a lack of understanding of audit methods...."

And:

"Where a governmental or private agency requests an audit, there is a need to specify its operational limits clearly. This cannot be done accurately without knowledge of the

basis on which a particular type of audit is conducted. In this regard, it is essential that the fire protection industry assist the community and provide definitions and extent of coverage of particular types of audit.

The recommendation of ULA (one of corporate the parties involved in the Kew Residential Services fire) that Standards Australia develop a Standard “governing the scope and methodology of the various types of fire audits” is supported. The Australian Fire Authorities Council and the Australian Fire Protection Industry should be involved in the process.”²³⁰

The Coroner recommended that Standards Australia (with the fire protection industry) develop a standard governing the scope and methodology of the various types of fire audits.²³¹ With nature of risk, the variety and potential nature of wildfire incidents it is imperative that standards for safety audit are also developed to ensure that any potential for confusion of scope and methodology is eliminated. The Audit Standards need to be developed in cooperation with occupational health and safety, fire agencies and specialists, the various peak unions (perhaps with the assistance and/or under the guidance of Standards Australia). The Standards need to ensure that all of the relevant management and systems issues applying to safety on the fire-ground are considered.

- 23.7.13** It should be emphasised that an audit looking at safety issues should focus on “*hunting for errors*” and identifying problems within the system (or lack of a system) with the aim of introducing countermeasures. The finding of an error in the system should be regarded by the entire organisation as *a positive* result of the audit process as, in a pro-active safety system, countermeasures will be the eventual outcome.

Any developed audit standard would need to apply to both external (independent) and internal (agency based) wildfire safety audits.

Recommendation 47

The firefighting agencies (CFA and DNRE) with the WorkCover Authority and the Peak Unions/Associations consider developing a standard governing the scope and methodology for Wildfire Safety Audits. It may be useful to involve Standards Australia to assist in the development of an appropriate standard.

A Wildfire Safety Audit Standard would need to apply to both external (independent) and internal (agency based) audits.

23.7.14 Internal agency audit of ‘wildfires’

- 23.7.15** The establishment of an independent audit process for a select number of wildfires ought *not* to limit the relevant agency (or agencies where operating jointly) undertaking an investigation of operational and safety systems performance during the management of a wildfire.

- 23.7.16** Importantly, this type of review may need to occur even where there was no apparent incident or “*near miss*” during the fire. In the event that such an audit is conducted internally by an agency it should be competed in accordance with the standard referred to in Recommendation 47.

- 23.7.17** The CFA’s current operational analysis or de-briefing system²³² may need review in the light of the experience of Linton. The review and investigatory model used by the Office of Corrections may need to be considered.

Recommendation 48

The firefighting agencies (CFA and DNRE) ensure that the operational management of all significant wildfires is internally reviewed in accordance with the Audit Standard referred to in Recommendation 47.

The firefighting agencies should consider providing, where appropriate, self-critical reports similar to that undertaken by the Office of Corrections.

23.7.18 Reporting/investigation of wildfire incidents/near misses

A system of incident investigation for safety

23.7.19 The reporting and thorough investigation of incidents/near misses is important for a sound occupational health and safety or risk management system. Where the management of a particular type of emergency operation has significant risks of injury or death an incident reporting and investigation system is vital to ensure that problems are identified in a timely way and countermeasures introduced. At the time of the Linton fire the CFA had no system.²³³ The idea of incident and “near miss” reporting and investigation is not new.²³⁴ However, the CFA did have an Operational Analysis system, which provided potential for an overview of the fire by way of de-briefing.

23.7.20 Any general incident reporting system needs to be timely and followed up by a thorough investigation of the incident to ensure that all factors (latent or active) are identified. Human factors also need to be considered as an important part of the investigatory process.²³⁵ An incident reporting/investigation system also dovetails into the Wildfire Safety Audit system and any regular operational and safety review of a wildfire conducted by a particular firefighting agency.

23.7.21 DNRE have an incident reporting and investigation system, which it outlined in a document, headed “Fatalities and Near Miss Investigation.” The procedures for reporting and investigating significant fire related incidents were introduced on 16 September 1998.²³⁶ To assist with the “capture of injuries and near misses on the fireline” DNRE introduced for the 1999/2000 fire season a “Firefighter Notice of Injury or Near Miss” pocket card. The Department has also introduced detailed investigatory procedures.

In its submission DNRE suggested a recommendation that:

“NRE and CFA review their policies on the reporting of ‘near-miss’ incidents and develop a compatible system of reporting.”²³⁷

This is an excellent idea. It is noted that the joint “Operations Review of the Linton Fire/Midlands Fire” made a similar recommendation.²³⁸ The importance of resources being dedicated to this type of investigation can be observed in other areas of safety. Dr. Hopkins in “Making Safety Work”, when discussing safety in the NSW coal industry and problems with using Lost Time Injury reduction as an indicator of a safe system, stated (of reporting to the coal mines inspectorate):

“...fatalities are relatively rare, and most mines go for years without a death. However, when they occur they are usually indicative of serious safety deficiencies. Moreover, there are certain kinds of dangerous occurrences with the potential to lead to death or injury which must be reported to the inspectorate, regardless of whether injury has in fact occurred. Every such dangerous occurrence raises questions about standards of safety.”²³⁹

23.7.22 Thus accurate, timely reporting of incidents/near misses has potential to identify systemic problems and provide for improvements in safety procedures.²⁴⁰ A compatible system of reporting between firefighting agencies can only help in this process.

23.7.23 It is also essential that reported incidents/near misses be thoroughly investigated to establish root cause. Current procedures adopted by DNRE appear to be designed with this end in mind.²⁴¹ To maximise the benefits from an incident reporting system individuals also need to be appropriately trained in basic investigatory technique and how to identify, record and analyse the issues. Advice from agencies such as Police, aviation investigation specialists (Australian Transport Safety Bureau), Royal Australian College of Anaesthetists and Worksafe inspectors may assist to broaden understanding of various investigatory techniques and in further developing the appropriate root cause analysis investigatory system and training. The Victorian Office of Corrections has also undertaken work on investigatory systems.

23.7.24 Once an investigation model has been identified an investigation standard and training package needs to be introduced that will help to ensure that any investigation is undertaken to a particular standard and is conducted with some rigour with the aim of identifying all factors and/or errors in systems.

- 23.7.25** The incident reporting and investigation system should, rather than be seen as looking for blame, considered by the entire organisation as a positive step towards a safer system of fighting fires (and wildfires). As a step towards this goal, regularly informing firefighters of the benefits and results from investigations is necessary.
- 23.7.26** There will be incidents that are significant that require a degree of detail or joint investigation with other agencies (ie: cooperative investigations between CFA and DNRE).²⁴² The agencies' joint *Operations Review of the Linton Fire/Midlands Fire* is an example of the cooperation and independence of thought necessary.
- 23.7.27** It is essential that full detail of all incidents (including witness statements and reports) are collected on a database with the ability to be searched for common factors (or by text) and provide statistical information for research. The database should also record the recommendations of the investigation team.
- Timely information from overseas and interstate on incidents may be useful as a sub-set of the data collected of incidents in Victoria.
- There may be a need for a joint research unit shared between the fire fighting agencies. See comments and recommendations under the sub-heading in this Chapter '*A joint agency Research Unit*'
- 23.7.28** Timely follow up of incident investigations and any recommendations is vital for effective safety. Research into any fire incident database also needs to be timely and following the theme of hunting for errors, potential problems for the future and trends.
- 23.7.29** As indicated for an incident/investigation system to be effective all firefighters/managers need to be advised of the benefits of detailed reporting and investigation. Where trends have been discovered or problems identified and rectified, firefighters and operational managers need to be advised in a timely way.
- 23.7.30** The reporting/investigation system may need a regular audit to ensure that information gathering, investigation and general reporting systems are working effectively. The audit may need to recommend improvements in the system.
- 23.7.31** It is also important that any incident investigatory system be independent within the organisational structure²⁴³ and the developed investigation system needs to be well resourced to be effective.
- 23.7.32** For wildfire there are two potential types of systems for incident reporting. First is the *timely* reporting of incidents during a "going fire" to the Incident Management Team and the second is incident/near miss reporting and investigation following completion of the management of a particular wildfire emergency.

Reporting of incidents during a 'going fire'

- 23.7.33** The events at Linton have disclosed a lack of an applied management system seeking to learn from individual incidents occurring within a going or running fire. The lack of an applied system is totally unsatisfactory when brief detail of incidents occurring during the going Linton fire could have contributed to the Incident Management Team's knowledge and potential ability to solve operational and safety problems (although AIIMS-ICS does provide for the reporting of an incident to the incident controller).²⁴⁴
- 23.7.34** The four incidents that occurred during the afternoon of the Linton fire and hours before the entrapment of the Geelong and Geelong West crews should be a stark reminder to the fire fighting agencies of the need to ensure that a "going fire incident reporting system" is fully introduced. If brief details of the four incidents that occurred during the afternoon of 2 December had been reported to the Incident Management Team it would not have taken much for an Incident Controller with some basic knowledge of risk management/occupational health and safety to realise there were serious safety and operational problems developing on the fire-ground.

23.7.35 It was argued that because of the dynamic nature of wildfire fire the introduction of a system to ensure incidents occurring during a wildfire were reported to the Incident Management Team in a timely manner was difficult. Linton was not a dynamic fire – it developed over a number of hours and behaved in accordance with a set of assumptions, which if known by the Incident Management Team, could have been managed to reduce the risk of injury to firefighters to a minimum.

23.7.36 Once introduced, a “going fire” incident reporting system should be monitored by the firefighting agency and audited to ensure that all relevant incidents are reported in a timely way to the Incident Management Team, and appropriate actions are taken. (This would follow AIIMS-ICS).

Recommendation 49

The CFA and DNRE review their policies on the reporting of incidents and ‘near-miss’ incidents and develop a compatible system of reporting.

Recommendation 50

In the context of Recommendation 49 the CFA and DNRE develop a ‘going fire’ incident/near miss reporting system. The aim of the system would be to give the Incident Management Team the best possible and up to date intelligence on potential safety and operational problems that may be developing during its watch.

Recommendation 51

In the context of Recommendations 49 and 50 the CFA and DNRE consider developing: an investigation standard and training package for investigators;

- *a data collection model for all incident investigations and recommendations (this also may need to be developed for the CFA’s Operational Analysis system);*
- *a procedure for follow-up of results, recommendations or research from investigations (see also Recommendation 46 – Wildfire Safety Audits);*
- *a method of regularly informing all firefighters of benefits of reporting/investigations; and*
- *a procedure and requirement for regular audit of investigations to ensure standards are followed and to identify any problems in reporting or investigatory methodology that may require rectification.*

23.7.37 The use of incident reviews and coronial findings in safety training

23.7.38 The Operations Review of the Linton Fire/Midlands Fire recommended incidents that “have compromised crew safety should be documented and used as scenarios for safety and survival training.”²⁴⁵ This suggestion should be extended to coronial findings where firefighter safety has been compromised. Coronial findings are currently being used for this type of training and the identification of safety problems by the farming community, transport industry and by the health sector for patient safety in relation to reducing medical adverse events.

Recommendation 52

The CFA and DNRE use incidents (including near misses) and coronial findings for scenario and safety training.

23.7.39 A joint agency Investigation and Review Unit

23.7.40 There may need to be an independent unit within each firefighting agency (or preferably a joint unit) to ensure that investigations and reviews of wildfires (or incidents/near misses) are undertaken to the appropriate standard. The establishment of a joint Investigation and Review Unit would be an important step forward for both the agencies to help accurately determine all of the factors leading to incidents or systems problems.

An independent section with links to the Occupational Health and Safety Department of each agency would help ensure a professional standard of investigation. It would need to call on a range of expertise including specialist investigators, management specialists, fire weather forecasters, fire behaviourist, fuels specialists, equipment specialists and sociologists.

An independent section would also help ensure that identified problems received corrective action in a timely way and, that there was regular exchange of knowledge between the respective professionals working in each area.

- 23.7.41** The joint Investigation and Review Unit, if established, should report to the Chief Officer and Chief Fire Officer of DNRE and CFA respectively. In the case of the CFA the information from the Investigation and Review Unit should be regularly made available to the Board.

Recommendation 53

The firefighting agencies (CFA and DNRE) consider establishing an independent 'Investigation and Review Unit' to operate either as an individual unit or as a shared unit between the agencies. Ideally, the unit would be a joint operation, positioned with links to the agencies' Occupational Health and Safety Department and the Research Unit. The unit would undertake and supervise audits (internal and independent) and incident investigations.

To enhance its role, importance for safety and independence the Investigation and Review Unit should report to the Chief Officer and Chief Fire Officer of CFA and DNRE respectively. In the case of the CFA the information from the Investigation and Review Unit should be regularly made available to the Board.

23.7.42 A joint agency Research Unit

- 23.7.43** There are a variety of circumstances in a developing wildfire where firefighters are at risk. Incidents and “near misses” properly investigated will give clues to a multiplicity of causative factors. Any external audit or internal operational analysis (or de-briefing) of a fire by a firefighting agency also needs to be considered.

- 23.7.44** A study of the recent work published in the United States on wildland fires (and other classes of fires) indicates there are similarities with incidents occurring in Australia. All firefighting agencies interested in reducing the risks of injury and death to firefighters should thoroughly research all incidents in a timely way. Research needs to pro-actively look at local, interstate and overseas incidents, trends and solutions (both short and long term). It is **vital** that human factors in wildfire management are researched.

- 23.7.45** Relevant research would need to be reported to those looking at equipment design solutions (see Recommendation 43 “Fire-equipment Safety Design and Development Unit”).

- 23.7.46** As firefighters in Victoria sometimes face similar risks it may be appropriate for the various firefighting agencies to consider establishing a joint research unit linked to their respective occupational health and safety departments. The unit could also be linked to fire agency Units or Departments dealing with community safety.

- 23.7.47** As it is essential that “near misses,” incidents and significant incidents be reported and investigated for cause it is also necessary for that work to be thoroughly researched and used by the agencies for prevention activities in a timely way.

- 23.7.48** Links to an accident research organisation like Monash University Accident Research Centre may also be useful to broaden the base of the Unit’s approach to the research.

Recommendation 54

The CFA and DNRE consider establishing a joint Research Unit to pro-actively review, research and report on safety issues flowing from:

- all external/internal analyses of particular operations;
- all reported incidents (and ‘near misses’); and
- local, interstate and overseas information on incidents and trends in safety for firefighters.

Consideration should also be given to involving the MFESB (as there may be common risks).

It is envisaged that a Research Unit would have links to each agency’s Occupational Health and Safety Department and the joint Investigation and Review Unit. Links to an accident research agency like Monash University Accident Research Centre may also be useful to broaden the base of the Unit’s approach to research.

To enhance its role and importance for safety the Research Unit should report to the Chief Officer and Chief Fire Officer of DNRE and CFA respectively. In the case of the CFA the information from the Research Unit should be regularly made available to the Board.

23.8 Community Fire Safety Awareness and Support

23.8.1 In a State that annually manages the consequences of wildfire, the importance of community awareness and support to assist in the reduction of risk of these events to firefighters and our society cannot be underestimated.

23.8.2 DNRE reported that *"in an average year around 640 unplanned fires occur in Victoria's parks and forests, burning around 120,000 hectares."* Apparently lightning causes about one third of these fires and *"the remainder are caused by humans."*²⁴⁶

23.8.3 The firefighting agencies are not just involved in suppression activities. The CFA is already working closely with the community to increase awareness of a range of issues associated with reducing the risk to life and property from wildfire. The CFA provides fire prevention programs such as *Community Fireguard and Bushfire Blitz*. On an annual basis DNRE undertakes fuel reduction burns in Victoria's public lands.²⁴⁷ These burns assist in significantly reducing risk by cutting down the fuel loads in the forest. By way of example, the Linton fire was partly controlled as a result of the 1996–97 burn east of Kelly Road.

23.8.4 This work requires support at all levels of our community. The Office of the Emergency Services Commissioner is already working with the fire agencies and a range of communities in Victoria on developing a model of fire cover for the State. In the past, the models or standards of fire cover have looked at response times and weight of attack. Recently the concept of the model has expanded to include *"measures to prevent fires happening in the first place."* The Discussion Paper for the model observed:

*"Traditional notions of fire cover have operated on a relatively simple notion of 'community.' They have tended to assume that the community's role is to be a passive recipient of fire services provided by specialist and dedicated fire agencies. There is little recognition in these older notions of the importance of prevention activities (as distinct from fire suppression)."*²⁴⁸

The development of the new model has focussed on seeking extensive input from a wide range of communities and individuals. This current work on developing the model of fire cover with various communities in Victoria is an example of the level of attention required by communities and governmental agencies to further reduce the risk and improve the understanding of wildfire controls. Government and the community need to work together regularly examine new ways of improving the level of understanding in order to reduce the risk of wildfire. Different solutions may be applicable depending on the particular community, its level of risk and need.

23.8.5 There are some other areas where the fire agencies might usefully work in collaboration to help develop a greater level of community awareness and support. The Victorian Safe Communities Network currently operates with three accredited demonstration sites²⁴⁹ and in a number of other communities across Victoria. The aim of the network is to engage the various communities to help identify safety problems and assist in finding solutions. In the area of wildfire, this network could further assist in broadening the understanding of the wildfire risk and help find new ways of developing community solutions.

23.8.6 The Linton wildfire was preventable, had the landowner had a greater knowledge of the risks of burning off rubbish and the potential for fire to lie dormant only to reignite either the same day or days later. This is an area where the Safe Communities Networks could assist firefighting agencies in extending a wider coverage for their education campaigns and related work.

23.8.7 It is in a greater level of cooperative understanding and collaborative work between a variety of communities, their networks and the fire agencies that there is potential benefit for a safer environment and reduction of the risk of damage from wildfire.

23.9 The Linton Fire: The Parties' Recommendations

23.9.1 Some of the parties at the Inquests provided the investigation with considered recommendations for systems improvements relating to the safety of wildfire firefighters. The recommendations are detailed in Appendix A4 of this document. There has been no detailed review of some of these recommendations. Some may require additional expertise for a thorough review. Also some of the recommendations require the parties to work far more closely together in the future to adequately improve firefighter safety.

23.9.2 In the finding on the 1996 Kew Residential Services fire the Coroner commented on a large number of recommendations provided by the parties to the investigation.

*"The importance of the recommendations for improvements in our communities fire safety systems cannot be underestimated. The recommendations vary from issues relevant only to KRS to many applicable to general fire safety. It is essential that each recommendation be carefully considered by agencies with the appropriate expertise."*²⁵⁰

23.9.3 The suggestions of the various parties for improvements following the deaths of five volunteer firefighters at Linton have similar force. Each suggestion or recommendation needs careful consideration by a high-level review committee. Consideration should be given to the Victorian Emergency Services Commissioner's Office (in addition to the work the Commissioner may be undertaking with the earlier coronial recommendations) assisting to facilitate the review committee's work. The committee should include, without limiting the scope, agencies such as the CFA, DNRE, Australian Bureau of Meteorology, United Firefighters Union, the Volunteer Associations, the Australian Workers Union and the Victorian Workcover Authority. For such a review to be successful it is vital that this work be undertaken in *a spirit of full cooperation* at all levels of the various organisations, associations or agencies involved.

23.9.4 It is also noted that *The Operations Review of the Linton Fire /Midlands Fire* contains a number of useful recommendations that the agencies have adopted.²⁵¹

23.9.5 In particular, the 14 Recommendations contained in the CFA's submissions to the Coroner are worthy of comment. Subject to the comments and recommendations in this Chapter the CFA's recommendations are generally supported. The CFA sought this endorsement from the Coroner for its recommendations. However, one of its recommendations also sought endorsement for the *safe person* approach. Whilst there are benefits to the concept of the *safe person*, it has its limits.²⁵² It is also noted that the CFA commented that "*the operational structures*" at Linton "*were in place and operating effectively.*"²⁵³ Clearly, this statement could not be supported.

Recommendation 55

The Department of Justice (perhaps with the assistance of the Office of the Emergency Services Commissioner) auspice a review of the range of additional recommendations (not already covered in this Chapter) delivered by some of the parties in submissions to the Coroner.

The review should be undertaken by a committee comprised of a range of relevant agencies (with the assistance of experts if necessary).

23.10 Future Coronial Investigations

23.10.1 DNRE suggested that in the future the Coroner should utilise the "*fire expertise within each agency by seconding appropriately qualified personnel (from the agencies)*" to assist with inquiries.²⁵⁴ This suggestion may be of assistance for incidents occurring in the future but should remain a matter that will require consideration by an investigating coroner on a case by case basis.

23.11 Conclusion

23.11.1 The wildfire that was “*Linton*” has demonstrated that, even in a fire that occurred in conditions that were not extreme, serious life threatening risks to firefighters abound. It has demonstrated that the systems actually operated by the firefighting agencies on the day of the fire (or lack thereof) were far from adequate and considerable work needs to be undertaken to improve the systems. The community minded firefighters working in the area of suppressing wildfire are entitled to the support of the best practicable safety management systems and equipment.

23.11.2 Essentially, suppression of wildfire is about assessing and managing risk safely. Because of the nature of wildfire and the attendant ever-present risk of death or injury in the event of contact with the hazard, subject to practicability, firefighting agencies need to have taken, in the words of Justice Harper:

*“an active, imaginative and flexible approach to potential dangers in the knowledge that human frailty is an ever present reality...”*²⁵⁵

Human frailty or factors in the context of wildfire may include fatigue, stress, effects of heat or smoke. The firefighter may be concerned about whether his or her home or family is safe and, as a result, miss crucial safety issues. A firefighter’s understandable concentration on getting the job done (operational matters) may also mean that safety issues are inadvertently missed or not elevated to the correct level. The UFU submitted, that as:

“with any other working environment, special and unique aspects of the work of firefighters must be recognised in the application of the law and those principles to the fire-ground. In particular a greater emphasis on the ‘safe person’ approach to risk control than will be the case in many conventional workplaces is clearly necessary.”

And it pointed to the fact that this approach requires a great deal by way of “*experience, training, instruction and supervision...*”²⁵⁶

23.11.3 The firefighting agencies should operate in an environment aimed at continual safety improvement using timely audit, investigation and research to identify shortcomings in safety management systems and equipment. Implementation of improvements in safety systems and equipment should be timely, and undertaken in a spirit of full cooperation between the agencies, relevant unions and volunteer firefighter associations.

Graeme Johnstone
State Coroner
11 January 2002

Assisted by
Messrs Tom Gyorffy and Garry Livermore
who were instructed by Mr Glenn Childs
from the Office of the Director of Public Prosecutions



Geelong West and
Geelong City Tankers
in situ after the
entrapment.

Appendices

List of Coroner's Recommendations

Recommendation 1

The CFA and DNRE develop a modified set of 'Hierarchy of Controls' relating to firefighting and wildfire to assist all those working in the area towards improving the general understanding of the application of occupational health and safety and related risk management principles.

The controls would specify that the system of work or fire suppression methodology (technique) is at the top of the hierarchy (and give examples). Examples of advantages and disadvantages (risks) of particular firefighting control techniques for certain circumstances would be demonstrated. Options like withdrawing where the standard technique would be likely to put firefighters at unnecessary risk would also be specified. Examples of other control methods in the hierarchy table would also be listed.

The modified set of 'Hierarchy of Controls' should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority. Also the assistance of occupational risk management specialists may be necessary.

It also may be necessary to include some brief explanation of occupational health and safety principles in the CFA's Operations Guidelines – A Guide to Operations and Tactics in the Field. Other publications should be reviewed to ensure consistency of approach.

Recommendation 2

The CFA consider ensuring that OH&S and incident reporting, investigation and related research become a regular part of the agenda of Board meetings.

Recommendation 3

The Victorian Fire Services consider introducing the additional function of 'Safety' to the other four 'functional areas' of the Incident Control System of AIIMS.

The ICS manual would need to be amended and an appropriate chapter dealing with the functions and responsibilities of the Safety Section be scoped (safety may need to include 'community safety' as well as 'occupational' safety). This should be undertaken with the assistance of emergency services, occupational health and safety specialists and the Peak Unions/Associations.

Also the other four functional areas (Control, Operations, Planning and Logistics) should include the objective of 'safety' (and how it is to be achieved) clearly specified in the chapter relevant to the particular function.

The Safety Section would also be responsible for the audit function envisaged in Recommendation 4.

The amendment to the system would need to be developed in consultation with the Australian Fire Authorities Council.

Recommendation 4

The Victorian Fire Services consider introducing an audit function straddling the functional areas of the Incident Control System of AIIMS.

The audit function would be conducted during the fire by a small team of auditors under the auspices of the Safety Section (see Recommendation 3). The auditors' role would be to regularly check on the operation of the other AIIMS-ICS functions with a focus on how the range of systems integral to safety (including information flows) were operating both within the Incident Management area and on the fire-ground.

In the event that systems problems are identified the auditor would advise the Safety Section. The Safety Section would have a role to assist in resolving the identified problem through the Incident Controller.

The amendment to the system would need to be developed in consultation with the Australian Fire Authorities Council.

Recommendation 5

The CFA and DNRE develop the position description and responsibilities for the members of the Audit Team.

The role, position description and responsibilities of the Audit Team should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

Recommendation 6

The CFA and DNRE develop training packages for the Audit team function.

The training packages for the role of Auditor should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

Recommendation 7

The CFA and DNRE should deliver, as part of training for firefighters (volunteers/full time) and incident managers, a full explanation of role of the Audit Team.

The training for firefighters/incident managers should underscore that the role of the Audit Team is as an important adjunct to the 'Safety First' culture and that the allocation of such positions at a wildfire does not alleviate individual responsibility for safety.

Recommendation 8

The CFA and DNRE should develop standards relating to the number of Audit Team members required at a particular type of fire. The standards should be aimed at ensuring sufficient human resources are at the fire to assist in appropriately managing the audit function.

This standard should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

Recommendation 9

The CFA and DNRE consider a requirement that a Safety Officer be appointed to assist in the management of safety at every wildfire incident (it is recognised that in the early stages of a fire this might not always be possible).

Once the wildfire escalates (or is likely to escalate) to a 'Type 3' incident, safety at the fire should be managed by a Principal Safety Officer. Also when a wildfire escalates to a 'Type 3' fire a Safety and Audit Team should be formed to assist the Principal Safety Officer in the management of safety at the incident (the role of the Audit Team has been considered separately).

Recommendation 10

A 'Safety Officer' at a wildfire should have the limited ability to effect an operational decision and only where that decision is reasonably likely to put the lives of firefighters at immediate unnecessary and unjustified risk.

During the management of an incident, if the 'Principal Safety Officer' raises a safety issue with the Incident Controller that requires modification to the system of work on the fire-ground (or elsewhere) and the Controller decides not to follow the advice the issue and reasons for decision should be documented in the log.

Recommendation 11

The CFA and DNRE develop the position description and responsibilities for the respective roles of Safety Officer and Principal Safety Officer.

The roles, position description and responsibilities of Safety Officer and Principal Safety Officer should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

Ideally the Principal Safety Officer should have Occupational Health and Safety qualifications as well as experience as a senior firefighter. Safety Officers would have both appropriate firefighting training and experience combined with a sound knowledge of occupational health and safety principles.

Recommendation 12

The Safety Officers and Principal Safety Officers should have strong links with the Occupational Health and Safety Department of the relevant agency. They should also have links to the Audit Team.

Recommendation 13

The CFA and DNRE develop training packages for the respective roles of Safety Officer and Principal Safety Officer.

The training packages for the respective roles of Safety Officer and Principal Safety Officer should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

Training for each of the roles should include a significant component of occupational health and safety with a 'risk management' focus. In view of the importance of the roles, some aspects of the training should also be given by independent occupational and risk management professionals. Regular updated revision of training should also be delivered.

Training should be regularly audited to ensure appropriate levels of delivery, understanding and relevance to firefighting, occupational health and safety and risk management.

Recommendation 14

The CFA and DNRE should deliver, as part of training for firefighters (volunteers/full time) and incident managers, a full explanation of the respective roles of Safety Officer and Principal Safety Officer.

The training for firefighters/incident managers should underscore that the role of Safety Officer is as an important adjunct to the 'Safety First' culture and that the allocation of such positions at a wildfire does not alleviate individual responsibility for safety.

Also training of all firefighters/incident managers in the general roles of 'Safety Officer' should be regularly audited to ensure appropriate levels of delivery and understanding of firefighters/incident managers to the concept and position as it applies to occupational health and safety and risk management.

Recommendation 15

The CFA and DNRE should develop standards relating to the number of Safety Officers required at a particular fire. The standards should be aimed at ensuring sufficient human resources are at the fire-ground to assist in appropriately managing safety.

This standard should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

Recommendation 16

The CFA (with the assistance of DNRE) develop, as part of its training program, a package of information focusing on general occupational health and safety issues aimed at improving the knowledge and understanding of firefighters (full-time and volunteers) and supervisors of this area. Also the package should explain how occupational health and safety principles apply to firefighting (and in particular, wildfire suppression).

The occupational health and safety training package should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority.

All firefighting training publications would need to include an explanation of occupational health and safety principles and practices as applying generally and specifically to wildfire.

The training in this area should be regularly audited to ensure appropriate levels of delivery, understanding and relevance to firefighting, occupational health and safety and related risk management.

Recommendation 17

The CFA (with the assistance of DNRE) develop, as part of its training program, a generic package focusing on delivering the skills necessary for competent supervision required by individuals acting in a range of management positions during a testing incident like a wildfire.

This package should be developed in full consultation with representatives of the Peak Unions/Associations and the Victorian WorkCover Authority. It may also require input from management or other experts.

Recommendation 18

The provision of regular and timely situation reports should be considered by the firefighting agencies and all firefighters as vital for efficient and safe management of a fire. The CFA and DNRE should ensure that supervisors check with their teams in the event that situation reports are not regularly forthcoming from the fire-ground (or elsewhere in the management structure).

Management systems should be developed to assist supervisors with this important function. Also auditing of the provision of situation reports during the fire should be considered by all firefighters as important to efficient and safe operation.

Recommendation 19

The CFA consider introducing a system of 'mentors' to ensure that new firefighters and firefighters going into a new firefighting environment for the first few times receive appropriate guidance and directed experience. DNRE should also consider extending its mentoring system to its firefighters who fall into this category.

In order to ensure the 'Mentoring' system is workable, practical, delivering appropriate levels of guidance and experience to all new firefighters (or firefighters going into a new firefighting environment for the first few times) the Peak Unions/Associations would need to be involved at the outset and at all levels of system development and auditing. System development may also require guidance from occupational health and safety and/or training specialists.

Also, where practicable, DNRE may consider seconding experienced firefighters who are 'mentors' for short periods to the CFA to assist in the process of broadening the experience base of CFA firefighters.

Recommendation 20

Both CFA and DNRE should consider developing a standard, a training package and an accreditation system for 'mentors'.

Recommendation 21

Both the CFA and DNRE train an appropriate number of 'mentors' to the standard referred to in Recommendation 20.

Recommendation 22

The CFA and DNRE consider developing an audit process to ensure that appropriate and effective guidance is being delivered by the mentoring system to firefighters.

Recommendation 23

The CFA and DNRE, ensure as soon as possible that:

- minimum wildfire competencies are agreed;
- agreed competencies are developed for all roles in the incident management system;
- all fire personnel are competent to undertake their assigned role;
- the competencies of all fire personnel are recorded and made available to the Incident Control Centre in a timely way;
- the training materials used to develop core competencies in forest firefighting are common; and
- programs to maintain competency are introduced and managed.

Recommendation 24

The CFA and DNRE, ensure that training and management processes re-enforce the necessity for all crews to report to the Staging Area or Control Point (if established) for registration and allocation of tasks. This process is essential for safe tasking and management of resources in a wildfire operation.

For crews that have been working on the fire-ground before a Staging Area is established there needs to be early attention to reviewing competence and appropriateness of current allocation. Systems of registration for existing crews and timely audit of competence therefore need to be established by DNRE and CFA (see Recommendation 25).

The historical, ad hoc problem of self-deployment of fire crews is dangerous and operationally inefficient. Procedures need to ensure that this problem is addressed.

Recommendation 25

The CFA establish, as soon as possible, an audit system to ensure that there is regular, timely checking of competence of crews and individuals who are working on the fire-ground and in incident management positions.

Not only is it necessary to ensure that initial tasking is correctly undertaken, but the actual allocation of the task is checked as against the initial process.

Ideally, the Audit Team referred to in Recommendation 4 would be delegated this task.

Recommendation 26

The CFA ensure that an officer be available at the 'home' brigade to answer inquiries from the Staging Area (or Control Point) and/or Audit Team about the training and experience of local brigade crews and individuals allocated to the wildfire.

As these inquiries may be made at any time, allowance would need to be made for shift change and hand-over of information between home brigade officers. A system of after-hours contact via telephone and/or pager may be necessary for smaller brigades.

The importance of accurate, up to date recording of training/experience and rapid access via computer links between the IMT and Brigades cannot be underestimated. Other technological solutions such as an identity card or 'T card' with bar coding of relevant information on competence also need to be explored.

Recommendation 27

The CFA (and where necessary with DNRE) consider establishing the position of Allocations Officer at the Staging Area to help ensure that trained and experienced firefighters are appropriately tasked to the fire-ground and to

- a contact point for those working on the fire-ground (including Safety Officers);
- a contact point to and from a home brigade for inquiries about the developing nature of the fire and tasking of its crews;
- assistance to the Audit Team, etc.

Recommendation 28

The CFA and DNRE review the Standard Fire Orders/Watchouts to determine current relevance and safety effectiveness during an operation. The number of orders/watchouts may be an issue.

The Standard Fire Orders and Watchouts should be reviewed on a regular basis to determine relevance, simplicity of message and effectiveness for safety.

Recommendation 29

The CFA review the Operations Guidelines to determine current relevance, level of awareness, simplicity of message for safety effectiveness during an operation.

Recommendation 30

The CFA examine other methods of delivering information which is vital for safety (in addition to radio) to ensure that the message contains sufficient and accurate detail and is not only delivered to all personnel involved in firefighting operations but that its relevance to safety is clearly understood. The role of supervisors under AIIMS-ICS is critical in this regard. New information technology in fire tankers may also provide additional (but limited) potential.

For example, information on weather (wind speed) should give, estimated time of arrival (with appropriate variables), speed and direction. Consideration should be given to enhancing safety aspects of the message by additional simple safety instructions like 'keep to the black' or 'keep to a safe anchor point', etc. The message may need to allow for different work environments on the fire-ground.

It should be clearly noted that, in developing methods for more effective delivery of safety messages, there should be no substitution for direct supervision, communication and instruction at all levels of the chain of command.

Recommendation 31

The firefighting agencies and the Bureau of Meteorology consider undertaking an audit to identify potential gaps in the AWS network.

Recommendation 32

In the event that unacceptable gaps in the AWS network are identified by audit then the agencies (firefighting and Meteorology) should consider providing the equipment to fill the gaps. In this context unacceptable should be taken to mean that it has potential to effect safety.

Recommendation 33

The Bureau (with assistance of CFA/DNRE) continue to undertake regular research and auditing into the accuracy of the respective forecasting models used by the Bureau (European 'ECMWF' and the local 'meso-LAPS'). The Bureau should also continue other general research into weather and wildfire behaviour as this information has potential to effect safety.

As this research is both in the interest of improving the accuracy of forecasting for wildfire and has potential benefits for safety it is vital that adequate resources be made available.

Recommendation 34

The Bureau undertake regular auditing of its forecasting performance for the fire season (as any lessons learnt may have potential to improve firefighter and community safety).

Recommendation 35

The firefighting agencies consider introducing the position of 'Weather Reporting Fire Officer' to be stationed at the Staging Area (for Type 3 wildfires) with a role to assist in providing that a consistent (and informed) level of information is delivered to those working on the fire-ground.

Recommendation 36

The firefighting agencies consider introducing a weather briefing by a trained 'Weather Reporting Fire Officer' at the Staging Area (for Type 3 wildfires) to ensure consistency of information delivered to those working on the fire-ground.

Recommendation 37

The CFA, DNRE and the Bureau consider working together to provide a management and support structure for the informal weather collecting groups.

The individuals or groups need to be identified. The agencies should work with the groups to ensure that appropriate resources (training, equipment, etc) are made available to provide for timely information on weather to enhance firefighter safety.

Recommendation 38

The CFA and DNRE (in conjunction with the Peak Unions/Volunteer Associations) develop standards for the content and time-lines for delivery of Communications and Incident Action Plans, for wildfire incidents.

Also accurate preparation by the management team and timely delivery of these documents to firefighters through the management structure should be subject to audit.

Recommendation 39

The CFA consider specifying **1000 litres** as the minimum amount of water to be retained on firefighting tankers for protection of firefighters during potential or actual wildfire operations.

In view of the reliance of CFA training on the use of water fog sprays on a tanker as a last resort engineering solution for an entrapment, tankers that have a water carrying capacity not allowing for the minimum of 1000 litres to be kept for protection of firefighters should not be used.

This should be seen as the minimum interim measure pending accurate scientific design research indicating the safety limits of the fog spray systems (depending on fire intensity).

Recommendation 40

The CFA consider, in addition to warning lights and audible devices, a requirement that future design of CFA tankers include a two stage water tank capacity (similar to large DNRE tankers).

Two stage water tanks would assist in further reducing the risk of a crew, concentrating on the job of fire suppression, inadvertently using some of their protective water supply. It is an essential element to further reduce the risk of crews using the protective water supply (eg: Geelong West).

Recommendation 41

The CFA continue to examine the design issues associated with its firefighting tankers to pro-actively aim at a process of continual improvement in protective safety design. The types of issues raised in the research paper by Dr. Paix need to be constantly reviewed with the aim of design improvement.

In the context of design improvement research is vital in relation to the safety limits (depending on fire intensity) of the fog spray system for tankers used by firefighting agencies.

It may be necessary to consider (with DNRE and Standards Australia) the development of a protective safety design standard for large firefighting tankers that are to be used in wildfire.

Recommendation 42

The CFA and DNRE consider establishing a reporting system that ensures all situations where fog sprays are used during operations for personal protection are regarded as an 'incident', thus reported and thoroughly investigated looking at root cause analysis. The activation of 'fog sprays' during a wildfire suppression operation should **immediately** be reported to the incident controller.

In the event that this recommendation is followed the CFA and DNRE should ensure that all firefighters are informed of the benefits to safety of reporting this type of incident. Firefighters should also be regularly advised of the outcome of investigations and of any resultant improvement to safety systems.

Recommendation 43

The CFA and DNRE consider jointly establishing a permanent, well resourced, Fire-equipment Safety Design and Development Unit (with links to the Research Unit and the respective Occupational Health and Safety Department of each agency to pro-actively examine safety design improvements in fire tankers and other protective equipment. This may need to be developed in conjunction with the MFESB (as there may be some common design issues).

It may be useful to consider linking the Design and Development Unit with a university engineering school and accident research specialists (ie: Monash University School of Engineering and Monash University Accident Research Centre).

Recommendation 44

Where practicable, the firefighting agencies (CFA/DNRE) should consider working together on joint reviews of technology and communications systems as well as design, development, implementation and evaluation of systems.

This recommendation should not exclude other agencies that may have a potential need for common systems (ie: MFESB, SES).

Recommendation 45

Wildfire safety should be regarded as one of the major issues for the respective OH&S Committees of the CFA and DNRE.

As there may be common issues being discussed by the two Committees, the CFA and DNRE (in consultation with their respective OH&S Committees) should establish and resource an overarching Steering Committee to assist in the efficient, timely consideration and management of common safety issues between the Committees.

It is important that the Volunteers be represented on the CFA's OH&S Committee.

Recommendation 46

That the CFA and DNRE consider establishing a system of regular (in the sense of a permanent part of the safety system), detailed, independent safety audits of a limited number of randomly selected wildfires of different levels of incident classification.

- Such a limited Wildfire Safety Audit system needs to:
- be adequately resourced;
- be conducted by professional risk analysts (with specialist occupational health and safety expertise);
- ensure that the auditors had full access to individuals and relevant fire agency information;
- be undertaken, as far as is practical, in a blame free environment for individuals with the intention of receiving maximum information on the management of an incident;
- form part of rigorous process of audit would include '*hunting for errors*' in systems (or no system at all);
- ensure that the auditors test any relevant system (not just examine the paperwork) to ensure that the system was working;
- be undertaken in accordance with developed standards (see Recommendation 47);
- provide for the auditors to be rotated to ensure that the potential for differing views on wildfire safety management is maximised;
- become part of the due diligence of the fire fighting agencies in the management of safety at a wildfire. *The Wildfire Safety Audit reports should also become part of a timely, continual management process aimed at improving safety for firefighters. Auditors' recommendations should be identified and followed-up;* and
- ensure that where an auditor's recommendation is not followed then the reasons (and alternative solutions – if relevant) are reported to the appropriate Government Department.

The discovery of errors in systems following a pro-active safety audit should be regarded by the entire organisation as a *positive* result for the process.

Recommendation 47

The firefighting agencies (CFA and DNRE) with the WorkCover Authority and the Peak Unions/Associations consider developing a standard governing the scope and methodology for Wildfire Safety Audits. It may be useful to involve Standards Australia to assist in the development of an appropriate standard.

A Wildfire Safety Audit Standard would need to apply to both external (independent) and internal (agency based) audits.

Recommendation 48

The firefighting agencies (CFA and DNRE) ensure that the operational management of all significant wildfires is internally reviewed in accordance with the Audit Standard referred to in Recommendation 47.

The firefighting agencies should consider providing, where appropriate, self-critical reports similar to that undertaken by the Office of Corrections.

Recommendation 49

The CFA and DNRE review their policies on the reporting of incidents and 'near-miss' incidents and develop a compatible system of reporting.

Recommendation 50

In the context of Recommendation 49 the CFA and DNRE develop a 'going fire' incident/near miss reporting system. The aim of the system would be to give the Incident Management Team the best possible and up to date intelligence on potential safety and operational problems that may be developing during its watch.

Recommendation 51

In the context of Recommendations 49 and 50 the CFA and DNRE consider developing:

- an investigation standard and training package for investigators;
- a data collection model for all incident investigations and recommendations (this also may need to be developed for the CFA's Operational Analysis system);
- a procedure for follow-up of results, recommendations or research from investigations (see also Recommendation 46 – Wildfire Safety Audits);
- a method of regularly informing all firefighters of benefits of reporting/investigations; and
- a procedure and requirement for regular audit of investigations to ensure standards are followed and to identify any problems in reporting or investigatory methodology that may require rectification.

Recommendation 52

The CFA and DNRE use incidents (including near misses) and coronial findings for scenario and safety training.

Recommendation 53

The firefighting agencies (CFA and DNRE) consider establishing an independent 'Investigation and Review Unit' to operate either as an individual unit or as a shared unit between the agencies. Ideally, the unit would be a joint operation, positioned with links to the agencies' Occupational Health and Safety Department and the Research Unit. The unit would undertake and supervise audits (internal and independent) and incident investigations.

To enhance its role, importance for safety and independence the Investigation and Review Unit should report to the Chief Officer and Chief Fire Officer of CFA and DNRE respectively. In the case of the CFA the information from the Investigation and Review Unit should be regularly made available to the Board.

Recommendation 54

The CFA and DNRE consider establishing a joint Research Unit to pro-actively review, research and report on safety issues flowing from:

- all external/internal analyses of particular operations;
- all reported incidents (and 'near misses'); and
- local, interstate and overseas information on incidents and trends in safety for firefighters.
- Consideration should also be given to involving the MFESB (as there may be common risks).

It is envisaged that a Research Unit would have links to each agency's Occupational Health and Safety Department and the joint Investigation and Review Unit. Links to an accident research agency like Monash University Accident Research Centre may also be useful to broaden the base of the Unit's approach to research.

To enhance its role and importance for safety the Research Unit should report to the Chief Officer and Chief Fire Officer of DNRE and CFA respectively. In the case of the CFA the information from the Research Unit should be regularly made available to the Board.

Recommendation 55

The Department of Justice (perhaps with the assistance of the Office of the Emergency Services Commissioner) auspice a review of the range of additional recommendations (not already covered in this Chapter) delivered by some of the parties in submissions to the Coroner.

The review should be undertaken by a committee comprised of a range of relevant agencies (with the assistance of experts if necessary).

Fire Agency Documentation

APPENDIX A2.1

The Structure of CFA Areas Attending at Linton

MIDLANDS-WIMMERA AREA

REGION 15	Ballarat HQ
REGION 16	Ararat HQ
REGION 17	Horsham HQ

REGION 15

Ballan Group

Ballan
Blackwood
Gordon
Greendale
Millbrook
Morrisons
Mt Egerton
Mt Wallace
Wallace

Ballarat Group

Ascot
Burrumbeet
Cardigan/Windermere
Clunes
Glendaruel-Mt Beckworth
Invermay
Learmonth/Addington
Miners Rest
Waubra

Ballarat Operations Area

Ballarat
Ballarat City*
Sebastapol
Wendouree
* Fire Station

Buninyong Group

Bungaree
Buninyong
Elaine
Hardies Hill
Mt Buninyong
Mt Warrenheip
Napoleons Enfield

Creswick Group

Campbelltown
Creswick
Glen Park
Kingston-Allendale
Kooroocheang-Werona
Mollonghip
Newlyn-Dean
Smeaton
Ullina

Glenlyon Group

Daylesford
Franklinford
Glenlyon
Hepburn
Leonards Hill
Musk
Porcupine Ridge

Grenville Group

Cape Clear
Haddon
Linton
Mannibadar
Rokewood Juntion
Scarsdale/Smythesdale
Wallinduc

Kyneton Group

Benloch
Carlsruhe
Kyneton
Malmsbury
Pastoria Spring
Hill
Trentham
Tylden

Newstead Group

Campbells Creek
Fryerstown
Guildford
Newstead

Tullaroop Group

Bowenvale
Carisbrook
Maryborough
Moorlort
Mt Cameron
Talbot
Wareek Bung Bong

REGION 16

Ararat Group

Ararat Rural
Ararat Urban
Buangor
Great Western
Langi Logan
Moyston
Pomonal
Warrak

Beaufort Group

Beaufort
Brewster
Crossroads
Lake Goldsmith
Langi Kal Kal
Raglan
Snake Valley

Pyraneees Group

Amphitheatre
Avoca Rural
Avoca Urban
Barkly
Burnbank
Crowlands
Elmshurst
Landsborough
Lexton
Navarre
Redbank
Warrenmang

Stawell Group

Callawadda
Dadswells Bridge
Glenorchy
Halls Gap
Joel Joel
Marnoo
Stawell Rural
Stawell Urban
Wallaloo East

Westmere Group

Bornes Hill
Carranballac
Chatsworth
Dundonnell
Lake Bolac
Maroona
Mininera
Narrapumelap South
Nerrin Nerrin
Pura Pura
Skipton
Stonleigh
Streatham
Tatyoona
Westmere
Wickliffe
Willaura Rural
Willaura Urban
Woorndoo
Talla-Y-Poorra

BARWON/CORANGAMITE AREA

REGION 6 Colac HQ

REGION 7 North Geelong HQ

REGION 6

Beeac Group

Beeac Rural
Colac Urban
Forrest Rural
Gerangamite Rural
Irrewarra Rural
Warncoort Rural
Weering/Eurak Rural
Yeo Rural
Yeodene Rural

Camperdown Group

Bookar Rural
Coorcan Rural
Camperdown Urban
Chocolyn Rural
Noorat Rural
Pomorheit Rural
Stoneyford Rural
Terang Urban
Terang/Dixie Rural
Tesbury Rural
Weerite Rural

Cobden Group

Bostocks Creek Rural
Carpentait/South Purumbete Rural
Cobden Rural
Cobden Urban
Cobrico Rural
Ecklin Rural
Elingamite/Glenfyne Rural
Jancourt Rural

Corangamite Group

Barongarook Rural
Bungador Rural
Carlisle River Rural
Coroole Rural
Dreeite South Rural
Gellibrand Rural
Irrewillipe Rural
Kawarren Rural
Larpent Rural
Nalangil Rural
Otway Rural
Swan Marsh
Warrior Rural

Lismore Group

Berrybank Rural
Cressy Rural
Darlington Rural
Derrinallum Rural
Duverney Rural
Leslie Manor Rural
Lismore Rural
Mingay Rural
Vite Vite North Rural

Timboon Group

Brucknell/Ayrford Rural
Kennedy's Creek Rural
Deans Marsh Rural
Lower Heytesbury Rural
Port Campbell Rural
Prinetown Rural
Scotts Creek/Cowley Creek Urban
Simpson Rural
Timboon Rural

REGION 7

Anakie Group

Anakie Rural
Bannockburn Rural
Barrabool Rural
Lethbridge Rural
Little River Rural
Lovely Banks Rural
Maude Rural
Meredith Rural
Stonehaven Rural

Bellarine Group

Barwon heads Urban
Drysdale Rural
Drysdale Urban
Leopald Urban
Mannerim Rural
Ocean Grove Rural
Portarlington Urban
Queenscliffe Urban
St Leonards Rural
Wallington Rural

Coastal Group

Aireys Inlet Rural
Anglesea
Connemara Rural
Freshwater Creek Rural
Lorne
Torquay
Wye River Rural

Geelong Group

Belmont Urban
Corio Urban
Geelong City Urban
Geelong West Urban
Grovedale Rural
Highton Urban
Lara

Leigh Group

Barunah Plains North Rural
Dereel Rural
Mt Mercer Rural
Rokewood Rural
Shelford Rural
Teesdale Rural
Werneth Rural

Winchelsea Group

Barwon Downs
Birregurra Rural
Deans Marsh Rural
Gnarwarre Rural
Inverleigh Rural
Modewarre Rural
Winchelsea Urban
Wingeel Rural
Wurdale Rural

APPENDIX A2.2

The CFA “Drill” for Group Fires

4.2 Possible Drill for Appreciations

4.2.1 Aim:

Consideration of my task–

- (a) What exactly have I to do?
- (b) Are there any stipulations about time?
For how long?
By when?
- (c) What does that involve?
- (d) How far can I plan now?
- (e) Any other restrictions on how I carry out my task?
- (f) Danger to life and property?

The answers to these questions, and deductions from them, give me my aim.

4.2.2 Factors

What are the conditions in which I must achieve my aim?

For example:

(a) Fire

How big?
Where?
What fuel – How dry?
What is it doing at the moment?
How will the weather affect it?
What does the Fire Danger Rating Chart say?
So what? How can I achieve my aim?

(b) Ground over which I must operate

What is it like generally?
What ground is of strategic/tactical value?
Is it suitable for wheeled vehicles?
Are there any obstacles to movement?
Is it a hand tool job?
What are the main approaches?
So what? How does the ground help
Me and how does it affect my action

(c) Time and space

Can I get there in time?
Can the fire forestall me?
How do relative distances affect it?
Is the weather expected to affect the
Fire at any given time?
So what?

(d) What other points affect the achievement of my aim?

Weather, or weather changes?
Fatigue of my men, or state of morale?
Administrative situation?

If they do, then so what?

If NOT, I need NOT consider them?

Summing up my conclusions from my factors –

(a) Which are the really important factors?

(b) My chief considerations are therefore to...

Thinking... about these points (or factors) gives me ideas (or deductions) and answering the question “so what?” helps me to draw relevant conclusions and shows me the possible ways (or courses) of achieving what I am trying to do (my aim).

4.2.3 Courses Open

Having sorted out my ideas, what are the ways in which I can achieve my aim?

(a) Could I ...?

Is that a good way?

Is it – simple?

Quick?

Economical?

Is there anything the fire can do to stop this way succeeding?

If **it does** is there anything I can do about it if I adopt this way?

(b) Could I ...?

(Similar questions for each course)

Considering these ways again, it therefore seems that my best way of achieving my aim is to...

It is the simplest way, and will enable me to ... I shall then be in a good position to ... if the fire ... That is therefore what I propose to do.

The answers to these questions about each way (or course) show me the relative advantages and disadvantages of each.

Statement of the course to be adopted.

My solution is therefore as follows:

THE PLAN

4.2.4 Plan

NOTE: The only way to be skilled in this technique is to practise it. It is usually best to take:

(a) A particularly bad and dangerous area in your region and imagine different fires that could become dangerous under bad conditions. Practise writing and appreciation to suit these conditions and then alter the conditions and repeat the exercise.

(b) Or take a situation where you have arrived at a fire and do a quick mental “size up”.

It is usually best if somebody sets the problem for you.¹

APPENDIX A2.3

CFA Specimen “Plan” for Group Fires

4.3 Specimen Layout of an Appreciation

(When Written)

Appreciation of the situation

by (Rank, Name Appointment)

at (place) at (time) on (date)

REF. MAP:

AIM:

- 1 (What it is intended to achieve during the period under consideration – short and to the point, eg. “_____”)

FACTORS:

- 2 Description of fire and own strength.
Put factors in order of importance.
- 3 Ground-deduction
Do not include any factor from which you can make no useful deduction.
- 4 Time and space-deduction.
- 5 Weather-deduction
NOTE: These are only sample factors. They will vary on each occasion.
- 6 Life and property in danger-deduction.
- 7 _____

COURSES:

- 8 Open to us
 - (a) _____
For _____
Against _____
 - (b) _____
For _____
Against _____

State main points for and against each course.

9 Open to the fire

(a) _____

For _____

Against _____

(b) _____

For _____

Against _____

State degree of probability of each course open to the fire.

10 I will adopt Course 8 (b) which will counter whatever course the fire may take (or any other brief statement of your reasons for adoption of the course).

Or (where the fire had initiative).

I consider the fire will act as in Course 9 (b) and I will adopt Courts 8 (b) which will counter this or any other course it takes.

PLAN:

11 _____

12 _____

13 _____

14 _____

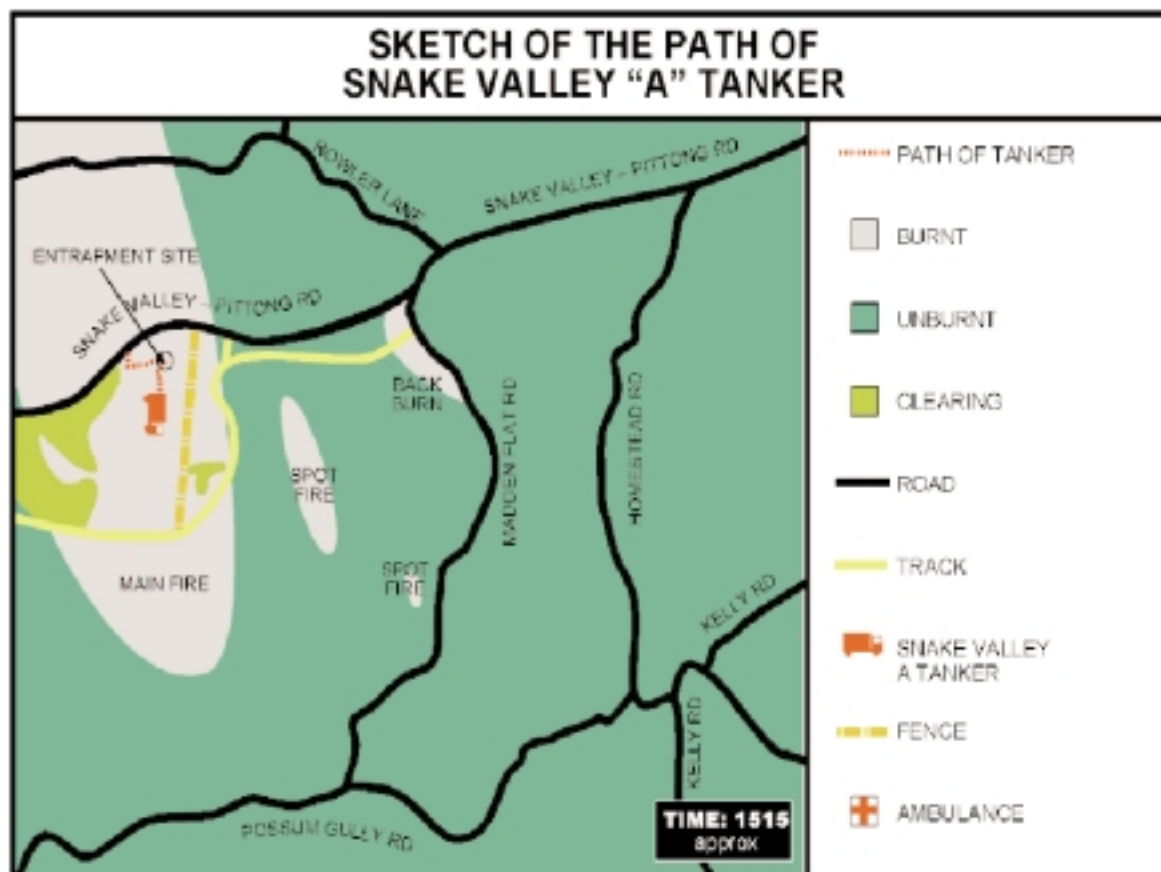
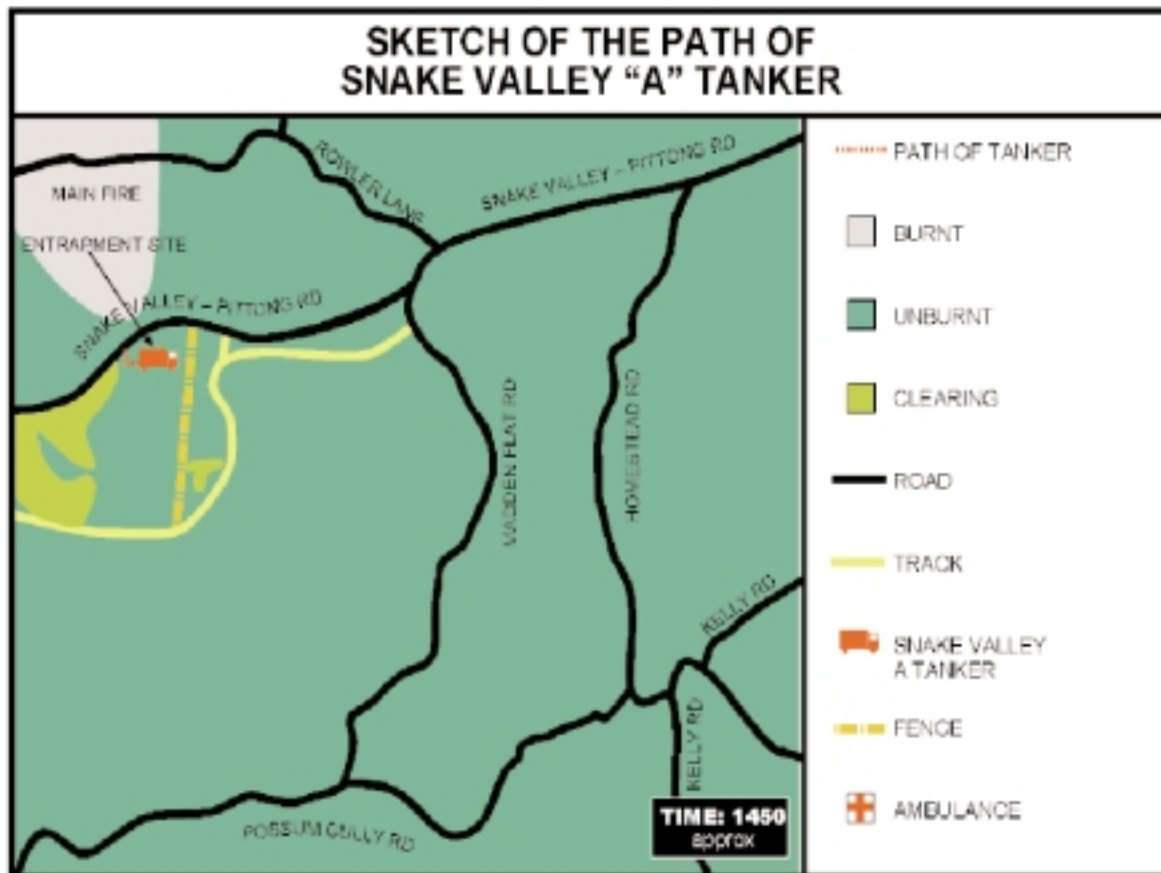
(signed) _____

(appointment)¹ _____

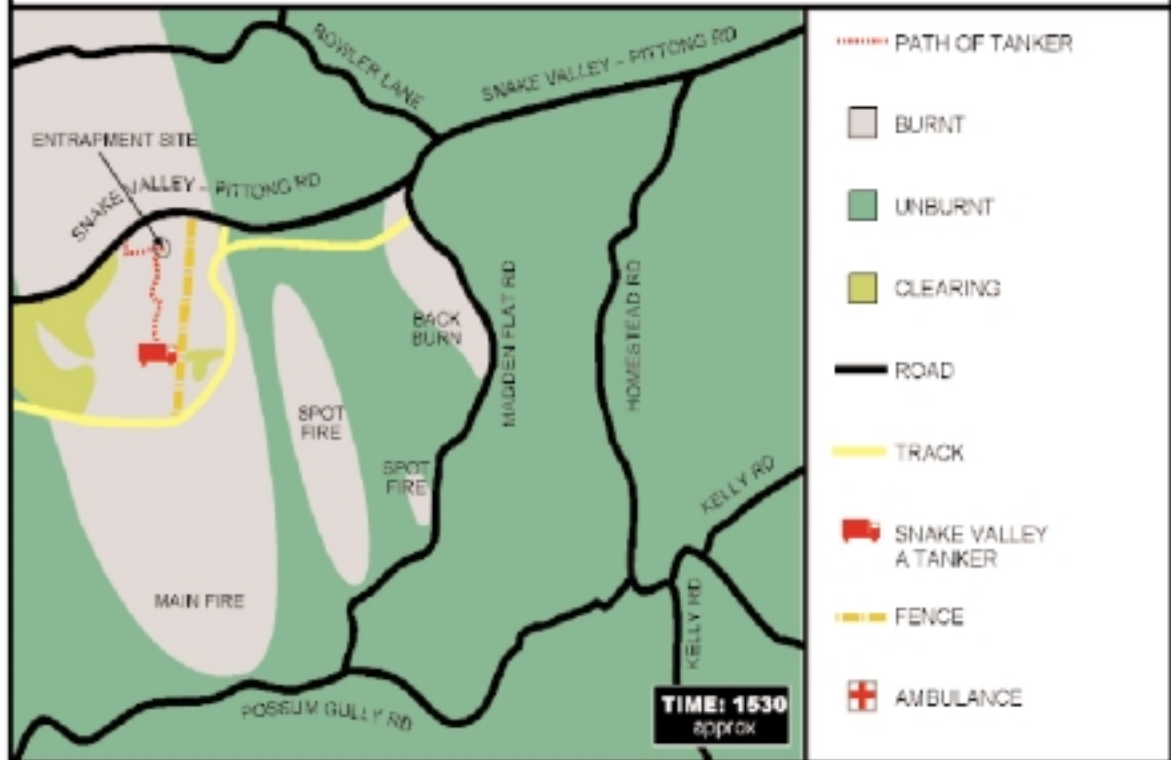
NOT nearly as much detail as an operation order, but enough detail to enable a trained staff officer (such as yourself) to write an operation order from it.

APPENDIX A2.4

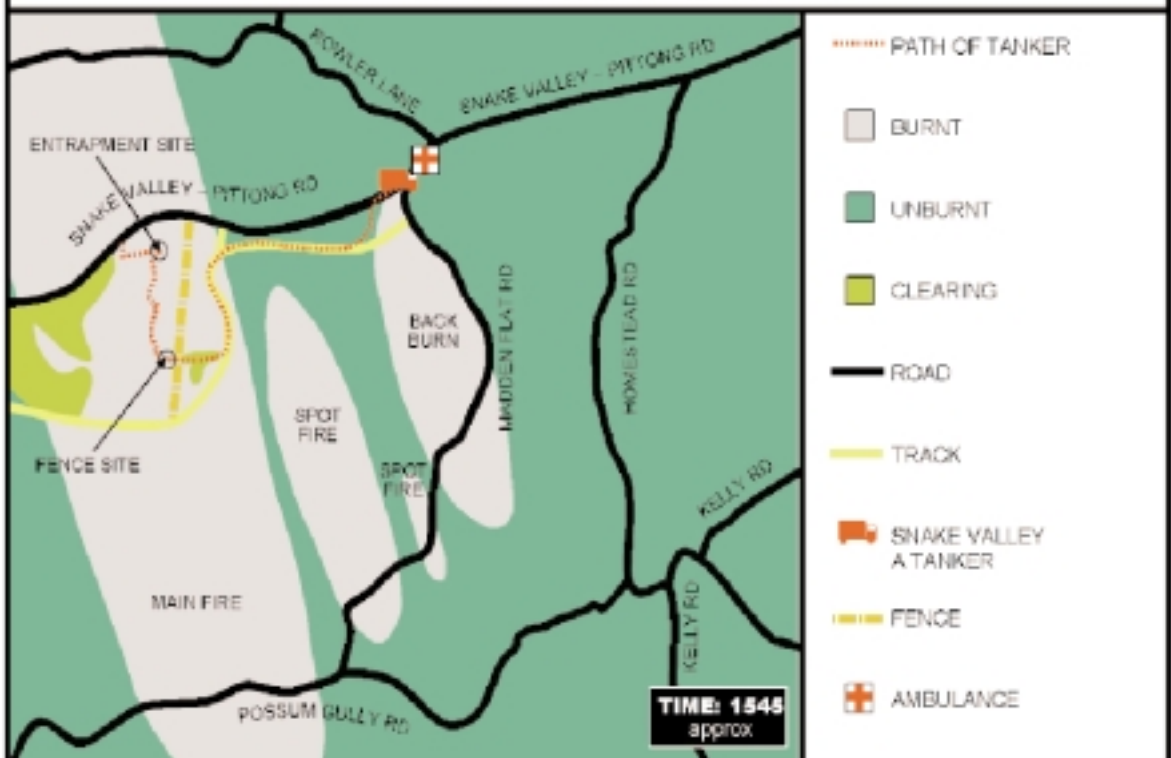
Diagrams re the path of the Snake Valley 'A' Tanker



SKETCH OF THE PATH OF SNAKE VALLEY "A" TANKER



SKETCH OF THE PATH OF SNAKE VALLEY "A" TANKER



Meteorological Maps

These Bureau of Meteorology maps trace the path and timing of the front across South-western Victoria.

















Recommendations of Parties on Firefighter Safety and from the 'Joint Operations Review of the Linton/Midlands Fire'

- A4.1** Recommendations of the Country Fire Authority
- A4.2** Recommendations of the Department of Natural Resources and Environment
- A4.3** Recommendations of the Bureau of Meteorology
- A4.4** Recommendations of the United Firefighters' Union
- A4.5** Recommendations of the Volunteers' Associations
- A4.6** Recommendations from the CFA/DNRE 'Joint Operations Review of the Linton Fire/Midlands Fire'

APPENDIX A4.1

Recommendations of the Country Fire Authority

33.1 In this chapter we will make submissions as to what should be the subject of recommendations by the Coroner.

33.2 During the inquest a number of issues were raised in relation to CFA processes, and some potential suggestions emerged relating to further improvements which might be implemented. Before we proffer our suggestions as to what recommendations should be made, it might be helpful if, in brief and summary form, we identify the evidence which responds to a number of the requests made by the Coroner, and which also addresses a number of the issues which were raised during the inquest.

(a) Evidence relating to issues and questions

33.3 The status of the joint review recommendations

The joint review (Exhibit 68, pages 41-44) contained 39 recommendations. Mr Ferguson gave evidence as to the present status of implementation of each of the 39 recommendations (Exhibit 206).

33.4 Near miss incident reporting

Attachment 5 to Mr Roche's statement (Standard Operating Procedure 3.07, clause 1) provides protocols for reporting near miss accidents and other accidents. In addition Mr Roche gave evidence as to steps taken to implement a "Safe Net" system of reporting health and safety issues (T10691, lines 1-30).

33.5 The wearing of watches

Mr Roche gave evidence (T10691, line 31 to 10692, line 25) that new vehicles have clocks in them; the CFA was investigating retrofitting clocks into all firefighting appliances. Further, as the CFA move towards the possible use of GPS as part of SIPSaC's, the GPS will also have a time display capability.

33.6 Weather information

- (a) Mr Grimmer (T3946) suggested an expansion of the RAWs stations in western Victoria. Mr Roche (T10693) explained that there have been an additional four or five stations in South Australia which are now available through the agencies, and that there have also been an increased number of stations in Victoria. The agencies currently have a working party examining the locations of weather stations to determine whether they are appropriately placed and whether some need to be relocated;
- (b) Mr Grimmer also raised questions concerning the access of CFA volunteers to weather bureau information. Mr Roche pointed out (T10697) that CFA personnel can access the weather bureau site through the internet. The CFA has a project in place called "brigades on line" by which, in the future, access into that information will be enhanced so that at a group level that information will be available in a more timely manner.

33.7 Low water level alert

- (a) Mr Moore gave evidence raising an issue about the reliability of the electronic warning system which has been introduced (T4454-5). Mr Rankin (Exhibit 209, para 40), states that whilst there have been some teething problems, those issues have been addressed;
- (b) Mr Coulter raised an issue about the bubble jamming in the sight gauge (T4623). Mr Rankin (statement para 41) stated that whilst sight tubes can be damaged causing floats to stick, an examination of workshops of the CFA indicates that this is not a common problem;
- (c) Questions were also raised about the audibility of the low water warning device. Those questions were addressed in the tests conducted after the visit to Fiskville (see report of test, CB page 8127, especially at pages 5-6).

33.8 Global positioning systems, automatic vehicle locations, and other methods of communication with tankers

During the inquest questions arose whether the use of computer technology, and GPS technology, could be used to better communicate with resources on the fire ground, and to locate those resources. Associated with this was the question of the use of technology to track and identify just what resources are on the fire ground. Mr Booth's second statement (Exhibit 212) deals with SIPSaC's and GPS systems, and in particular with the introduction of mobile data network (MDN) into the BEST CAD area (see statement, paras 6–23). We will take up this matter further in the section relating to recommendations. In addition, Mr Roche gave evidence about the trialing by the CFA, during the last two years, of a bar coding system to facilitate the control of resources on the fire ground (T10699, line 24 to T10700, line 11).

33.9 MCVs and PE vans – telephones and communication equipment

Issues were raised concerning the communication equipment available to PE vans and MCVs. Mr Roche stated that all regions have fixed satellite telephones, and access to one portable satellite facility. At least two of the PE vans have been fitted with satellite communications. Also the mobile telephone communications have been upgraded in the remainder of the MCVs (T10699).

33.10 Log books.

Mr Kavanagh (T63) raised the use of log books being available to personnel in the field (T6327). Mr Roche (T10701) stated that the CFA has now printed 500 personal log books which are in the field for trial. It is intended to change the log book to include the watch outs and standard fire orders.

33.11 Firefighter fatigue and smoke inhalation

Questions were raised concerning fatigue levels and the effect of smoke on firefighters. Mr Roche stated that the CFA relied on the work produced by Dr Brotherhood and Dr Budd (T10698).

33.12 Press protocols

As stated in Section 6, CFA has run a program training the press in basic fire behaviour (Roche, T10698).

33.13 Map books

A question was raised about updating map books by using computer technology. Mr Roche stated (T10701) that regional map books have been digitised, and the CFA has a program of re-printing each regions map books on a five year cyclic program.

33.14 Blue tooth technology.

Questions were raised as to the applicability of blue tooth technology. In his second statement, Mr Booth (Exhibit 212, para 27–30) indicates that such technology would have only limited use for the CFA.

33.15 Minimum skills training

Mr Roche (T10634–5) gave evidence concerning the current status of:

- (a) minimum skills training (T10634–5);
- (b) training material (T10644, 10649–51);
- (c) training packages for those in line command under the AIIMS ICS system (T10651–2).

33.16 Risk assessment

Mr Roche gave evidence that there are two projects in place in relation to risk assessment (T10655–6). One such project is the SHE Pacific Project. A preliminary draft of the report of SHE Pacific (renamed Risk-e Report) was tendered (Confidential Exhibit 249). The other project relates to the safe person concept.

(b) Recommendations

33.17 In the following paragraphs we will proffer recommendations which it is submitted the Coroner should make. Some of the recommendations consist of an indorsement of reforms and initiatives already undertaken or under way. Other recommendations concern further reforms and initiatives which the evidence in the inquest has revealed are desirable or necessary.

33.18 First recommendation

The Coroner should indorse each of the 39 recommendations contained in the Joint Operations Review (Exhibit 68, pages 41–44) as being appropriate and desirable. The Coroner should encourage stakeholders to co-operate and assist in the implementation and adoption of each of the recommendations.

It is submitted that each of the recommendations are valuable and appropriate suggestions for enhancing the efficiency and safety of firefighting. They were developed by experienced firefighters after a considered and thorough analysis of the Linton fire and the tragedy that occurred at Linton. There has been no suggestion during the inquest that any of the 39 recommendations are unnecessary, inappropriate or unworkable. The indorsement of the recommendations by the Coroner will assist to promote acceptance and implementation of the recommendations.

33.19 Second recommendation

The Coroner should indorse and recommend that the CFA continues to implement its competency based training and minimum skills program. The evidence has revealed that there has, since Linton, been a significantly greater acceptance of the need by personnel to embrace the concept of minimum skills. The volunteer associations have set aside their reservations, and have embraced the concept. It is important that all stakeholders participate in the implementation of minimum skills in a co-operative and positive spirit.

33.20 Third recommendation

The Coroner should indorse and recommend that all parties accelerate their uptake of AIIMS ICS training and the implementation of the AIIMS ICS system of incident management in all wild fire situations. Such an indorsement and recommendation would assist the CFA to overcome cultural and traditional impediments to introducing such a system.

33.21 Fourth recommendation

In order to assist with recommendation 8 of the joint review (Exhibit 68, page 41), the Coroner should recommend that aspects of the group system should be further examined and, if necessary, altered and redefined, as to their role within the incident management structure. The review should consider the role of groups in communications in the early stages of fires and the benefits of the group as an administrative system for brigades and firefighters. For this purpose, there should be a review of such matters as the formal titles of position holders within the group system, with a view to possibly altering titles such as “group officer” to ensure that those holding those positions are not identified as thereby having command roles in the incident management system. This issue was raised by the Coroner during the evidence of Mr Roche who stated that he thought it would be a good idea (T10757–8).

33.22 Fifth recommendation

The Coroner should recommend that the roles and functions of the operations point, the staging areas, mobile communications vans, and other operational structures, and the inter-relationships between them, be better defined. The Coroner should indorse the work already underway in this area. This recommendation is similar to recommendation No 10 of the operations review. In Section 5 we have dealt with this aspect. The evidence concerning the Linton fire reveals that while, at the time, it was considered that the operational structures were in place and operating appropriately, there were in fact shortcomings. Some of the problem lies in the fact that while the CFA have implemented important recommendations and initiatives, further definition needs to be built into the structures in order to clarify their roles and inter-relationships.

33.23 Sixth recommendation

The Coroner should recommend that the CFA should adopt a process whereby a person or persons check or audit:

- (a) The operational structures, including the operations point, and any staging areas, mobile communications vans, and like structures, which are part of the operations section. The process should ensure that each of the structures are properly in place and established, that they are appropriately briefed, that they are appropriately resourced both in terms of supplies and personnel, and that they are operating properly;
- (b) The AIIMS ICS command structure is in place and functioning effectively so that (for example).
 - (i) each strike team has and is reporting to an identified sector commander;
 - (ii) each sector commander has either a divisional commander or (if there are no divisions) an operations officer to whom to report;
 - (iii) each person in the command structure (particularly those responsible for deployments, including the sector commander) is briefed with appropriate information including weather information, communications plan, and the like;
 - (iv) structures such as the MCV and the staging area have an appropriate person at the operations point (preferably the operations manager) to whom they are regularly reporting and from whom they are receiving briefings.

Obviously such a process needs to be better defined, and further consideration needs to be given to it. This process would not be within the AIIMS ICS command structure. The precise reporting lines will need to be worked out. The circumstances in which the process is used also needs some consideration. It would not be envisaged that the process would be necessary for each type 1 fire, or, possibly, for each type 2 fire. Further, the CFA would need to give consideration to the way in which existing mentors are used. Indeed, the process may be an evolution from the existing concept of the mentor (see the evidence of Mr Roche, T10728, lines 9–18).

33.24 Seventh recommendation

The Coroner should recommend that the CFA and the NRE continue to consult to ensure that they achieve, and document, the same understanding as to the line management responsibilities at the operations point, and to the roles of deputies. Both agencies have commenced this consultation.

33.25 Eight recommendation

The Coroner should recommend that the CFA should continue to implement a safety culture throughout its organisation and to seek and obtain appropriate professional advice to assist in that process. The Coroner should indorse the concept that, in a wild fire situation, it is of utmost importance that each firefighter assume responsibility for his or her own safety and the safety of those around them. The concept that safety is everyone's responsibility is fundamental to safe firefighting.

33.26 Ninth recommendation

The Coroner should recommend that the CFA continue to develop systems by which “near miss” incidents (that is, incidents involving danger to health or safety of firefighters) be expeditiously reported to those in the command.

33.27 Tenth recommendation

The Coroner should recommend that funding be made available to the CFA to enable the installation of the additional base radio stations necessary to provide acceptable coverage as set out in the second statement of Mr Booth (Exhibit 212, para 25).

33.28 Eleventh recommendation

The Coroner should recommend that the parts of the SIPSaC strategy relevant to CFA and in particular the mobile data network and associated automatic vehicle location technologies are funded, progressed and extended to regional areas of Victoria. We refer to

Mr Booth's second statement (Exhibit 212, paras 6–16). As an interim measure, the Coroner should recommend that a simple text based data transmission system be introduced in regional areas in accordance with paragraph 17 of Mr Booth's second statement.

33.29 Twelfth recommendation

- (a) The Coroner should recommend that funding be made available to facilitate introduction of the initiatives relating to vehicles set out in paragraph 27 of Mr Rankin's statement (Exhibit 209);
- (b) Further, the Coroner should recommend that the Australian Fire Agencies Council, in co-operation with fire agencies across Australia, undertake research into firefighting equipment design, safety and survivability.

33.30 Thirteenth recommendation

The Coroner should recommend that henceforth the Bureau of Meteorology, in providing forecasts to the firefighting agencies, provide an indicative range of the times at which it expected that significant weather changes will arrive at the fire ground. The Bureau and the agencies should consult as to the format and method by which that range of forecast is to be provided.

33.31 Fourteenth recommendation

The Coroner should recommend that CFA receive sufficient funding to implement all the above mentioned initiatives.

APPENDIX A4.2

Recommendations of the Department of Natural Resources and Environment

We respectfully request that the Coroner give consideration to the following matters in the exercise of his jurisdiction to make recommendations.

- 1** That the NRE/CFA 'Safe Forest Firefighting' document and the commitments it contains be endorsed as the appropriate way forward for Victoria's two rural fire services.
- 2** That the efforts of Victoria's two rural fire services to ensure that every firefighter and every fire manager embrace the 'safe person' approach to all fire management activities be supported as the best way to bring about a safe forest firefighting culture in Victoria.
- 3** That the three phase approach to auditing of fire management activities, currently being developed by NRE, be endorsed in principle, and that the two fire services be urged to jointly further develop this approach.
- 4** That the decision of the Australasian Fire Authorities Council to review the AIIMS-ICS Manual and associated training packages, with a particular emphasis on occupational health and safety principles, be endorsed.
- 5** That the principles that only resources requested by a designated incident controller are dispatched to a wildfire, and the requirement that only firefighters who are competent for the anticipated tasks are deployed to a fire, be endorsed.
- 6** That the commitment of both agencies to ensure that Incident Action Plans, Control Structures, and Communication Plans are produced in written form and provided to IMT and command personnel (including crew leaders), at the earliest opportunity, be endorsed.
- 7** That a water retention policy for fire tankers involved in forest operations is considered inappropriate where competent forest firefighters are involved.
- 8** That the AIIMS requirement that key ICS personnel (including fireline command officers) are easily identified, be endorsed.
- 9** That the commitment of both agencies to ensure that all contractors, other fireline support personnel, and media representatives are properly trained and accredited, or are supervised by suitably trained and accredited personnel, be endorsed.
- 10** Given the financial, political and environmental constraints imposed upon it, that NRE's fuel management policy, as detailed in Exhibit 71D, is seen as appropriate to meet the communities expectations regarding fuel management.
- 11** That the current mutual support arrangements between the two fire services are endorsed as being adequate.
- 12** That the fire agencies ensure that in future job titles for daily substantive positions shall not lead to conflict with AIIMS position titles.
- 13** That NRE and CFA formally embrace the 'mentor' system.
- 14** That NRE and CFA review their policies on the reporting of 'near-miss' incidents and develop a compatible system of reporting. That NRE and CFA review their current procedures for briefings and the dissemination of critical information advice and develop a common methodology.
- 15** That with any future inquests the Coroner should utilise that fire expertise within each agency by seconding appropriately qualified personnel (from the agencies) to assist with his inquiries.

ROBERT REDLICH
JOHN LANGMEAD
WILLIAM SOUTHEY

APPENDIX A4.3

Recommendations of the Bureau of Meteorology

Issues Raised in the Course of the Investigation/Recommendations

In the course of the evidence there were a number of issues raised that may warrant consideration by the Coroner when it comes to making recommendations involving the Bureau.

(a) Accuracy of Warnings/Forecasting the Change Earlier than Later/Erring on the Side of Caution:

This was the most commonly raised issue in the course of the evidence as far as the Bureau is concerned see – T8133–5, 8294, 8170, 8175, 8208–9, 8289–90, 8460, 8461.

This issue has its genesis in Clause 6.3 of the Fire Weather Directive i.e. the forecasters are encouraged in the directive to show “other less likely scenarios” on the forecast.

It is worth pointing out that agreement has been reached with the fire agencies to present weather in three hour time blocks which to some extent recognises the difficulty of accurate forecast information.

Dr. Reeder suggested that confidence levels could be introduced for wind change forecasts. In principle the Bureau is not opposed to such a proposition, however the best way to present and format such information should be considered in consultation with the Fire Fighting Agencies as they are the ultimate users of the forecasts. It is important that the information that is passed onto the Fire Fighting Agencies is in a manner that makes the forecast meaningful. The Bureau sees difficulty in consistently providing the earliest time, rather than the most likely time, as the forecast could then lead to a situation where the Fire Fighting Agencies become aware of this bias and factor this into their calculations. Furthermore there is the risk that such an approach would give rise to more than one forecast being issued eg: one for the public delivered through the media and a different one for the fire fighting agencies thus giving rise to the likelihood of confusion and inconsistency.

In relation to this issue any recommendation made should be along the lines that the Bureau and the Fire Fighting Agencies institute arrangements to ensure that less likely scenarios identified and discussed.

(b) Research on Accuracy of the Models

Many of the points on this issue have already been canvassed above under the heading “European Model versus LAPS” (pp.8–10 of this submission).

A study of the comparative accuracy of the ECMWF and meso-LAPS model forecasts for the timing of wind changes through Melbourne for the period 1 October 1998 until 25 December 1998 has been carried out. For the purposes of this study printouts of the ECMWF and meso-LAPS were reproduced as they would have been available to the forecasters at that time.

For the meso-LAPS the forecasts at 3 hourly intervals with near surface winds were recovered and the position of the wind change lines deduced. For the ECMWF the forecast charts of pressure were plotted and the wind change line deduced from these pressure lines as well as possible. This was difficult in many cases, because of the coarse resolution of the ECMWF Model, so sometimes a westernmost and easternmost possibility were estimated. The timing of the wind change for the meso-LAPS forecast, the ECMWF forecast and the actual time of the wind change through Melbourne determined independently by three separate forecasters, thus removing any possible bias.

The overall conclusion is that the meso-LAPS forecasts of the timing of the wind change through Melbourne were more accurate than the ECMWF forecasts in 6 out of the 10 cases. The mean error for the 10 meso-LAPS cases was 3.5 hours and the mean error for the ECMWF forecasts ranged from 4.8 to 3.1, depending on whether the best case or worse cases were selected. For the three cases (change days) in the weeks leading up to Linton the meso-LAPS model was more accurate than the ECMWF Model.

Notwithstanding this, the Bureau of Meteorology Research Centre will continue to work on improvements to numerical models that will assist the accuracy of shorter range forecasts.

(c) Improvement in the AWS System

This was one of the issues raised by Dr. Reeder (T8139).

Since the Linton fire there have been two additional AWS' placed in Central Western Victoria. One has been placed at Mount Gellibrand, near Colac and one at Ballarat.

Dr. Reeder suggested in his evidence that sensitivity studies be undertaken to determine at which point AWS' should be placed to achieve the best forecast performance from the models. The Bureau accepts that this is a valid point but there are real constraints on exactly where the AWS' can be placed in that the sites have to be suitable, secure, have power and communications and have proper exposure. The Bureau believes that the placement of the two additional AWS' since the Linton fire have rectified to some extent the black spot in Western Victoria. Having regard to the demands (and financial constraints) in other States and Territories, Bureau and the Fire Fighting Agencies are continuing to assess the placement of additional AWS and the reporting system.

(d) Research on Cool Change Behaviour

Again this was an issue raised by Dr. Reeder (T8157).

The Bureau certainly has no argument with the proposition that research should be conducted on the behaviour of summer time wind changes and given the improved data now available from the Bureau, accepts that it would perhaps now be timely to carry out such research. The Bureau however like most Government departments has a limited budget with many demands upon that budget particularly in areas that affect life and safety e.g. wind over water, behaviour of severe thunderstorms and tornadoes, blizzards and fog (particularly by affecting airports) occurrences at airports. Each of these areas needs to be researched and it is really a question of prioritising the research demand based upon limited resources.

(e) Auditing of Fire Weather Forecasts

This was an issue raised in evidence at T8207 and 8334-5.

In order to carry out an audit of fire forecasting performance, it is necessary to have high quality information on such things as the arrival time of the change at each of the fire grounds. It is rarely possible for the fire agency staff on the ground to provide the information required because they are not trained as weather observers and may not be in a position to estimate the prevailing wind speed and direction very well because most wind changes are not as clear cut as the one that occurred on 2 December 1998.

The Bureau's view is that the most appropriate way to carry out such studies is by use of the Bureau's AWS system. Work is currently being done on this in the current off season. The Bureau's view is that with appropriate resources it would be possible to do some spot checks during the fire season.

(f) Printing of the Aviation Charts

The time of printing of the aviation chart was an issue raised at T8189.

Exhibit 211M is called the 6.00pm Aviation Chart although it was not printed until 6.52pm.

The time of printing of the aviation chart is chosen so that all available data has time to be stored into the Bureau's computer system. The aviation forecaster will then draw the chart which occurred at about 7.15pm on 2 December 1998. This does not mean that later observations are not available to the forecasters as they are updated on the computer screens as they become available. The aviation charts are printed and drawn every three hours so that the forecasters can assess the overall picture at each of those times as well as getting the updates from the AWS system as they become available. This does not mean that the observations are not available to forecasters, as all information is in the computer system at all times for display.

Therefore the Bureau does not believe that this process requires review.

(g) More Frequent Release of Weather Balloons

This is an issue which was raised at T8720.

Since Linton the Bureau has commenced to use an experimental wind profiler at Mount Gambier which the Bureau believes will be more useful than extra balloon flights.

The profiler is a radar beam point vertically, capable of measuring the wind at many levels in the atmosphere at intervals of approximately every one half hour. The use of wind profiler is a better solution to more balloon flights. However whilst the profiler is in the experimental phase, the Bureau intends to continue using balloon flights to read the lower levels of the atmosphere.

(h) Failure of the Information Exchange Between the Bureau and the Agencies in Relation to the AWS Information

This was an issue raised at T8235–6.

At the time of the Linton fire there was no alarm system in place for AWS data not received from the CFA. As Mr. Williams said in his evidence there is now an alarm set to be activated when data is not received after the specified data receipt time.

(i) Linking the ECWMF and LAPS Models Together

This was an issue raised in evidence at T8246–8 and 8272.

The global models are presented in hard copy side by side each day on the senior forecaster's desk as they become available. The senior forecaster is responsible for analysing the differences in the models and advising the forecast team.

In the last two years there has been introduced a capability to show four models side by side on the forecaster's computer screen for the sake of comparison.

It is not technologically possible to compare the LAPS model to the global models in exactly the same way. This is because there are many intermediate steps available in the LAPS models as well as displays of wind, temperature etc which are not available on the overseas models.

(j) Bureau Staffing Levels and Fire Fighter Introductory Training

These were issues raised at T8321, 8371 and 8422.

The Bureau's view is that the staffing levels are adequate when there is a fire during the day. Potentially there can be difficulty after 7:00pm when the dedicated fire weather forecaster goes home. The Bureau's view is that the best procedure is for the senior meteorologists to make staffing arrangements based on all factors operating at the time. He can if need be require staff to remain on duty after 7:00pm or call in additional staff. This is established practice.

Since Linton firefighting introductory training has been conducted by the CFA for forecasters at the Bureau – the last such course being conducted on 30 March 2001. It is proposed that such training continue.

The logging on procedure for staff of the computer system is now quicker than in 1998 because the resources of the system are greater and also because the logging on action automatically and sequentially starts several applications.

(k) Improvement in Presentation of the Wind Change Charts

This is an issue as raised in evidence at T8463.

Within the Bureau, as from the commencement of 2000–2001 fire season the Wind Change Chart shows an hourly position of the wind change produced for every change day. The Bureau's view is that this has proved useful not only for the fire weather forecaster on duty but for the purpose of briefing the oncoming nightshift senior forecaster and the documentation of each event. Attached is an example of the revised form of the Wind Change Chart.

The question remains open as to whether the Fire Fighting Agencies are assisted by the detail of such a presentation. This should be a matter left for discussion between the Fire Fighting Agencies and the Bureau at their biannual meeting.

DATED the 11th day of May 2001.

Australian Government Solicitor
Solicitor for the Bureau of Meteorology

APPENDIX A4.4

Recommendations of the United Firefighters' Union

Industry/Agency

- 1 That the Victorian fire services be restructured into 3 agencies:

- Urban and regional (for city and town fire management)
- Forest (for public land and plantation fire management)
- Rural (for small towns and villages)

This is based on the simple but essential proposition that those who are competent and experts for the job should do the job. It recognises the interests of not just the community, but the safety of those protecting the community and/or property.

- 2 That the UFU have equal representation on the CFA Board with the volunteer Associations.

Career firefighters are not represented on the peak governing body of the CFA (compare volunteer representation of four out of 12 members: s7 Country Fire Authority Act 1958). Section 7 provides for every 'stakeholder' other than the CFA's paid workforce to have a say in governing the CFA. This is contrary to principles of modern corporate governance and the interests of the CFA's career firefighters.

Consultation

- 3 That the CFA's Occupational Health and Safety Policy Committee be properly consulted regarding all relevant safety matters arising from the inquest.

This should not need to be a recommendation because it should happen under the Occupational Health and Safety Act 1985: s37. Despite this, the evidence of Roche (T10652–54) and documentation provided to the inquest by the CFA (Ex251C) regarding the CFA's OH&S structure fails to even note the existence of this important committee. The UFU is concerned that the expertise of the Committee be properly utilised.

- 4 That meetings between the representatives elected under s30 of the *Occupational Health and Safety Act 1985* and the UFU Occupational Health and Safety Co-ordinator(s) occur at least twice annually for the purpose of considering OH&S issues specifically relevant to the fire services.

Firefighter Safety

- 5 That the DNRE assume position of lead agency at all multi-agency incidents involving wildfire.

- 6 That a DNRE officer act as strike team leader of every CFA strike team deployed to a wildfire.

The DNRE are experts in wildfire management (6.5–6.6; and see Your Worship's comments at T3174–5). CFA career and volunteer firefighters are predominantly experienced in structural fires and/or grassfires. Firefighter fatalities in wildfires since 1939 reflect this too graphically (DNRE – 2 since 1939, T2649; CFA – 19 between 1980–1999)¹

- 7 That all personnel in the ICS structure, from crew members to IMT officers, be mentored (one on one) by a competent supervisor when performing that role for the first time (T10150).

- 8 (i) That the CFA appoint a designated, qualified Safety Officer to all type 2 and 3 incidents in accordance with AIIMS/ICS.

(ii) That in the case of a type 3 wildfire a Safety Officer shall be appointed for the incident management team *and* for *each sector* of the fire. That deputy Safety Officers be appointed to assist Safety Officers where appropriate.

(iii) That the powers of a Safety Officer include the power to cause immediate correction to any activities that present an imminent risk to firefighters including the power to alter, suspend or terminate those activities.

- 9 That the CFA, DNRE and MFESB conduct a review of personal protective equipment (PPE) used by or potentially available to firefighters and that such review include representation of the UFU.

The importance of adequate PPE was referred to above at 22.4.

Training and Experience

- 10** That training for command, supervisory and staging area positions in the ICS be immediately expedited and targeted and that the CFA make fullest use of its career staff in meeting this objective.

Strategic use of well-placed resources can realise the objectives of the CFA in achieving an ICS commanded by competent operational and fireground personnel (IMT, Sector/Division Commanders, Strike Team Leaders, Crew Leaders)

- 11** That CFA career staff be fully utilised during large and/or protracted incidents

Such utilisation has been restricted in the past apparently for reasons concerning overtime payment (RocheT10,762). This attitude continues to significantly limits the opportunities for career staff to gain valuable experience to supplement their training (Ex196, UFU at para 14–15)

- 12** That the CFA's training and 'Minimum Skills' program in particular be reviewed with a view to examining the integrity of its competency-based training and that the review include representation from the UFU.

- 13** That the CFA expedite an appropriate system of recognition of prior learning and experience for career and volunteer firefighters. That this be done in consultation with the UFU.

- 14** That the CFA, in association with the Victorian Workcover Authority, provide to all its career and volunteer firefighters and managers appropriately-targeted training in occupational health and safety and risk management.

AIIMS/ICS

- 15** That all positions occupied in the AIIMS/ICS at an incident be on the basis of competency and not position within the volunteer group/brigade structure

This is essential because volunteers are still elected to positions of authority in the brigade structure rather than being appointed based on competency (Ex 59, para 132). This is contrary to the fundamental AIIMS/ICS principle that personnel are competent for their role in the ICS.

- 16** That staging areas be properly used at multi-agency incidents to receive and deploy resources from all participating agencies.

- 17** That the CFA, DNRE and MFESB meet and agree on the manner of operation of AIIMS/ICS at a multi-agency incident as a matter of urgency.

APPENDIX A4.5

Recommendations of the Victorian Urban Fire Brigades Association and the Victorian Rural Fire Brigades Association

The Victorian Urban Fire Brigades Association and the Victorian Rural Fire Brigades Association ("the Volunteer Associations") recommend that:

9 Pittong Road Line Up

- 1** The CFA develop and implement a thorough training program concerning:
 - (i) the assessment of fuel loadings;
 - (ii) the practical application of fuel hazard guides;
 - (iii) the assessment of conditions generally in wild fires including the effects of wind, wind shifts, volatility of fuel types, variations in terrain (particularly on change to an up-slope), conditions of relative humidity, drought index assessments, fire index assessments and the combustibility associated with levels and types of ground fuel as well as with different types of trees and other standing vegetation.
- 2** All persons who are likely to be in command positions at wild fires be specifically targeted and given the benefit of the training referred to in 1 above.
- 3** The CFA ensures its regional operations personnel (operations officers/operations managers) have the appropriate wild fire competencies and experience and be dispatched to wild fires in the initial attack phase as quickly as possible to assist with decision making or to take on a mentoring role.
- 4** Consideration be given to making available the history of fuel reduction programs carried out in forest areas generally. In this respect, is it possible for the NRE to provide the CFA with these histories so that the CFA can then distribute the appropriate histories to each group? This will ensure that each group in Victoria has available to it an accurate history of fuel reduction programs relevant to their area. If this information was available to the groups, it could in turn be quickly made available to brigades and decision makers in the early stages of fire control.
- 5** A practice be developed to ensure that where an initial attack on a wild fire has failed, subsequent decisions are made by personnel who have thorough training and are appropriately experienced in wild fire control.
- 6** Provision be made to ensure that any decision making in the early stages of a wild fire first takes into account and evaluates any risks to fire fighters which may be associated with a proposed wild fire control strategy.
- 7** The best available environmental, operational and technical information be available at the earliest possible opportunity to enable the decision makers to make fully informed decisions.
- 8** The experience of and the lessons learned from the Pittong Snake Valley Road line up (as well as the Madden Flat Road and the Madden Flat Road extension burn outs), be used as case studies and incorporated into training programs which are available to all fire fighters. If this could be done, there would be practical examples available for fire fighters and potential decision makers. The use of such case studies would assist in better understanding the risks and problems associated with wild fires.
- 9** Instruction and training be given and reinforced so as to ensure that incidents/accidents are reported from the fire ground. Under the AIIMS/ICS system (Exhibit 21), the operations officer is required to report significant incidents/accidents (see pg 30, middle bullet point). The difficulty is that in the lead up to a first attack in a forest fire and before the IMT and the forward operations point is effectively operating, reportage of an accident/incident assumes that an AIIMS/ICS system is competent and operating from the outset of fire control. This identifies the need for further training and reinforcement of that training, so that the AIIMS

system is working from the outset of the fire control. In looking at the problem of reporting, the Volunteer Associations recommend that specific instruction and training be provided to all personnel in the brigade/group system to encourage the reportage of any accident/incident. It is to be hoped that reportage becomes part of the culture. In the context of the “culture”, it will be necessary for the instruction and training to work towards what might be seen as a shift in attitude. There is a need for a system of reportage which is divorced from any concept of blame, fault or even embarrassment. Such instruction and training should also be aimed towards the command structure so that incidents/accidents when reported, are followed up and that all relevant information regarding same is made available and referred onto the forward operations point/IMT so as to be appropriately processed.

- 10** The movement of resources be controlled through the rigid implementation of the AIIMS/ICS system. One of the major problems which developed in the early stages in this fire was the over abundance of fire trucks and crews arriving at the fire scene and deploying along both Pittong Snake Valley Road and Rowlers Lane. Resources must of course go in to find where the fire is and if thought fit to make an initial attack. When and if the initial attack fails or fire conditions indicate that a more planned approach is necessary, the movements of other resources must be controlled. However incoming resources should be required to assemble at designated meeting places. It is also important that these incoming resources receive information which is pertinent from the outset. To achieve these aims, would it be appropriate for group base radio operators to be given the authority to ask the officer in charge of the incident to advise them regarding:

- the place or places at which incoming resources are to meet;
- the identity of the person or persons who are going to be in charge of those resources at each meeting place;
- the intended chain of command and the identity of the person or persons who will hold those command positions;
- the identity of the person or persons who is/are to be in charge and responsible for the resources at each meeting place;
- the identity of any and, if so, what sectorisation of the fire ground; and
- the radio channel(s) which are to be used on the fire ground.
- If the group base radio operators were provided with this range of information and if so authorised, the radio operator is the ideal person with the capacity to direct incoming resources as to where they are to meet up and to otherwise broadcast information sufficient for the incoming crews to understand the basics of the command structure as well as the communications plan.

It seems to the Volunteer Associations that to establish such a procedure would be a good starting point from which some order and control can be developed. Radio operators could be provided with a simple check list that they could follow to prompt them on each of the matters raised above.

10 Snake Valley A Entrapment

Noting that but for the Pittong Road line up, Snake Valley A tanker and its crew would not have been involved in trying to put spot fires out in the forest, the Volunteer Associations recommend that:

- 1** Decision making that occurs during the early stages of the fire be more structured and undertaken within the inherent disciplines of the AIIMS/ICS fire management system (see generally, the recommendations made above in 9, “Pittong Road Line Up”).
- 2** There be reinforcement of current training concerning the watchout instructions and the standard fire orders. Training in this respect should be more focused on giving practical examples of wild fire behaviours and/or wild fire ground conditions which have occurred. If practical examples were available, it is likely that the chance of the watchouts being much better understood and remembered would be improved. Situations such as those confronted by the Pittong Road line up, Snake Valley A, the burnouts and the Geelong West entrapment could provide instructive case studies for training purposes.

11 Pittong/Madden Flat Road Burn Out

Noting that the experience again demonstrates the need for further training to ensure that the discipline of the AIIMS/ICS system is operating from the outset of fire control, the Volunteer Associations recommend that:

- 1 Brigade personnel who are likely to be the early decision makers at wild fires be targeted for specific training in the AIIMS/ICS system and in the specific features associated with assessing wild fire conditions. In this respect reference is again made to 9 above, "Pittong Road Line Up", and particularly to paragraphs 1 and 2 of those recommendations.

12 Incineration of Mr Lightfoot's Vehicle

This event does not invite any recommendations.

13 Possum Gully Madden Flat Road Burn Out

This event involves the same considerations that were associated with Chapter 11, "Pittong Madden Flat Road Burn Out".

14 Geelong City and Geelong West Entrapment

The Volunteer Associations recommend that:

- 1 The CFA reviews procedures generally for wild fire fighting with a view to considering implementation of the continued extension of the CFA's "TRAIN" data base system with respect to training records for all volunteers so that it becomes an entire record and that access to such records are available to local fire brigades and regional headquarters so that brigade and regional management can have access to and readily source prescribed competencies and levels of experience achieved by volunteers (Exhibit 60, para 65).
- 2 Having regard to the current system of minimum wild fire skills and the improved TRAIN system, brigades and the regional headquarters continue to be responsible for the selection and deployment of strike teams and strike team leaders. The Volunteer Associations note that the CFA proposes to trial a bar code system for volunteer competencies which presumably could be utilised at the staging area to assess the competencies of strike team members. The Volunteer Associations have reservations regarding the practical operation of such a system and the possible adverse impact it may have on volunteers who have been dispatched by their brigades as competent to be on the fire ground.
- 3 The SMEACS briefing format be used and that instruction and training be given with respect to it in anticipation of the format becoming second nature to the volunteers. Consistent with the CFA's development of its "safety first" culture, it would be appropriate for the safety briefing to be first in the format.
- 4 The strike team leader preferably be trained, duly accredited and appropriately experienced both as a strike team leader as well as in performing any task which he or she is to supervise on a wild fire ground.
- 5 If a strike team leader is not so accredited and/or has not had appropriate practical experience in any task which he or she is to lead on a wild fire ground, he or she is not to take up the position unless:
 - (a) his or her practical experience as a strike team leader is known to be extensive and his or her capacities as a strike team leader are known and acknowledged; and
 - (b) he or she is personally supervised or alternatively, accompanied by a mentor when leading the strike team.
- 6 The use of an unauthorised "go to" channel on a wild fire ground be absolutely prohibited and that this prohibition be included in the SMEACS briefing.

- 7** The strike team leaders be provided with a standardised check list when briefed at the staging area. This check list should specify in written form:
- (a) each safety issue which has been identified and which relates to the wild fire ground;
 - (b) the status of the weather and any existing wind change information;
 - (c) the communications plan for the fire ground;
 - (d) the command structure for the fire ground;
 - (e) the sectorisation plan for the fire ground.
- This information is essential. It is basic to fire fighter safety and orientation in relation to a fire ground. Strike team leaders should not have to rely on memory for this range of information.
- 8** The SMEACS information to be briefed at the staging be pre-planned and developed into a format so that the same information is available to everyone who is to be deployed and the chance of material information being omitted from the briefing is reduced.
- 9** The strike team leader is deployed to the fire ground to a specified sector with instructions to meet command personnel, the name and rank of whom is identified.
- 10** When on the fire ground the strike team leader does not accept instructions to lead in a task other than the one that he/she was briefed to lead when at the staging area unless that change in task has been authorised by the forward operations point or the operations section at the IMT.
- 11** For the duration of the event, there be regular radio messages on, say, an hourly basis, where the time of day, the communications plan as well as the weather and wind change status is broadcast.
- 12** Before briefing strike team leaders on the fire ground, the person conducting the briefing first ascertain from the strike team leaders the content and detail of the briefing given at the staging area and ensures that the strike team leaders have the check list referred to in 7 above with the pertinent information set out on it.
- 13** When leading the strike team on the assigned task, the strike team leader is to report to the sector commander on a regular basis and to advise both as to progress and any anticipated change in activity. The strike team leader will also ask for (and be provided with) current information concerning weather conditions and wind change.
- 14** The CFA review the instruction and training given about keeping a reserve or a quarter of a tank of water. Standing Order 3.05.3 (attachment 4 to Exhibit 60) now clearly establishes the quarter tank rule. The quarter tank instruction results in different tanks of different sizes having different volumes of reserve water. Differences in volume of reserve water potentially infer different safety levels. The Volunteer Associations therefore recommend that the quarter tank rule be reviewed and a decision be made as to what is a safe volume of reserve water.
- 15** Training courses packages for sector commanders be finalised as soon as is reasonably possible and a program for training and accreditation of as many volunteers as is reasonably practicable be undertaken.
- 16** Training course packages for divisional commanders be developed and made available so that volunteers can be trained up as soon as is reasonably practicable.

15 IMT

The Volunteer Associations recommend that:

- 1** The responsibilities designated to the role of incident controller be reviewed. The Volunteer Associations believe that the current responsibilities assigned to the incident controller are extensive and have the potential to detract from the incident controller's ability effectively to concentrate on the management of the incident.
- 2** The incident controller ensures that some other person has the overall responsibility to supervise the various sections within the IMT so as to ensure that they are working effectively and that important information from any given section is shared between the IMT.

- 3 The agencies recognise that the incident controller should only be required to perform supervisory responsibilities to the extent that it is reasonably practicable to do so.
- 4 The assignment of responsibilities between the operations officer function in the IMT and the operations officer at the forward operations point be clearly identified so that no incorrect assumptions will be made about who has the responsibility for which task/role.
- 5 The CFA and NRE undertake a joint review of the delineation of responsibilities between the four sections in the IMT to remedy, where necessary, any confusion as to which section has the responsibility for each task. In particular, the CFA and NRE need to clarify, under AIIMS/ICS, whose responsibility it is to ensure that a communications plan is documented as soon as is reasonably practicable.
- 6 The documented incident communications plan for a type 3 incident identify both command and fire ground channels and in the event that the incident is a multi-agency incident, that both the CFA and NRE channels are documented on the one plan.
- 7 The IMT ensure at the earliest possible time that the communications plan for both agencies, the sectorisation of the fire ground and the identity of the command structure are authorised in writing and made available to the forward operations point, the M.C.V. and the staging area.
- 8 The procedure established for the reporting of "near miss" incidents be extended to include the analysis and review of such incident as soon as practicable after it occurs so that those at IMT level can determine:
 - (a) if the safety of the fire fighter(s) has been compromised;
 - (b) what, if any, warning messages should be transmitted to those on the fire ground; and
 - (c) whether the incident is indicative of future fire behaviour.

The reporting and analyses of near miss in incidents may also provide useful scenarios for wild fire fighting training in the future.
- 9 Each officer and deputy officer from each of the sections in the IMT ensure that they are fully briefed by their section before attending IMT meetings and that each of the officers mentioned attend such meetings.
- 10 The incident controller be provided with a checklist so that at IMT meetings he/she is in a position to check off so as to ensure critical tasks performed by the various sections have either been completed or their state of development is identified. Such a procedure would provide a check against the chance of key tasks or obligations not being attended to.
- 11 The appointed officer of each section be given a checklist of responsibilities to be performed throughout the course of the fire.
- 12 The IMT conduct regular meetings of key officers within the IMT.

16 Forward Operations Point

The Volunteer Associations recommend that:

- 1 The CFA and NRE consider better defining the division of responsibilities between the operations personnel at the IMT and the operations personnel at the forward operations point. The impression is that once a forward operations point is established, the duties and responsibilities of the operations officer personnel in the IMT seem to fall away and have little practical purpose.
- 2 Operations personnel in the IMT oversee and supervise the operations functions of the forward operations point to ensure that:
 - the forward operations point is fully resourced with personnel, communications, facsimile equipment and the like so that it is able to operate efficiently. If there is any want in provisioning then the operations personnel in the IMT could set about resourcing for the forward operations point from the logistics section or from such other sources as might be thought appropriate;

- the communications plan is in place, that its detail is known to the IMT and that an authorised communications plan is forwarded in written form by the IMT to the forward operations point at the earliest possible time;
- the chain of command in place at the forward operations point and down to the fire ground is established, the command personnel identified, and approval of same in written form is available both to the IMT and sent on to the forward operations point;
- any sectorisation of the fire ground is identified as soon as it occurs, made known to the IMT, reduced to written form, authorised at the IMT and referred back to the forward operations point;
- at the earliest possible stage in fire control, the staging area has delivered to it in written form the approved communications plan, the approved chain of command and the approved sectorisation plan for the fire;
- the forward operations point and the staging area are supplied with the best available maps of the fire ground area, that the maps have appropriate quality, resolution and detail and that the staging area is initially and then on a continuing basis resourced with adequate numbers of maps for distribution;
- there is an established management structure in place at the staging area and that management positions are identified in accordance with the AIIMS/ICS system;
- the staging area is appropriately equipped and serviced with communication facilities by way of facsimile, telephone and radio equipment and that this equipment is working effectively;
- the staging area is sufficiently equipped so as to permit radio and/or telephone communication with the IMT, as well as with the forward operations point;
- the MCV is comfortably set up and operating effectively and if not, to resource anything that may be reasonably required by the MCV;
- the MCV knows and has in written form for its reference, the communications plan, the command structure both at the IMT and also from the forward operations point down to the fire ground, as well as the plan for the sectorisation of the fire;
- the MCV is appropriately assisted by persons with local knowledge, who are preferably trained fire fighters;
- the MCV has a person available who can interpret the relative importance of any messages monitored by the MCV so as to ensure that the forward operations point is informed of all relevant developments as and when they occur and as heard during the radio monitoring process;
- an officer at the forward operations point is identified and made responsible for liaising with the MCV. This will ensure that the MCV have a consistent point of contact at the forward operations point.
- there is liaison with the forward operations point concerning its knowledge of any incidents/accidents and to ensure that same are followed up so as to be fully reported to the IMT;
- there is ongoing liaison with the forward operations officer and/or his deputy so as to assess whether the forward operations point needs assistance in carrying out any of the tasks required of operations officers as are set out in Exhibit 21, 3.3 pp 27–30.

3 As an alternative to 1 above, instead of the operations personnel at the IMT carrying out these supervisory functions over the forward operations point, consideration be given to developing a role in the IMT for a person or persons to carry out the same or similar supervisory functions by way of auditing the efficient operation of the forward operations point, the MCV and the staging area.

4 As an alternative to 2 above, consideration be given to whether it may be appropriate for the CFA/NRE to set in place a system which requires the operations officer in the IMT and the forward operations officer to specifically agree on which officer is responsible for which operations officer functions and in particular, which officer will have responsibility for ensuring the safe and efficient operation of the staging area and the MCV.

17 Staging Area

The Volunteer Associations recommend that:

- 1** A staging area be subject to independent supervision or auditing to ensure that it is operating as intended (the Volunteer Associations have referred to this at pp 90 and 91 of their submissions). This task should perhaps be carried out by the operations officer or someone from the operations section within the IMT. Once the forward operations point is set up, it may be preferable to arrange for a person or persons from the IMT operations section to go to and remain at the staging area to audit activity and ensure that all systems are operating appropriately.
- 2** In the interests of safety, audit of the staging area should be able to ensure that:
 - (a) a manager of the staging area is in fact appointed and that any assistants have a defined range of responsibilities which they understand;
 - (b) tabards are worn;
 - (c) staff at the staging area are apprised of such primary information as:
 - (i) the communications plan;
 - (ii) the plan for sectorisation of the fire ground;
 - (iii) the command structure and the identity of command personnel at the fire ground;
 - (d) staff are able to identify and have available in writing the SMEACS briefing information which is to be used when briefing crews;
 - (e) the briefing format includes reference to all matters which concern fire fighter safety on the fire ground;
 - (f) the briefing format sufficiently covers all information relevant and appropriate for briefing of crews;
 - (g) deployment from the staging area is for a specifically designated task or activity on the fire ground;
 - (h) the crews are deployed to a nominated sector or division on the fire ground and also to a nominated and identified person within the command structure;
 - (i) the weather and wind change information available is made known when briefing;
 - (j) that at least the communications plan, the plan for sectorisation of the fire ground, the chain of command and the weather/wind change information is produced in a written form for or alternatively by the strike team leaders. Ideally, the SMEACS briefing for deployment should also be in a written form;
 - (k) if strike team leaders find that they were to be re-deployed from the task which they were initially briefed to perform, the strike team leader must ensure the command personnel who wants to re-deploy obtains authority to do so from the forward operations point;
 - (l) any maps or plans used are available and of the best quality.

The above matters raised are examples of the prospective range of duties that might be performed by a supervisor or auditor of the staging area. The development of the system for audit and the range of audit requirements should be developed by way of consultation between the CFA and the Volunteer Associations.

18 Communications

The Volunteer Associations recommend that:

- 1** Group base radio operators be trained so as to empower them to call for and then to relay information obtained from intending command personnel in the very early stages of the fire. This is referred to in the recommendations above referred to at 9, "Pittong Road Line Up", para 9, pg 3.
- 2** A training program be developed for radio operators to provide a more formalised training process covering the maintenance of effective logs, identifying what information is appropriate

or to be recorded in the logs and the identification of any fire ground difficulties as and when they arise. It may also assist if the radio operator has some training in the proposed improvement in the reporting of incidents/accidents. The radio operator would usually be the first person to hear about them and perhaps the radio operator could follow up with operations personnel so as to ensure that the system of reportage for usage in accordance with the AIIMS/ICS system is implemented.

- 3** A suitably modified training package in AIIMS/ICS systems is developed for the benefit of radio operators to give them an understanding of the basis of the system as it applies to a fire ground. Once the system and its application is understood, it will be easier for radio operators to start identifying command personnel by their AIIMS/ICS title and to better understand developments on the fire ground by way of established plans for sectorisation and command structure.
- 4** Consideration be given to providing substantially increased levels of assistance to group base radio operators when the fire escalates to level 2 or 3 and also when the fire passes across regional boundaries. As happened at Linton and with the best will in the world, it would clearly be beyond many people to manage the work load undertaken by Ms Knight and Mrs Foy.
- 5** A person within the radio communication system have the responsibility for identifying what information is important and what is not and requesting local radio operators to repeat to the fire ground any messages which are thought to be important. It seems to the Volunteer Associations that when the MCV is in its monitoring mode, one of the staff at the MCV should focus on identifying important messages and, in consultation with the forward operations officer or the operations officer, request local radio operators to either re-broadcast or to follow up on any matter of importance.
- 6** Whoever is in charge of the MCV should be trained to take a proactive stance in relation to any deficiencies that are seen or assessed to be causing problems in the operation of the MCV. For example, if the MCV does not have a communications plan, the MCV should be asking for it and pointing out why it is so important. The same proposition applies to the MCV's need for the sectorisation plan and the command structure.
- 7** Pilots conducting aerial observations be apprised of the command structure in its entirety and the sectorisation of the fire ground. This would enable them to better focus their observations and identify who they should be communicating with in the command structure.
- 8** The use of a common communications plan, as contemplated by the AIIMS/ICS system when read together with the CFA/NRE agreements made in accordance with the FAI initiatives, be tried and tested so as to ensure that if it is introduced, it works effectively. The position of the Volunteer Associations in relation to the separation of radio communication channels is that, provided the communications plans are appropriately set up, made known and co-ordinated, this system for communications is appropriate.
- 9** Group base radio operators be provided with a facility to record radio transmissions thereby negating the need for group base radio operators to maintain extensive logs.

19 Weather

The Volunteer Associations recommend that:

- 1** The CFA:
 - (a) work with the Bureau of Meteorology to increase the number of automatic weather stations in Victoria to improve the capacity to monitor weather and wind change;
 - (b) work with the Bureau of Meteorology to ensure that weather and wind change forecasting indicates the primary prediction and also provides an indication as to the range of variability in time within which such a change could occur;
 - (c) review the volunteer system so as to identify weather information resources such as the system used by Westmere for western Victoria and consider working towards incorporating such systems of information gathering into its own wether prediction system. It would probably be useful for the CFA weather officer to know about Westmere's system for information gathering and to establish the necessary lines of communication for access to it.

20 Occupational Health and Safety

The Volunteer Associations recommend that:

- 1** The CFA:
 - (a) fully develop its intended “safety first” culture and when doing so, work in conjunction with the Volunteer Associations and the UFU; and
 - (b) develop a system for auditing safety on a wild fire ground and at a level 2 or 3 fire, appoint a safety auditor for this purpose. The Volunteer Associations also refer to their submission at pp 102 and 103.

General Recommendations

- 1** The Volunteer Associations support the CFA’s implementation of Mr Kavanagh’s suggestion that logbooks be distributed to individuals occupying command positions at a level 3 incident. The Volunteer Associations also support the CFA’s proposed inclusion of watchouts and standard fire orders on the cover of such logbooks.
- 2** The Volunteer Associations recommend that agencies make greater use of aerial resources to assist decision-makers throughout the course of a wild fire.
- 3** The Volunteer Associations recommend that the need to wear tabards at level 3 incidents as well as the use of ICS role prefixes be reinforced through continuous training and proper supervision. The application of these AIIMS/ICS requirements will ensure that people’s identities and roles are clearly identified within the fire structure.
- 4** The Volunteer Associations have a concern about the use of the AIIMS/ICS title “Operations Officer” as it has the potential to be confused with the position of Operations Officer within the CFA. The Volunteer Associations suggest that consideration be given to renaming the AIIMS/ICS position to “Operations Commander”.
- 5** The Volunteer Associations recommend that greater opportunity be provided to volunteers to attend controlled burn out operations with the NRE and that where additional funding or resources are required, the NRE be provided with such funds or resources to participate in or conduct the controlled burn operations.
- 6** The Volunteer Associations are well aware of the demands placed upon the volunteers’ time and personal lives as a result of their CFA activities. It is suggested that where a volunteer is recommended for additional training or where practical experience can only be gained during normal working hours (ie. at a NRE controlled burn during week days) the CFA investigate the implementation of a system where volunteers receive up to one week’s paid leave for CFA training each year, or, a system whereby the CFA reimburse individual employers for periods of up to 5 working days where a volunteer, employed by that employer, is recommended to undertake this additional training or to gain this practical experience.
- 7** The Volunteer Associations recommend that a review of NRE resources be conducted to ensure that the department has available to it sufficient resources to maintain forests and parks within its charter.
- 8** The Volunteer Associations are aware that many regions are pro-active and have designated IMT personnel nominated to allow early implementation of the AIIMS structure should the need arise. It is strongly recommended that this practice be adopted across all regions and groups.

DATED: 18 May 2001

CORRS CHAMBERS WESTGARTH

APPENDIX A4.6

Recommendations from the ‘Joint Operations Review of the Linton Fire/Midlands Fire #15 on Wednesday 2nd December 1998’

(The update of the work on the Recommendations as at February 2001 is to be found in Exhibit 206)

11.0 Recommendations

Note: Unless specifically indicated, these recommendations are made to both CFA and NRE with the intention that joint implementation should occur.

Firefighter Competencies

- 1** Identify those personnel who are available to be engaged in wildfire fighting operations. Those personnel must be competent at recognising and understanding the Standard Fire Orders and the Watchout situations and taking appropriate and safe actions on the fireground.
- 2** All personnel engaged in wildfire operations in any rural environment should demonstrate competency at wearing personal protective equipment and taking appropriate survival procedures. This competency should be achieved prior to being allowed in the area of operations and be maintained according to agency guidelines.
- 3** All personnel engaged in wildfire fighting operations should possess a minimum competency that enables them to recognise and understand basic fire behaviour in a variety of fuel types
- 4** All firefighters engaged in wildfire fighting operations should possess a minimum competency that enables them to carry out safe and effective basic fire suppression, including dry firefighting.
- 5** All personnel who fulfill the role of crew leader, sector commander, strike team leader, operations officer, planning officer and incident controller must possess minimum competencies appropriate for the incident type.

Contractors

- 6** Any contractor or representative of another agency who is engaged or deployed on the fireground should possess the minimum competency for wildfires. If not, they must have an appropriately competent and equipped “buddy” or off-sider accompanying them at all times.
- 7** NRE and CFA should consider providing large bulldozers as a Regionally based State resource. These bulldozers should meet minimum standards for machine capability, operator competency, preparedness and despatch, and ancillary equipment.

Command Structure

- 8** CFA should review the role of CFA Groups in incident management to identify a clear process for escalation of the Incident Control system structure.
- 9** Incident Management Teams must be resourced with appropriate personnel to meet the following critical success factors:
 - production of an incident communications plan,
 - production of an incident action plan, and
 - dissemination of these plans to appropriate personnel in the command structure.
- 10** The role, function and resourcing of Operations Points, Staging Areas and incident Control Centres needs further development, documentation and related training.
- 11** Staging Areas must be established for use by both agencies.
- 12** Reinforce the ICS principle of a span of control of 5.

Information Flow

- 13 Provision of Information to all firefighters on the fireground about the fire, strategy, weather and warnings should be a critical performance measure for the Incident Management Team.
- 14 Jointly develop a procedure for managing “critical safety advice” (such as wind changes and radio channel changes) to confirm that:
 - all people are advised,
 - the advice is acknowledged,
 - the advice is understood.
- 15 CFA should ensure that there is a means of allowing across boundary access by CFA technology and the Incident Management System..
- 16 The use of the existing briefing format must be reinforced at all levels in the chain of command.
- 17 Reinforce the responsibility of crew members to demand appropriate information about the incident prior to being deployed.

Communications

- 18 Incident communications plans must be prepared that identify all communications media and frequencies to be used on the fire. The appropriate agency default communications plan may be the first such plan.
- 19 All units and personnel on the fire must comply with the communications plan and practice radio discipline. Processes to enable effective radio discipline should be developed and implemented.
- 20 Frequencies in the communications plan should be used and allocated on the basis of effective communications. Radio channels should be described using the channel numbers, as per the 1997 Fire Agency Improvement Initiative recommendations.
- 21 Both agencies should adopt a common procedure for actions on receipt of a MAYDAY call.

Planning

- 22 Reinforce and further develop the concept of joint agency pre-incident plans that cover the period from the start of the fire until the production of the first incident action plan.
- 23 Reinforce the requirement that Operations section plans must clearly identify who is currently fulfilling various roles in the chain of command, and that this information be disseminated.
- 24 Jointly review the existing systems for resource management.
- 25 Reinforce the requirement to inspect pre-planned ICC locations and to update plans prior to each fire season.

Policy

- 26 The CFA should develop a framework for documentation of statewide standards for firefighting in the Country Area.

Research

- 27 Conduct a research project to assist with a better understanding of the relationships between Drought Index, Drought Factor, Soil Dryness Index and fuel availabilities, particularly after prolonged dry periods.
- 28 Review the coverage of remote Automatic Weather Stations in the region around Ballarat. Explore with the Bureau of Meteorology how to fill gaps which are identified as critical for improved wind change tracking in this area.

- 29** The effectiveness of resources at constructing and holding control lines, and at protecting assets, in various fuel types at differing levels of fire intensity, needs to be reviewed and documented and, if necessary, further research conducted to fill knowledge gaps. This information needs to be widely disseminated.

Equipment

- 30** conduct a comprehensive review of the options available for wildfire personal protective equipment.
- 31** Conduct a comprehensive review to determine the appropriateness of current survival engineering on tankers. Evaluate options for future tanker design and, as appropriate, modifications to existing tanker design.
- 32** The inventory and stowage of personal protection and survival equipment on vehicles, appliances and bulldozers should be reviewed and then disseminated to ensure that consistency is achieved. Particular attention needs to be given to the number and location of blankets, type and location of branches and water output.
- 33** Reinforce the existing practice of a “tucker box” on each tanker to provide the first meal for crews.
- 34** CFA to consider modifications to inventory of special purpose appliances (eg: protective equipment, hazmat) to facilitate a multi-use role.

Work Practices

- 35** The importance of working from a safe anchor point must be reinforced at all times.
- 36** NRE and CFA must reinforce to all personnel that decision making at all levels must be disciplined. Safety of firefighting personnel is paramount. The potential risks and the potential benefits of a course of action must be considered and understood before a decision is taken.

Near Miss Incidents

- 37** A joint procedure should be adopted for recording, analysing and reviewing wildfire incidents where safety is compromised.
- 38** The Standard Fire Order and Watchout Situations should be jointly reviewed by CFA and NRE on a regular basis to ensure consistency with current experience.
- 39** Incidents that have compromised crew safety should be documented and used as scenarios for safety and survival training.

Exhibit List

The following is a list of exhibits produced at the Inquests. Where a document was produced by one of the parties, the exhibit number is followed by a capital letter. The letters represent each of the parties as follows;

- Counsel Assisting the Coroner – **No letter, just a figure**
- Counsel for the CFA – **C**
- Counsel for the DNRE – **D**
- Counsel for the Volunteers Association – **V**
- Counsel for the Firefighters Union – **U**
- Counsel for firefighters SCHARF and STEPNEILL – **S**
- Counsel for the volunteers PHELAN and LIGHTFOOT – **P**
- Counsel for the property owner NEYLAND – **N**
- Counsel for the families of the deceased – **F**
- Counsel for the Bureau of Meteorology – **B**

The exhibit list identifies a brief number where the listed exhibit can be located. Where there is no brief number listed the exhibit did not form part of the court brief or was not included in electronic format at the completion of the Inquests. Exhibits not included in this manner are located in the original exhibits archived at the State Coroners Office.

It should be noted that the quality of some of the electronically scanned exhibits is poor and some of the exhibits have been reduced from their original size for scanning purposes. This is particularly the case with exhibited maps.

Also, some exhibits were scanned in black and white whereas the original may have contained colour.

NOTE: The exhibits, when viewed electronically, can be enlarged by using the 'Zoom' functions located in the Adobe Acrobat tool bar.

EXHIBIT NUMBER	DESCRIPTION	BRIEF NUMBER
1	MCV Radio Log Book (Channel 16A)	11000–11004
2	MCV Radio Log Book (Channel 15A)	11005–11008
3	MCV Radio Log Book (Channel 15B)	11009–11015
4U	Piece of paper containing radio channels (provided to the MCV)	11016
5	Personal notes and documents of T. Roberts	11017–11090
6	Incident Management Structure Training Documents	11091–11118
7	Incident Control System Training Documents	11119–11171
8S	Region 7 Communications Plan	11172–11175
9S	Maps provided to T. Roberts by J. Anderson	11176–11185
10N	Volunteer Training Record Booklet of T. Roberts	11186–11198
11	Statement and Attachments of A. Balm – dated 5/7/00	11199–11259
12	Various documents of A. Balm	11260–11452
13	CFA Region 7 Procedures Manual	11453–11454
14	Documentation relating to training and service record of A. Balm	11455–11462
15	Example of documentation supplied to communication officers – Yeodene Incident	11463–11484
16	Example of documentation supplied to communication officers – Yea Incident	11485–11490
17	Example of documentation supplied to communication officers – Bacchus Marsh Incident	11491–11495
18	Example of documentation supplied to communication officers – Simpson Incident	11496–11502
19	Example of documentation supplied to communication officers – Springhill Incident	11503–11516
20U	CFA Operations Guidelines & Booklet – CFA Operations Checklists	3600 11517–11548
21U	Manual – ‘Incident Control System – The Operating System of AIIMS Manual’	11549–11648
22D	Map of Linton with 6 overlays (prepared by the DNRE)	
23C	Transcript of Region 15 radio communications during the Linton Fire	7000
24	Map provided to S. Scharf at Linton	11649
25C	CFA Booklet – ‘Wildfire Safety and Survival – A Guide for Firefighter Survival’	11650–11658
26S	CFA Statement of D. Bendle – dated 19/3/00	4512
27S	CFA Statement of D. Bendle – undated	11659–11676
28	Three booklets of photographs – Victoria Forensic Science Centre	
29S	CFA Operations – Tactics and Administration in the Field, Volume 1	11677–11750
30U	J. Lowe’s pre-Linton training records	11751–11808
31U	1997–1998 Extract from Geelong West’s Lieutenant	11809
32U	J. Lowe’s post-Linton training records	11810–11834
33	CFA Training Manual	
34C	Geelong West Annual Reports – 1988–2000	11835–11879

EXHIBIT NUMBER	DESCRIPTION	BRIEF NUMBER
35	Statement (16/12/98) & Transcript of Interview (18/8/99) of B. Lancaster	597 1002
36	Training Information re B. Lancaster's involvement in the Armed Forces	11880–11883
37	Log kept by B. Lancaster at Linton	11884
38C	CFA Memorandum re water levels in the Geelong West tanker & CFA Radio Communication Test Results	11885–11888
39C	Notes re B. Lancaster's meeting with Slater & Gordon Solicitors	11889–11891
40V	Slightly Amended Notes re B. Lancaster's meeting with Slater & Gordon Solicitors	11892–11894
41S	Letters dated 30/6/00 and 24/12/99 from Slater & Gordon Solicitors to B. Lancaster	11895–11896
42S	Notes made by S. Scharf at Linton	11897–11899
43	Statements of S. Scharf, M. Stepnell, and M. Brown re notes of B. Lancaster	
44L	Notes made by Lancaster after the Linton Fire	
45D	CFA Statement of B. Lancaster – undated	4668
46	Statement of SGT Daly re search for B. Lancaster's notes – undated	
47S	Notes re conference between S. McPhail and Slater & Gordon Solicitors	11900–11902
48	CFA Statement of S. McPhail – undated	4676
49C	Newspaper Article from the Geelong Advertiser – dated 15/8/00	
50D	DNRE List of References re Fire & Firefighting Tanker Design	
51D	CFA & DNRE Safe Forest Firefighting Position Paper	11903–11923
52D	'CFA & DNRE Multi Agency Incident Management Agreement' – 1997–1998	11924–11933
53	Handwritten and typed version of Log and other documents kept by D. Foy (Snake Valley Sub-base)	11934–11990
54S	List made by D. Foy of Region 16 tankers at the Linton fire	11991–11995
55	List made by D. Foy re resources and personnel at the Linton fire	11996–11997
56N	Map marked by D. Foy to identify the old and new tip in the Snake Valley region	11998
57D	Note provided to D. Foy containing phone and fax number of Linton Control	11999
58C	CFA List of Publications re Tanker Design	
59C	Statement (23/8/00) & Attachments of T. Roche	4313 12000–12198
60C	Statement and Attachments of D. Booth – dated 21/8/00	4155 (Statement Only)
61N	Map marked by C. McInnes to indicate location of fire	
62D	CFA Booklet – 'Reducing the Risk of Entrapment in Wildfires – A Case Study of the Linton Fire'	12199–12214
63	Map marked by W. Millar to indicate where he met P. Wyllie	12215

EXHIBIT NUMBER	DESCRIPTION	BRIEF NUMBER
64	Statement of W. Millar (1/2/99) & CFA Statement of W. Millar (20/6/00)	683 4592
65D	Two colour maps of the Linton township	12216–12217
66D	CFA Information Paper re Areas, Groups, Regions & Brigades	12218–12222
67F	Transcript of Interview of W. Millar (24/8/99)	1024
68D	‘Report of the Operations Review of Linton/Midlands Fire on 2nd December 1998’ – CFA & NRE – 11 March 1999 & CFA Supplementary Report to the above report & ‘Supplementary Fire Behaviour Report’ – 11 May 2000	8489 8108 8000
69N	Notes of CFA Fire Investigators R. Lee & I. Day	12223–12236
70	Map with markings made by J. Searby	
71D	DNRE Paper entitled ‘Linton Coronial Inquest’	12237–12277
72	Statement of P. Smithers – dated 2/2/99	825
73	CFA Statement of P. Smithers – dated 15/3/00	4642
74	Transcript of Interview of P. Smithers (24/8/99)	1092
75S	Notes made by P. Smithers	12278–12280
76U	Letter to P. Smithers (6/11/98) re training certificates for four Snake Valley Brigade members	12281
77	Statement of M. Fullerton – dated 23/6/99	507
78	Supplementary Statement of M. Fullerton – dated 31/8/00	4184
79S	Statement with amendments of M. Fullerton – undated	12282–12285
80	Statement of E. Welsh – dated 10/2/99	861
81V	Map marked by E. Welsh at Linton	12286
82	AIIMS/ICS Log kept by B. Mahoney during the Linton fire	12287–12294
83	DNRE Burn Plan Report for MIDLANDS District – 1990/91–1997/98	12295–12297
84	Statement of L. Lubeek – dated 23/8/99	646
85	Statement of E. Hollingworth – dated 16/2/99	544
86	Statement of L. Bell – dated 1/5/99	328
87	Transcript of Interview of N. Wright (30/5/00)	5035
88	Statement of P. Nunn – dated 16/2/99	700
89	CFA Statement of P. Nunn – dated 7/2/00	4598
90	Transcript of Interview of A. Pitcher (29/5/00)	5066
91	Transcript of Interview of B. Pope (5/6/00)	5000
92	Transcript of Interview of S. Chirnside (29/5/00)	5018
93	Transcript of Interview of J. Wolfe (29/5/00)	5080
94	Transcript of Interview of G. Carter (31/5/00)	5170
95	Transcript of Interview of I. Getsom (9/6/00)	5211
96	Transcript of Interview of J. Chapman (30/5/00)	5237
97	Transcript of Interview of J. Millar (31/5/00)	5679
98	Transcript of Interview of G. Featherstone (31/5/00)	5289
99	Transcript of Interview of M. Collins (6/6/00)	5619

EXHIBIT NUMBER	DESCRIPTION	BRIEF NUMBER
100	Transcript of Interview of C. Michaelis (31/5/00)	5542
101	Transcript of Interview of S. Hodgetts (29/5/00)	5118
102D	14 Photographs of fire scene	
103	Transcript of Interview of D. Morecombe (30/5/00)	5716
104	Transcript of Interview of G. Grimmer (5/7/00)	6066
	& Notes made by G. Grimmer	12298–12300
	& Log kept by G. Grimmer	12301–12306
105	Statement of Raymond Hadler – dated 1/6/00	529
	& CFA Statement of Raymond Hadler – undated	4567
106N	Map with various markings made by Raymond Hadler	12307
107	Statement of Ross Hadler – dated 12/7/00	4024
108	2 x Video Cassettes of Inquest Field Trip to Fiskville	
109	Statement of A. Hine – dated 24/5/00	4204
110	Statement of P. Keppel – dated 1/5/99	577
	& Log and Notes kept by P. Keppel	12308–12321
111	Bureau of Meteorology Forecast – Issued 1953 on 2/12/98	938
112S	Original Log Book as used by P. Keppel	Refer to Exhibit 110
113D	2 x Colour Diagrams re ‘Burning Out Progressive Movement’	12322–12323
114	Statement of P. Moore – dated 21/7/00	4060
115D	Australian Fire Authorities Council – Position Papers and Glossary of fire terms (June 1996)	12324–12371
116U	CFA Chief Officer’s Standing Orders	12372–12415
117	Service History Details of M. Armstrong	12416–12455
118C	Statement of B. Coulter – dated 16/12/98	4011
119M	6 x Maps and Printouts relating to weather	12456–12461
120	Statement of D. Munday – dated 26/6/99	687
121	Handwritten Notes and Map marked by D. Munday	12462–12467 (Notes Only)
122	Map marked by D, Munday ‘earlier in the day’	
123	Transcript of Interview of D. Abbey (6/9/00)	5858
124C	CFA Service History and Mechanical Notices re Geelong West Tanker	12468–12510
125C	CFA Volunteer Training Record Booklet re M. Armstrong and Documents/Fire Attendance Records from M. Armstrong’s computer	12511–12591
126	Handrawn Diagram with markings by D. Rowan	12592
127	Statements of D. Rowan – dated 3/12/98 and 8/12/98 & Transcript of Video Interview of D. Rowan (8/12/98)	774 & 776 8112
128	Video Cassette of Interview of D. Rowan	
129D	DNRE Document – ‘Basic Wildfire Awareness’	12593–12628

EXHIBIT NUMBER	DESCRIPTION	BRIEF NUMBER
130	Statement of G. Stewart – dated 25/5/00 & Map and AIIMS/ICS Log of G. Stewart	4128 12629–12631
131	Statement of R. Thompson – dated 17/12/98	855
132	Statement of E. Handley – dated 18/12/98	534
133	Statement of W. Robertson – dated 17/12/98	764
134	Statement of D. Linton – dated 9/11/99	639
135	Statements of W. Rigg – dated 25/1/99 & 4/8/00 & Notes made by W. Rigg & A3 Map provided to W. Rigg at Linton	754 & 4302 4304 12632–12633
136	Statement of D. Scherger – dated 29/6/99 & Notes/Documents of D. Scherger	805 12634–12646
137S	Fire Debrief Form from 7/12/98	12647
138D	Maps, Commentary and Video Cassette relating to D. Scherger's Reconnaissance at Linton	12648–12666
139	Statement of C. Sharrock – dated 10/12/98	819
140	Statement of W. Jenkins – dated 2/2/99 & Staging Area Log Book	560 12667–12670
141	Statement of I. Westwood – dated 16/2/99	869
142S	Minutes of Staging Area Debrief held on 12/1/99	12671–12675
143S	Original Notes made by I. Westwood	12676–12678
144	Statement of B. Browning – dated 27/11/99	4162
145S	Incident Structural and Communications Chart prepared by W. Meyer on 2/12/98	12679
146	Statement of N. Sinclair – dated 3/7/00	4108
147	Transcript of Interview of B. Byrne (6/6/00)	5959
148	Statement of B. Byrne – dated 11/2/00	4174
149	Statement of P. O'Rorke – dated 9/6/99	706
150	Statement of P. O'Rorke – dated 17/4/00 & Notes of P. O'Rorke	4606 4617
151	Statements of L. Buckley – dated 3/7/00 and 17/10/00 & Typed Log of L. Buckley & Handrawn Diagram of L. Buckley	4003 & 4170 4006 12680
152S	Original Notes made by L. Buckley's penciller	12681–12685
153U	Booklet – 'Minimum Operational Skills for Firefighters'	12686–12707
154	Statement of K. Knight – dated 18/10/00	4208
155	Statement of A. Knight – dated 8/6/99	584
156	Log kept by A. Knight – entitled 'Neville Britton's Diary Book'	12708–12717
157	Statement of R. Pohl – dated 1/2/99	744

EXHIBIT NUMBER	DESCRIPTION	BRIEF NUMBER
158	Statement of A. Parker – dated 8/6/99	712
159	Statement of J. Taylor – dated 1/2/99 & CFA statement of J. Taylor – dated 13/3/00	848 4654
160	Statement of J. Kavanagh – dated 17/2/99	571
161	Statement of K. Brown – dated 10/2/99	366
162	Log Books labelled ‘Arson Squad Exhibits 12–16’	12718–12744
163C	CFA Statement of K. Brown – dated 3/3/00	4552
164	Bundle of weather related documents	12745–12768
165S	RAWS computer printout re Casterton on 2/12/98	12769
166F	Folder containing bundle of weather documents	12770–12947
167	Statement of G. Gray – dated 31/7/00	4187
168	Document prepared by G. Gray entitled ‘Points of Interest, 2/12/98’	12948–12949
169C	CFA Region 7 Procedures Manua	12950–12963
170S	Type 3 Fire/Incident Operations Management Plan Framework	12964–12965
171	Statement of J. Anderson – dated 8/2/99 & CFA Statement of J. Anderson – dated 7/3/00	315 4500
172	Statement of J. Anderson – undated	320
173	Statement of J. Anderson – dated 6/1/00	4000
174	Transcript of Interview of J. Anderson (24/8/99)	952
175S	5 x CFA Documents re Incident Control System – 1997	12966–12970
176	Map with Notes made by J. Anderson	12971
177	Documents and Notes of J. Anderson	12972–12995
178D	All Evidence/Exhibits relating to the 1997 Dandenong Fires Inquest	
179D	FAII Operations Outcomes (copies of overheads)	12996–13009
180	Statements of N. Britton – dated; 1/2/99 8/6/99 21/1/00 & CFA Statement of N. Britton – dated 9/3/00 & Notes made by N. Britton	354 360 364 4541 13010
181	1997 FAII Final Report	8134
182	Document detailing CFA Region 15 & 16 Channel Allocations	13011–13012
183	2 x Photographs of Whiteboard at Linton Fire Station	
184	Statement of P. Tange – dated 25/5/00 & Log made by P. Tange & Fire Incident Reports & A3 Map & Documents re weather information	4130 13013–13020 13021–13038 13039–13050
185	ICS Organisation Chart	13051

EXHIBIT NUMBER	DESCRIPTION	BRIEF NUMBER
186U	Map with texta markings	13052
187	Statement of M. Johns – dated 8/6/99	566
188D	‘CFA and DNRE Agreement for Multi-Agency Incident Management’ – dated 1/12/00	13053–13078
189D	Document re Safety and Task Identification Vests	13079–13081
190	Statement of M. Harris – dated 10/2/99 & AIIMS Message Form and Incident Log made by M. Harris	540 13082–13085
191	Incident Action Plan prepared at 1610 hours on 2/12/98	13086
192C	CFA and DNRE Safe Forest Firefighting Position Paper Update (December 2000)	13087–13089
193N	CFA Incident Reports – Region 16	13090–13108
194U	Incident Control System Learning Manual 4.04 & Incident Planning Learning Manual 5.02	13109–13205 13206–13358
195U	UFU Reply to CFA and DNRE Safe Forest Firefighting Position Paper Update (December 2000)	13359–13361
196C	Responses received by CFA to Statement of T. Roche	13362–13387
197D	Document entitled ‘Fire Related Computer Technology Advances in NRE’	13388–13392
198	Statement of P. Boadle – dated 1/5/99 & Transcript of Interview of P. Boadle (23/8/99)	344 972
199	Log kept by P. Boadle	13393–13408
200	Statements of B. Mahoney dated; 3/5/99 12/5/99 8/6/99 & AIIMS/ICS Log made by B. Mahoney	663 671 674 Refer to Exhibit 82
201D	Maps/Documents used in the IMT during the Linton fire	13409–13422
202	Statement of J. Stephenson – dated 8/6/99 & AIIMS/ICS Log made by J. Stephenson	830 13423–13425
203D	DNRE Memo re Communications Functions in ICS (26/2/99)	13426–13430
204S	Blank Incident Structural & Communications Chart	13431
205	Statement and Attachments of E. Ferguson – dated 20/10/99 & Log Book made by E. Ferguson	478 13432–13441
206U	CFA Linton Recommendations Update – February 2001	13442–13451
207	Training Manual – Operations Officer Level 3	13452–13604
208D	CFA Discussion Paper re Proposed Changes to the Structure of ICS	13605–13622
209C	Statement and Attachments of R. Rankin – dated 22/2/01	
210	Independent Meteorological Report of Dr Michael Reeder – January 2001	8738
211M	Synoptic Weather Chart Issued 2/12/98	
212C	Statement of D. Booth – dated 27/2/01	13623–13635

EXHIBIT NUMBER	DESCRIPTION	BRIEF NUMBER
213S	Statement of Dr L. Tolfree re Linguistic Review of Scharf Possum Gully Road Briefing	13636–13639
214M	Statement of M. Williams – dated 22/3/00 & Attached Report - Preliminary Report on Meteorological Aspects of the Linton Fire – Bureau of Meteorology – July 1999 & Colour Bureau of Meteorology Documents (from PowerPoint Presentation)	877 878
215M	Bureau of Meteorology Fire Weather Directive 1998–1999	13640–13669
216M	Bureau of Meteorology Spot Weather Forecast issued at 1358 on 2/12/98	4051
217	Statement and Attachments of R. Kollmorgen – dated 21/6/00	4033
218D	Statement (28/2/01) & Attachments of A. Edgar –	4422 13670–13773
219	Statement of W. Rooney – dated 26/5/00	4065
220	History and Curriculum Vitae of Dr K. Tolhurst	13774–13782
221	6 x pages of e-mails from joint experts re changes to their report	13783–13788
222	Aerial Colour Photograph of fire area	
223	Large Colour Photograph of fire area	
224	‘Report on Issues Submitted for Consideration by the Panel of Experts Advising on Bushfire Behaviour’, Dr Burrows, Mr Cheney, Mr Packham, and Dr Tolhurst – February 2001	8764
225	‘A Review of Fire Behaviour and Some Suppression Activities at Linton During a Bushfire in the Linton Forest, Victoria December 2nd 1998’, Dr Neil Burrows – July 2000	8447
226U	Article entitled ‘Bushfire Fighting and Occupational Health & Safety’, by N.P. Cheney	13789–13798
227U	NFPA 1500 Standard on ‘Fire Department Occupational Safety and Health Program’, 1992	
228D	Paper entitled ‘Fuel Reduction Burning in Victoria’, 2000	13799–13810
229	Statement of J. Sanders – dated 18/12/98	784
230	Statement of R. Graham – dated 1/5/99 & A3 Map given to R. Graham by D. Munday and marked by several personnel at Linton	521
231S	List of DNRE Resources attending the Linton fire	13811–13813
232S	Training and Currency Records re DNRE personnel	13814–13818
233	Statements of G. Leach – dated; 9/2/99 11/5/99 1/6/99 1/6/99 & CFA Statement of G. Leach – undated	603 621 625 628 13819 –13835
234S	Statement of G. Leach re Dandenong’s fires – dated September 1998	13836–13859
235S	Part Transcript of Interview of G. Leach with Radio 3LO at 1700 on 2/12/98	1951

EXHIBIT NUMBER	DESCRIPTION	BRIEF NUMBER
236U	Report of Creswick/Glen Park Fire Debrief held on 6/2/97	13860–13868
237	Statement of R. Lightfoot – dated 17/2/99 & CFA Statement of R. Lightfoot – undated	632 4581
238D	2 x Volumes re Firefighter Safety in the USA	
239D	Draft Document – ‘Fire Management – Effectiveness of Broad Scale Fuel Reduction Burning’, 2000	
240S	Video Cassette of Channel 9 footage of the Linton fire	
241	Statement of D. Phelan – dated 17/2/99 & CFA Statement of D. Phelan – dated 5/3/00 & Transcript of Interview of D. Phelan (24/8/99)	726 4618 1057
242U	Document re Berringa Fire Debrief held on 8/3/95	13869–13893
243S	Statement of M. Stepnell – dated 8/12/98 & Further Statement of M. Stepnell – dated 13/7/00 & Attachments (including transcript of video taped re-enactment)	834 4112 13894–14037
244S	Statement of S. Scharf – dated 8/12/98 & Further Statement of S. Scharf – dated 13/7/00 & Attachments (including transcript of video taped re-enactment)	789 4070 14038–15032
245	Workcover Report of Dennis Noonan & Supplementary Report of Dennis Noonan	147
246U	NFPA 1521 Standard for ‘Fire Department Safety Officer’, 1997	
247C	Statement of T. Roche – dated 23/8/00	4313 (See page 12000 for Statement Attachments)
248U CFA	Memorandum re Incident Safety Officer Course – dated 28/11/97	15033–15043
249U	Draft Report – CFA Safety First Culture Project – OH&S Culture Assessment risk-e, 2001	
250U	CFA Report re Training of Geelong West Brigade – dated 20/4/98	15044–15069
251C	CFA OH&S Section Structure Chart	15070
252C	Community Safety Directorate Documents	15071–15074
253	BALANCE OF INQUEST BRIEF (Including Arson Squad Exhibits and Manuals used by various experts in the preparation of reports re Linton) See brief pages not previously listed in this document.	Other exhibits (eg.– Manuals, boxes, etc. held at Coroner’s Court)
254	Statement of A. Edgar – dated 28/2/01	4422 (See page 13670 for Statement Attachments)
255	Colour Map of Victoria	15075

Index to Brief

Contained in the following pages is a guide to the contents of the majority of the material relied upon during the Inquests. Please note that the headings in bold refer to the electronic Adobe Acrobat file names where the listed documents can be found. To view the document electronically, click on the file with the title corresponding to the index and then find the relevant page number.

Please note that some of the documents listed in the Index have been deliberately omitted from the final electronically viewable Adobe Acrobat files. This omission has been either for legal reasons (suppression orders) or because the material is of a sensitive nature (ie: postmortem reports).

The following is a brief outline of the files:

- **BRIEF1, BRIEF2, BRIEF3, BRIEF4**
The original brief compiled by Victoria Police. Contains documents such as Police Reports, witness statements, and transcripts of interviews with witnesses.
- **PACKATT1, PACKATT2, PACKATT3**
Various documents used by Mr Packham in compiling his report.
- **CRESWICK**
Contains documentation relating to the 1997 fires at Creswick, Victoria.
- **BERRINGA**
A CFA Report on the 1995 Berringa-Enfield fires in Victoria.
- **CFAGUIDE**
The widely referred to CFA Operations Guidelines.
- **ADDITIONALSTMTS, ADDITIONALSTMTS2, ADDITIONALSTMTS3**
Statements from witnesses (generally relating to Linton) taken after the compilation of the original brief or during the Inquests.
- **CFASTMTS, CFASTMTS2**
Original Statements with amendments/ suggested amendments following witness meetings with CFA Solicitors.
- **INTERVIEWS1, INTERVIEWS2, INTERVIEWS3**
Transcripts of Interviews with witnesses regarding events at Linton. The majority of these interviews related to the burnover on the Pittong Snake Valley Road and entrapment at the Possum Gully/ Madden Flat Roads intersection.
- **RADIOTRANS**
Transcript of Region 15 radio transmissions on the day of the Linton fire.
- **ADDRPRTS&MISCDOS**
Various reports and documents, most of which relate directly to the Linton fire.
- **PARTYSUBMISSIONS1, PARTYSUBMISSIONS2, PARTYSUBMISSIONS3, & PARTIESREPLIES**
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- **EXHIBITS1, EXHIBITS2, EXHIBITS3, EXHIBITS4, EXHIBITS5, EXHIBITS6, EXHIBITS7, EXHIBITS8**
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John ANDERSON	4000–4002
Leigh BUCKLEY	4003–4007
Brian BYRNE	4008–4010
Brad COULTER	4011–4018
Vernon DAWSON	4019
Stephen FORD	4020
Arran FOY	4021–4023
Ross HADLER	4024–4028
Gregory HARRISON	4029–4032
Ray KOLLMORGEN	4033–4055
Peter LAYTON	4056–4058
Bill LUKE	4059
Paul MOORE	4060–4064
Ward ROONEY	4065–4069
Simon SCHARF	4070–4107
Neil SINCLAIR	4108–4111
Malcolm STEPNELL	4112–4127
Gerard STEWART	4128–4129
Peter TANGE	4130–4132
Barry THOMAS	4133–4136

ADDITIONALSTMTS2

Wendy AVERS	4137–4141
Mark BILLING	4142–4154
Douglas BOOTH	4155–4159
Dennis BOYD	4160–4161
Barry BROWNING	4162–4163
Roger BUCKLE	4164–4169
Leigh BUCKLEY	4170–4173
Brian BYRNE	4174–4176
Paul DEMUNK	4177

L.C. FLORENCE	4178–4183
Murray FULLERTON	4184–4186
Geoffrey GRAY	4187–4194
Margaret HAWKE	4195–4203
Adrian HINE	4204–4207
Kevin KNIGHT	4208–4210
Kylie LAMPARD	4211–4292
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Peter LOADER	4295–4296
Steven McPHAIL	4297
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Karyn DISNEY	4418–4421
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Denis BOYD	4531–4540
Neville BRITTON	4541–4551
Kevin BROWN	4552–4563
Brian BYRNE	4564–4566
Ray HADLER	4567–4580
Ian LIGHTFOOT	4581–4591
Bill MILLAR	4592–4597
Percy NUNN	4598–4605
Peter O'ROURKE	4606–4617
Des PHELAN	4618–4641
Peter SMITHERS	4642–4653
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Glossary of Abbreviations

Some of the acronyms, abbreviations or terminology in this Glossary will be found in the Court Documents or exhibits and not necessarily in the Record of Investigation and Report on the Inquests.

AFAC	Australasian Fire Authorities Council
AIIMS	The Australian Inter-Service Incident Management System
AIIMS – ICS	The Australian Inter-Service Incident Management System – Incident Control System
AVL	Automatic Vehicle Location
AWS	Automatic Weather Stations
B	Brief of Evidence for the investigation and Inquest documents (abbreviation used in the footnotes to this Report; see also ‘T’)
Back burning	refers to a fire started intentionally along the inner edge of a fireline to consume the fuel in the path of a wildfire
BoM	Commonwealth Bureau of Meteorology
Burning out	refers to intentionally lit fires to consume (usually small) islands of unburnt fuel inside the fire perimeter
Bureau	Commonwealth Bureau of Meteorology
CFA	Country Fire Authority
COEDC	Chief Officer’s Equipment Design Committee
DNRE	Department of Natural Resources and Environment
Drought factor	a broad measure of fuel availability as determined by the Drought Index and recent rainfall
Drought Index	the net effect of evapotranspiration and precipitation in producing moisture depletion in the soil
ECMWF	European Centre for Medium Range Weather Forecasting
Ex	refers to Exhibit (an abbreviation used in this Report)
FAII	Fire Agencies Improvement Initiatives
FFDI	Forest Fire Danger Index (see also McArthur Index)
Fiskville	CFA’s primary training facility near Ballan in Central Western Victoria
FireWeb	DNRE’s fire information system
FOP	Forward Operations Point
Fuel Reduction Burn	is the planned use of fire to reduce fuel levels in a specified area.
Glasshouse	a State Office building in Ballarat where the IMT was established
GPS	Global Positioning System
IC	Incident Controller

ICS	Incident Control System (the operating system of AIIMS)
IFR	Integrated Firefighting Aircraft Resource Agreement (between CFA and DNRE)
IFIS	Integrated Fire Information System (NRE 's project to develop 'FireWeb')
IMT	Incident Management Team
JERC	Joint Equipment Review Committee
Keetch-Byram Drought Index	an index which tracks the cumulative effect of rainfall and temperature over a season. The index also notes effects of significant rainfall amounts within the previous 20 days.
McArthur Index (or 'McArthur Fire Danger Meter MkV' [1973])	a forest fire danger rating system
MDN	Mobile data network
MCV	Mobile Communications Van
Meso-LAPS (or LAPS)	Regional model for short range weather forecasting and called 'Limited Area Prediction System'
MFESB	Metropolitan Fire and Emergency Services Board
NFPA	National Fire Protection Association (USA)
NIIMS	National Inter-agency Incident Management System (USA) – the precursor to AIIMS
NRE	Department of Natural Resources and Environment (see also DNRE)
NWCG	National Wildfire Coordinating Group (USA)
NWP	Numerical weather prediction models
OH&S	Occupational health and safety
OIC	Officer in Charge (Brigade Captain)
OO	Operations Officer
OP	Operations Point (or Forward Operations Point)
PV	Parks Victoria
RAWS	Remote Access Weather Stations
Red Flag Warnings	CFA's post Linton procedure for acknowledgment of important information
Risk – e	Occupational Health and Safety Consultant to the CFA (the consultant was formerly known as SHE Pacific)
RFC	The Bureau of Meteorology's Regional Forecasting Centre
ROPS	Rollover Protective Structures
SIPsac	State-wide Integrated Public Safety Communications Strategy
Slip on Unit	DNRE small tanker fire suppression units
SMEACS	Acronym for each of five components of a briefing format – Situation; Mission; Execution; Administration and logistics; Command and Communications; Safety
SOPs	Standard Operating Procedures
Standard Fire Orders	A list of 10 Standard Wildfire Orders (see CFA Operations Guidelines)
Standards of Cover	the process used by DNRE to determine the level of personnel, vehicle and infrastructure preparedness prior to each fire season
PAD's	gas and flammable liquid-practice or drill areas at Fiskville

T	Transcript of proceedings in the Inquest (abbreviation used in the footnotes to this Report; see also 'B')
TriData	TriData Corporation, Arlington, Virginia
UFU	United Firefighters' Union
USFA	United States Fire Administration
Volunteer Associations	Victorian Urban Fire Brigades Association and the Victorian Rural Fire Brigades Association
Watchouts	A list of 13 guidelines headed 'Watchout on the fireline when' (see CFA Operations Guidelines)
Wildland fire	United States terminology for wildfire

Endnotes

CHAPTER 1

- ¹ B.396
- ² B.382
- ³ B.409
- ⁴ B.435
- ⁵ B.422
- ⁶ s.19(2) *Coroners Act* 1985
- ⁷ S.19(3) *Coroners Act* 1985
- ⁸ B.448–49
- ⁹ B.9–13
- ¹⁰ B.14–18
- ¹¹ B.9658
- ¹² B.9658–59.
- ¹³ B.9270
- ¹⁴ S.3 *Coroners Act* 1985.
- ¹⁵ (1886) 16 Q.B.D. 636.
- ¹⁶ (1886) 16 Q.B.D. 636 at 641. This passage was recently approved by ummins AJA in *R v. Chatzidimitriou* (2000) 1 VR 493 at 508.
- ¹⁷ See Geddes, *Statutory Interpretation in Australia*, 4th ed (1996) at 68.
- ¹⁸ *State Chamber of Commerce and Industry v. Commonwealth* (1987) 163 ALR 329 at 348.
- ¹⁹ at p.69
- ²⁰ B.9659
- ²¹ B.9659
- ²² [1999] 1 VR 69
- ²³ [1999] 1 VR 69 at 71–72
- ²⁴ (1988) 49 SASR 424
- ²⁵ (1988) 49 S.A.S.R. 424 at 426–427
- ²⁶ Ss. 40 and 41 of the Act.
- ²⁷ *Keown v. Khan* [1999] 1 VR 69 at 76–77.
- ²⁸ [1999] 1 VR 69.
- ²⁹ [1999] 1 VR 69 at 76.
- ³⁰ [1999] 1 VR 69
- ³¹ [1995] 2 VR 69
- ³² [1995] 2 VR 69 at 74.
- ³³ United Firefighters Union, B.9389–90; CFA, B.9641; Phelan and Lightfoot, B.9767; Scharf and Stepnell, B.9259; and The Volunteer Associations, B.9105–06.
- ³⁴ Neyland, B.9179; Family, B.9775–76
- ³⁵ B.9947, 9953–54, 9957–59, 9963, 9965, 10,033 and 10,042.
- ³⁶ B.10,158
- ³⁷ Scharf and Stepnell B.9259; Phelan and Lightfoot B.9767; CFA B.9641; and Neyland B.9181
- ³⁸ (1991) 171 CLR 506
- ³⁹ (1991) 171 CLR 506 at 522–523
- ⁴⁰ [1996] 2 VR 1
- ⁴¹ [1996] 2 VR 1 at 17
- ⁴² [1996] 2 VR 1 at 17
- ⁴³ (1991) 171 CLR 506
- ⁴⁴ (1998) 195 CLR 232
- ⁴⁵ (1998) 195 CLR 232 at 243 (McHugh J); 255–256 (Gummow H); 268–269 (Kirby J); and 281–183 (Hayne J).
- ⁴⁶ (1998) 195 CLR 232 at 238
- ⁴⁷ (1991) 171 CLR 506
- ⁴⁸ (1991) 171 CLR 506 at 509
- ⁴⁹ (1998) 195 CLR 232 at 243–244
- ⁵⁰ (1998) 195 CLR 232 ar 256
- ⁵¹ [1999] 2 AC 22
- ⁵² [1999] 2 AC 22 at 30
- ⁵³ [1999] 2 AC 22 at 31
- ⁵⁴ (1998) 195 CLR 232 at 268–269
- ⁵⁵ [1999] 1 VR 69
- ⁵⁶ Phelan and Lightfoot B.10,158
- ⁵⁷ [1996] 2 VR 1
- ⁵⁸ [1996] 2 VR 1 at 17
- ⁵⁹ (1998) 195 CLR 232
- ⁶⁰ (1998) 195 CLR 232 at 247
- ⁶¹ B.9642
- ⁶² Phelan and Lightfoot, B.9767–68; Scharf and Stepnell, B.9262; Neyland, B.9180–81; and Voluntary Associations, B.9105–06.
- ⁶³ [1996] 2 VR 1
- ⁶⁴ [1996] 2 VR 1 at 19

CHAPTER 2

- ¹ S.23(1) *Country Fire Authority Act* 1958.
- ² See Exhibit 52D
- ³ For a more detailed analysis of the Multi-Agency Agreement see s.6.4
- ⁴ See Exhibit 215M

CHAPTER 5

- ¹ See Chapter 6.2
- ² See Chapters 6.2, 6.3 and Chapter 15
- ³ B.901–02
- ⁴ B.925
- ⁵ B.906 and 926–27
- ⁶ B.882
- ⁷ B.2274
- ⁸ DNRE Publication “*Synopsis of the Knowledge used in Prescribed Burning in Victoria*” p.73
- ⁹ B.8452
- ¹⁰ B.8766–67
- ¹¹ B.8767
- ¹² B.8767–68
- ¹³ B.2388
- ¹⁴ B.8768
- ¹⁵ B.8768
- ¹⁶ B.2274
- ¹⁷ Ex. 115D “*Glossary of Rural Fire Terminology*” p.12
- ¹⁸ “*Synopsis of the Knowledge used in Prescribed Burns in Victoria*” p.31
- ¹⁹ B.8766 and T.8575
- ²⁰ B.8767
- ²¹ B.8768
- ²² B.8768
- ²³ B.8768
- ²⁴ B.8769
- ²⁵ B.8773
- ²⁶ B.2273
- ²⁷ B.2323

- 28 B.2323
- 29 B.2323
- 30 T.8589
- 31 B.8773
- 32 T.8591–92
- 33 R.H. Luke and A.G. McArthur, *Bushfires in Australia*, Australian Government Publishing Service, Canberra 1978, 71
- 34 Luke and McArthur, op cit, 71
- 35 Luke and McArthur, op cit, 71
- 36 Luke and McArthur, op cit, 71–72
- 37 Luke and McArthur, op cit, 72–73
- 38 Luke and McArthur, op cit, 73
- 39 Luke and McArthur, op cit, 73–74
- 40 B.8778
- 41 B.8778
- 42 B.8778
- 43 B.8778–79
- 44 B.8779
- 45 B.8779–80
- 46 T.8616
- 47 B.2342
- 48 B.9956
- 49 See Chapter 14.2
- 50 *"Synopsis of the Knowledge used in Prescribed Burning in Victoria"*, 21
- 51 T.8746
- 52 B.2334
- 53 B.2342
- 54 B.2338
- 55 B.2333
- 56 B.2342
- 57 T.8616–17
- 58 B.8781
- 59 Table 7 B.2338
- 60 B.2371
- 61 T.8619–20
- 62 B.80
- 63 B.2304
- 64 B.2304
- 65 B.2304
- 66 B.2304
- 67 B.2304
- 68 G. Leach T.9260–61

CHAPTER 6

- ¹ Statement of Chief Officer Roche, Exhibit 247C, p4.
- ² Roche Exhibit 247C. p.4
- ³ Roche Exhibit 247C. p.45
- ⁴ Roche Exhibit 247C. p.45
- ⁵ Roche, Exhibit 247C, para 131
- ⁶ Roche, Exhibit 247C, para 133.
- ⁷ Roche, Exhibit 247C, para 135
- ⁸ Roche, Exhibit 247C, para 136.
- ⁹ Roche Exhibit 247C, para 138.
- ¹⁰ Roche Exhibit 247C, para 139.
- ¹¹ Roche Exhibit 247C. para 39
- ¹² Roche, Exhibit 247C, para 140.

- ¹³ Roche, Exhibit 247C, para 142(a).
- ¹⁴ Roche, Exhibit 247C, para 142(b).
- ¹⁵ Roche, Exhibit 247C, para 141.
- ¹⁶ Roche, Exhibit 247C, para 144.
- ¹⁷ Roche, Exhibit 247C, para 145
- ¹⁸ Euan Ferguson, Tony Edgar and Dr Kevin Tolhurst
- ¹⁹ *"The Operations Review of the Linton Fire/Midlands Fire"* para 6.12 at p.30.
- ²⁰ Exhibit 29.
- ²¹ *"Operations Manual 1"* p.9–7
- ²² *"Operations Manual 1"* p.9–7
- ²³ *"Operations Manual 1"* p.9–7.
- ²⁴ *"Operations Manual 1"* p.9–8.
- ²⁵ *"Operations Manual 1"* p.4–1 to 4.3.
- ²⁶ *"Operations Manual 1"* p.9–8
- ²⁷ *"Operations Manual 1"* p.9–8.
- ²⁸ *"Operations Manual 1"* p.9–13.
- ²⁹ *"Operations Manual 1"* p.9–13 to 9–14.
- ³⁰ *"Operations Manual 1"*, 9–15 to 9–19
- ³¹ *"Operations Manual 1"*, 9–16
- ³² *"Operations Manual 1"*, 9–17 to 9–18
- ³³ *"Operations Manual 1"*, 9–19
- ³⁴ Exhibit 21U
- ³⁵ Exhibit 21U, para 1.1
- ³⁶ Exhibit 21U, para 1.1
- ³⁷ Exhibit 21U, para 1.2
- ³⁸ Exhibit 21U, para 1.4
- ³⁹ Exhibit 21U, para 1.5
- ⁴⁰ Exhibit 21U, para 1.7
- ⁴¹ Exhibit 52D
- ⁴² Exhibit 21U, para 1.8
- ⁴³ Exhibit 21U, para 1.8
- ⁴⁴ Exhibit 21U, para 1.9
- ⁴⁵ Exhibit 21U, para 1.10
- ⁴⁶ Exhibit 21U, para 1.11 (iii)
- ⁴⁷ Exhibit 21U, para 2.1
- ⁴⁸ Exhibit 21U, para 2.1
- ⁴⁹ Exhibit 21U, para 2.2 (i)
- ⁵⁰ Exhibit 21U, para 2.2 (ii)
- ⁵¹ Exhibit 21U, para 2.2 (v)
- ⁵² Exhibit 21U, para 2.2 (vii)
- ⁵³ Exhibit 21U, para 2.2 (viii)
- ⁵⁴ Exhibit 21U, para 2.4
- ⁵⁵ Exhibit 21U, para 3.2
- ⁵⁶ Exhibit 21U, para 3.2 (ii)
- ⁵⁷ Exhibit 21U, para 3.2 (iii)
- ⁵⁸ Exhibit 21U, para 3.2 (iii)
- ⁵⁹ Exhibit 21U, para 3.2 (vi)
- ⁶⁰ Exhibit 21U, para 3.3 (i)
- ⁶¹ Exhibit 21U, para 3.3 (ii)
- ⁶² Exhibit 21U, para 3.3 (ii), p.30
- ⁶³ Exhibit 21U, para 3.4 (i)
- ⁶⁴ Exhibit 21U, para 3.4 (i)
- ⁶⁵ Exhibit 21U, para 3.4 (i)
- ⁶⁶ Exhibit 21U, para 4.1
- ⁶⁷ Exhibit 21U, para 4.1(i)–(iv)
- ⁶⁸ Exhibit 21U, para 4.2 (ii)

- 69 Exhibit 21U, para 4.3
- 70 Exhibit 21U para 4.4
- 71 Exhibit 21U para 4.4
- 72 Exhibit 21U, para 5.2
- 73 Exhibit 21U, para 5.4
- 74 Exhibit 21 p.47
- 75 Exhibit 21U, para 6.5
- 76 Exhibit 21U, p.51
- 77 Exhibit 21U, para 2.2 (viii), T.8059
- 78 B.4326–4327
- 79 B.4358–4360
- 80 B.4360
- 81 B.4363
- 82 B.4363
- 83 B.4363
- 84 B.4364
- 85 Exhibit 181
- 86 Exhibit 181, p.15
- 87 Exhibit 21U
- 88 Exhibit 218D
- 89 Exhibit 218D, para 46
- 90 Exhibit 218D, para 59 & 60
- 91 Exhibit 218D, p.65
- 92 T.7659–7661
- 93 T.9231
- 94 T.9237
- 95 T.9237–38
- 96 T.9409
- 97 T.9411–12
- 98 T.9413
- 99 T.9414–15
- 100 T.8053
- 101 T.8055
- 102 T.7984
- 103 T.7983
- 104 T.7727–28
- 105 T.8940
- 106 T.8942
- 107 T.8893
- 108 T.9003–04
- 109 T.9169
- 110 T.6785
- 111 T.10,758
- 112 T.10,790
- 113 Exhibit 218D, para 55
- 114 T.7799–7803
- 115 T.8112
- 116 T.7758
- 117 T.8991–93
- 118 B.10061
- 119 B.10025
- 120 B.10302
- 121 B.10061
- 122 B.10061
- 123 T.9233
- 124 T.9327–38
- 125 T.9238
- 126 Exhibit 21U
- 127 Exhibit 71D, para 114–25
- 128 Exhibit 71D, para 115
- 129 Exhibit 71D, para 122
- 130 See *Kondis v. State Transport Authority and Burnie Port Authority v. General Jones P/L* (1994) 120 ALR 42, *Northern Sandblasting P/L v. Harris* (1997) 146 ALR 572; (1997) 71 ALJR 1428 per Dawson J. at 1443, Toohey J at 1446, Gaudron J at 1452, Kirby J at 1475–6 and Gummow J at 1466.
- 131 Noonan B.202
- 132 Noonan B.202
- 133 Noonan B.202
- 134 Noonan B.202; Roche B.4334
- 135 Roche B.4335
- 136 Roche B.4335
- 137 B.202–03
- 138 B.210
- 139 B.4333
- 140 B.4335
- 141 B.213
- 142 Noonan B.214
- 143 Noonan B.214
- 144 Noonan B.214
- 145 Noonan B.215
- 146 Noonan B.215–216
- 147 Noonan B.216
- 148 Training Manual No.1 id Exhibit 33; Training Manual No.2 forms part of Exhibit 253 (Balance of Inquest Brief).
- 149 B.4324–26
- 150 B.4336
- 151 Exhibit 204; B.3600–68
- 152 B.4330
- 153 B.4329
- 154 Noonan B.203
- 155 Noonan B.203
- 156 “*Code of Practice for Fire Management on Public Land*”, Department of Conservation and Natural resources Victoria, December 1995, p.19–20.
- 157 B.204
- 158 B.205
- 159 B.205
- 160 B.205
- 161 B.205
- 162 B.205
- 163 Noonan B.207
- 164 Noonan B.207
- 165 Noonan B.207
- 166 Noonan B.207
- 167 Noonan B.207
- 168 Noonan B.208
- 169 Noonan B.208
- 170 Noonan B.208
- 171 Exhibit 33, Wilfire Suppression 1, p.15
- 172 Exhibit 33, Wildfire Suppression 1, p.15
- 173 Wildfire Suppression 2, p.9
- 174 Exhibit 33, Wildfire Suppression 1, p.15
- 175 Wildfire Suppression 2, p.9

176 Wildfire Suppression 2, p.10
 177 Wildfire Suppression 2, p.10
 178 Wildfire Suppression 2, p.10
 179 Wildfire Suppression 2, p.10
 180 Wildfire Suppression 2, p.10
 181 Wildfire Suppression 2, p.11
 182 Wildfire Suppression 2, p.11–12
 183 Wildfire Suppression 2, p.12
 184 Wildfire Suppression 2, p.13
 185 Wildfire Suppression 2, p.13
 186 Wildfire Suppression 2, p.14
 187 Wildfire Suppression 2, p.13
 188 Wildfire Suppression 2, p.13
 189 Wildfire Suppression 2, p.14
 190 Wildfire Suppression 2, p.14–15
 191 Wildfire Suppression 2, p.16
 192 Wildfire Suppression 2, p.16
 193 Wildfire Suppression 2, p.16–17
 194 Wildfire Suppression 2, p.17
 195 Wildfire Suppression 2, p.17; This table is also reproduced in the Operations Guidelines, p.16.22
 196 Wildfire Suppression 2, p.19
 197 Wildfire Suppression 2, p.19
 198 Wildfire Suppression, p.19
 199 Operations Guidelines, p.23.21
 200 Wildlife Suppression s, p.19
 201 Wildfire Suppression 2, p.20
 202 Wildfire Suppression 2, p.23–24
 203 Wildfire Suppression 2, p.24
 204 Wildfire Suppression 2, p.27
 205 Wildfire Suppression 2, p.27
 206 Wildfire Suppression 2, p.30
 207 Wildfire Suppression 2, p.30
 208 Wildfire Suppression 2, p.31
 209 Wildfire Suppression 2, p.32
 210 Wildfire Suppression 2, p.32
 211 Wildfire Suppression 2, p.32–33
 212 Wildfire Suppression 2, p.33
 213 Wildfire Suppression 2, p.33
 214 Wildfire Suppression 2, p.33
 215 Wildfire Suppression 2, p.33
 216 Exhibit 33 Wildfire Suppression 1, p.28–28
 217 Exhibit 33 Wildfire Suppression 1, p.29
 218 Exhibit 33 Wildfire Suppression 1, p.29
 219 Wildfire Suppression 2, p.43
 220 Wildfire Suppression 2, p.43–44
 221 Wildfire Suppression 2, p.46
 222 Wildfire Suppression 2, p.46–47
 223 Exhibit 20U, p.23.17
 224 Exhibit 20U, p.23.17.B
 225 B.4330–31
 226 Exhibit 20U.p.23.18; B
 227 Exhibit 25(c)
 228 Exhibit 25(c), p.8–10
 229 p.47
 230 T.9279–80
 231 T.7676–77

232 p.23.49
 233 p.23.39
 234 p.44–45
 235 p.3–4 This policy was launched by the Secretary of the Department on the 16th of September 1998.
 236 B.4331
 237 B.1846
 238 Berringa-Enfield Fire, Analysis of CFA Fire Management Strategies B.3304–3305.
 239 B.3323
 240 B.3324
 241 B.3325–26
 242 B.3325
 243 B.3325–26
 244 B.3327
 245 B.3327
 246 B.3327
 247 B.2967–69
 248 B.2978–79
 249 B.2979
 250 B.2982
 251 B.2983–84
 252 B.2984
 253 B.2985
 254 B.2986
 255 B.2986
 256 B.2986–87
 257 B.2987–88
 258 B.2988
 259 B.2988–89
 260 B.2851–52
 261 B.8782
 262 B.2593
 263 B.2954–55
 264 B.2956–57
 265 B.2958–59
 266 B.2960
 267 B.8146
 268 B.8147–48
 269 B.8148–49
 270 B.8149

CHAPTER 7

1 Exhibit 68, B. 2252–95
 2 B. 2321
 3 B. 693
 4 B. 693
 5 B. 8767
 6 B. 592
 7 B. 592–95
 8 B. 8769
 9 B. 693
 10 B. 693
 11 B. 693–4
 12 B. 694
 13 B. 694–96
 14 B. 696
 15 B. 538

- ¹⁶ B. 538
- ¹⁷ B. 8769–70
- ¹⁸ B. 8454–55
- ¹⁹ B. 8455
- ²⁰ B. 594
- ²¹ B. 595
- ²² B.8770
- ²³ B. 8770
- ²⁴ B. 595
- ²⁵ B. 9186
- ²⁶ T. 8765
- ²⁷ T. 8766
- ²⁸ T. 8766–67
- ²⁹ T. 8768–69
- ³⁰ T. 8769
- ³¹ B. 9183–84
- ³² B. 8780
- ³³ B. 8780

CHAPTER 8

- ¹ B.538
- ² T.2006–07, Exhibit 53
- ³ B.538, Exhibit 53
- ⁴ Exhibit 53, 1317 & 1320 entry
- ⁵ B.504, Exhibit 53
- ⁶ B.504
- ⁷ Exhibit 53 entries 1320, 1321 and 1324
- ⁸ See Chapter 6, and Appendix A2.1
- ⁹ T.2082
- ¹⁰ T.2083
- ¹¹ Exhibit 53
- ¹² T.2084
- ¹³ T.2084
- ¹⁴ T.2085
- ¹⁵ T.2085
- ¹⁶ T2200
- ¹⁷ T.2086
- ¹⁸ T.2086
- ¹⁹ T.2086
- ²⁰ T.2067, Exhibit 53 entries at 1336 and 1349
- ²¹ Exhibit 53 entry 1336
- ²² T.2088–89, Exhibit 53: suggests the Snake Valley tanker pulled out of Lot 36 at around 1349
- ²³ See Chapter 6, para. 6.2
- ²⁴ See *“Operations Guidelines”* 4.1, B.3627
- ²⁵ T.2002
- ²⁶ T.2205
- ²⁷ Exhibit 53 entry 1338, 1340
- ²⁸ B.941
- ²⁹ Exhibit 53 records DGO Wyllie taking control of the incident at 1338 and requesting a dozer at 1340 and aircraft at around 1342
- ³⁰ B.942
- ³¹ B.942
- ³² B.943, Exhibit 53 entry 1344
- ³³ B.943, Exhibit 53 entry 1400
- ³⁴ B.943
- ³⁵ B.943, Exhibit 53 entry 1400

- ³⁶ B.944, Exhibit 53 entries 1442, 1443
- ³⁷ B.944
- ³⁸ B.944
- ³⁹ B.683–4, Exhibit 53 entry 402
- ⁴⁰ B.861–62
- ⁴¹ Exhibit 53 entry 1349
- ⁴² B.861
- ⁴³ B.862 Exhibit 53 entry 1439
- ⁴⁴ B.862
- ⁴⁵ B.862
- ⁴⁶ B.862
- ⁴⁷ B.862 Exhibit 53 entry 1437
- ⁴⁸ B.605
- ⁴⁹ B.605, B.784 and B.664
- ⁵⁰ B.607
- ⁵¹ B.607
- ⁵² B.813 (Searby) B663 (Mahoney) The Beaufort D4 dozer was diverted to Linton at 1349 (B.664)
- ⁵³ B.814
- ⁵⁴ B.664 See also Mahoney’s Log – Exhibit 82
- ⁵⁵ B.507
- ⁵⁶ B.508
- ⁵⁷ B.508
- ⁵⁸ B.815
- ⁵⁹ B.815
- ⁶⁰ B.815
- ⁶¹ B.815, Exhibit 82
- ⁶² B.815
- ⁶³ Exhibit 82 entry 14–02
- ⁶⁴ B.508, Exhibit 82 entry at 1428 records Fullerton being advised that Bob Graham will be setting up an Operations Point at Linton and *“Murray to go into Divisional Commander role. Bob to be Operations Manager.”*
- ⁶⁵ T.6179
- ⁶⁶ B.728
- ⁶⁷ B.728
- ⁶⁸ B.728, B.584
- ⁶⁹ B.584
- ⁷⁰ B.729
- ⁷¹ B.729
- ⁷² B.729
- ⁷³ B.729
- ⁷⁴ B.730
- ⁷⁵ B.730
- ⁷⁶ Audio No. 31919
- ⁷⁷ Audio No. 31972
- ⁷⁸ Audio No. 32012/5
- ⁷⁹ B.730
- ⁸⁰ Audio No. 32064
- ⁸¹ B.875
- ⁸² T.2407
- ⁸³ Exhibit 82 entry 15–50
- ⁸⁴ B.8767
- ⁸⁵ B.8777–78
- ⁸⁶ B.8779
- ⁸⁷ B.8780–81
- ⁸⁸ B.8781

⁸⁹ B.3752
⁹⁰ B.3745
⁹¹ T.2956. Regarding the issue of self-deployment, also see the evidence of Carter T.4368, Michaelis T.3670, Wright T.3231, Getson T.3511, 3488, Morecombe T.3860, Fullerton T.3010
⁹² T.6758–59
⁹³ T.5609
⁹⁴ T.10699
⁹⁵ B.3694
⁹⁶ B.3694
⁹⁷ B.3695
⁹⁸ B.3696
⁹⁹ Paragraph 12.6
¹⁰⁰ B.8148
¹⁰¹ B.8160
¹⁰² B.8166
¹⁰³ B.8278
¹⁰⁴ B.8283
¹⁰⁵ B.8283
¹⁰⁶ B.8308
¹⁰⁷ B.8309
¹⁰⁸ B.4358
¹⁰⁹ B.4359
¹¹⁰ B.4397 paragraph 240, B.8784
¹¹¹ B.4359

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¹ B.943
² T.2491
³ Exhibit 53 entry 1338
⁴ T2431
⁵ T.2431
⁶ Figure 9.1, Exhibit 63 with “X” marked indicating position of Wyllie
⁷ T.2431
⁸ B.4606
⁹ B.4607
¹⁰ B.4608
¹¹ B.4609
¹² B.4609
¹³ B4609
¹⁴ See Chapter 6 and Appendix A2.1 to this Report
¹⁵ B.683
¹⁶ B.683
¹⁷ B.683
¹⁸ B.4592
¹⁹ B.4593
²⁰ B.4594
²¹ T.2262–63
²² B.944
²³ T.2263
²⁴ T.2263
²⁵ T.2268
²⁶ B.2264–65
²⁷ B.1093
²⁸ B.1093–94
²⁹ Paragraph 7.1.2, 8.1

³⁰ B.1095
³¹ B.826
³² B.861
³³ B.861
³⁴ B.862
³⁵ B.862
³⁶ B.862
³⁷ B.862
³⁸ See Chapter 6 and Appendix A2.1 to this Report
³⁹ B.571
⁴⁰ See para.8
⁴¹ B.572
⁴² T.6179
⁴³ B.572
⁴⁴ B.572
⁴⁵ B.572
⁴⁶ T.6181
⁴⁷ B.5068
⁴⁸ B.5068
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⁵⁰ B.5069
⁵¹ B.5071
⁵² B.5072
⁵³ B.730
⁵⁴ B.730
⁵⁵ B.730
⁵⁶ T.9778
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⁵⁸ T.9779
⁵⁹ T.9739–40
⁶⁰ T.2433
⁶¹ T.2433–34
⁶² B.4609–11
⁶³ T.2932–34
⁶⁴ B.4594
⁶⁵ B.4594
⁶⁶ T.2263–64
⁶⁷ T.2267
⁶⁸ T.2676–77
⁶⁹ T.2673
⁷⁰ T.2779
⁷¹ B.862
⁷² T.2932
⁷³ T.2923
⁷⁴ B.4623
⁷⁵ B.862–63
⁷⁶ B.1120
⁷⁷ T.2931
⁷⁸ T.2932–34
⁷⁹ B.8465
⁸⁰ B.8465
⁸¹ T.2935
⁸² T.2091
⁸³ T.2092
⁸⁴ T.2093–96
⁸⁵ T.2099
⁸⁶ T.2099–100

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88 B.5578
89 B.5580
90 T.32
91 T.3333
92 T.3834
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94 B5721
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- 201 B.5391
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 - 203 B.5429
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 - 217 B.744
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 - 224 B.530
 - 225 B.530
 - 226 T.3960
 - 227 B.607
 - 228 B.607
 - 229 T9357
 - 230 T.9278
 - 231 T.9279
 - 232 T.9132
 - 233 T.9279
 - 234 T.9279–80
 - 235 See also Chapters 10,12 and 13.
 - 236 Commencing B.3600
 - 237 B.3750
 - 238 B.3751
 - 239 B.3752
 - 240 *“Operations Review of the Linton Fire/Midlands Fire”,*
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 - 241 B.8464
 - 242 B.3753
 - 243 B.3755
 - 244 B.8767
 - 245 B.8768
 - 246 B.8777
 - 247 B.8778
 - 248 B.8780–82
 - 249 *“Operations Review of the Linton Fire/Midlands Fire”,*
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 - 250 *“Operations Review of the Linton Fire/Midlands Fire”,*
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 - 251 B.9007
 - 252 T.8628
 - 253 T.8628–29
 - 254 T.8630–31
 - 255 p.10, B.9009
 - 256 Volunteer Associations Submission, B.9009
 - 257 Volunteer Associations Submission, B.9008–09
 - 258 CFA Submissions, B.9421–22
 - 259 CFA Submissions, B.9424
 - 260 CFA Submissions, B.9421–22
 - 261 Volunteer Associations Submissions, B.9002
 - 262 B.4358–59
 - 263 B.2276
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- ¹ B.4599
 - ² B.4600
 - ³ B.4600
 - ⁴ B.4600
 - ⁵ B.4600
 - ⁶ Exhibit 53
 - ⁷ B.4021–22
 - ⁸ Exhibit 53 entry 1338.
 - ⁹ T.2089
 - ¹⁰ T.2089
 - ¹¹ T.2090
 - ¹² T.2090
 - ¹³ B.4600
 - ¹⁴ B.4600
 - ¹⁵ B.545
 - ¹⁶ B.545
 - ¹⁷ T.3101–02
 - ¹⁸ See Chapter 6.6 of this Report (Figure 6.3 – *“Forest fire behaviour and firefighting strategy”* Table)
 - ¹⁹ Exhibit 53 entry 1453
 - ²⁰ B.4061–62, Exhibit 53 entry 1453
 - ²¹ B.4532
 - ²² B.4534
 - ²³ B.4534
 - ²⁴ B.4535–36
 - ²⁵ B.4602
 - ²⁶ B.546
 - ²⁷ B.546
 - ²⁸ B.546–47
 - ²⁹ B.4603
 - ³⁰ B.4536–38
 - ³¹ Exhibit 53
 - ³² B.4603
 - ³³ B.4604
 - ³⁴ B.4022
 - ³⁵ B.4539
 - ³⁶ B.5439
 - ³⁷ B.547
 - ³⁸ B.547
 - ³⁹ T.3256
 - ⁴⁰ See Chapter 8.3 to this Report
 - ⁴¹ B.826
 - ⁴² B.827
 - ⁴³ T.3106
 - ⁴⁴ Exhibit 68D, B.2252
 - ⁴⁵ Exhibit 68D, pp.33–35
 - ⁴⁶ Exhibit 68D, pp.33–35
 - ⁴⁷ B.8768

⁴⁸ Exhibit 68D, p.139; B.2388
⁴⁹ B.2391
⁵⁰ B.8782
⁵¹ T.9279–81
⁵² T.7676–77
⁵³ T.7524–25
⁵⁴ Ex. 21U, p.30
⁵⁵ T.7313–14
⁵⁶ T.7314
⁵⁷ T.7315
⁵⁸ T.7316
⁵⁹ T.7163–64
⁶⁰ Exhibit 181
⁶¹ B.2804
⁶² T.6862–63
⁶³ T.6606–07
⁶⁴ T.2968–69
⁶⁵ T.8853–54
⁶⁶ T.8907–08
⁶⁷ T.9745–46
⁶⁸ T.9040–41
⁶⁹ B.9012
⁷⁰ B.9012
⁷¹ B.9013
⁷² B.9014
⁷³ B.9014
⁷⁴ B.9014–15
⁷⁵ B.9425
⁷⁶ B.9581
⁷⁷ B.9582

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¹ p.30
² Exhibit 52D, B.11, 924
³ T.9224–25
⁴ B.512, B.315
⁵ B.4623
⁶ T.9739, T.3959
⁷ Radio Transcripts, p.78, B.7120
⁸ See for example radio communication at 2.37pm directing Kavanagh to get tankers round to the east side of the fire
⁹ Audio 1–39, B.7135
¹⁰ Audio A1–72, B.7160
¹¹ Audio 1–63, B.7158
¹² Audio 1–92, B.7172
¹³ Audio 1–92, B.7172
¹⁴ B.607
¹⁵ Audio 1–99, p.136
¹⁶ Audio 1–99, B.7177
¹⁷ Audio A1–78, B.7183
¹⁸ Audio A1–84, B.7189
¹⁹ Audio 2–4, B.7191
²⁰ Audio 2–9, B.7193
²¹ B.848
²² B.530
²³ B.530
²⁴ B.530

²⁵ Exhibit 23, p.145
²⁶ B.7187
²⁷ B.531
²⁸ B.531
²⁹ B.531
³⁰ T.9745
³¹ T.9744
³² B.1067
³³ T.3984–3985
³⁴ B.8513
³⁵ T.9864
³⁶ T.9747–48
³⁷ T.9657
³⁸ Dated 1 May 1999 (The Joint “Operations Review of the Linton Fire/Midlands Fire” is dated 11 March 1999)
³⁹ B.522
⁴⁰ B.732
⁴¹ Phelan said that he returned to Linton and spoke to Graham. The radio communication referred to by Phelan from Lightfoot was at 3.45pm, if Phelan is correct he returned to Linton and spoke to Graham sometime after that radio communication.
⁴² B.7215
⁴³ T.3993
⁴⁴ Report of Expert Panel B.8768
⁴⁵ B.8778
⁴⁶ T.2106 and 2112
⁴⁷ T.2114
⁴⁸ T.3993 and 4006
⁴⁹ T.4036–37
⁵⁰ T.4074–75
⁵¹ T.3969
⁵² T.3973–74
⁵³ T.3974
⁵⁴ B.8778
⁵⁵ See radio communication 1–84, B.7189, 2–4, B.7191
⁵⁶ T.3989
⁵⁷ T.3990
⁵⁸ T.4077–78
⁵⁹ T.4078
⁶⁰ T.4103–4104 (Ross Hadler), T.4002–4003 (Ray Hadler), T.3496 (Ian Getson), T.3638 (Michael Collins)
⁶¹ T.4078–79
⁶² T.3975–76
⁶³ Audio 2–25, B.7215
⁶⁴ T.9864
⁶⁵ T.4079, 3975
⁶⁶ T.3478–79
⁶⁷ T.3481–82
⁶⁸ T.3510
⁶⁹ B.689
⁷⁰ B.689
⁷¹ T.4668
⁷² T.4678–79
⁷³ B.9444–46
⁷⁴ T.6197–98
⁷⁵ T.2850
⁷⁶ T.4080

⁷⁷ T.4003
⁷⁸ B7226
⁷⁹ T.4669
⁸⁰ T.4702
⁸¹ T.4718–21
⁸² Audio A1–93, B.7216–17
⁸³ T.6198
⁸⁴ T.6319
⁸⁵ A1–95, B.7220
⁸⁶ A1–95, B.7220
⁸⁷ A1–95, B.7221
⁸⁸ B7232
⁸⁹ T.2497, T.4694; per Graham T.9033–34
⁹⁰ B.7238
⁹¹ B7238
⁹² B.7240
⁹³ B.7241
⁹⁴ B.7246
⁹⁵ B.7246
⁹⁶ B.7246
⁹⁷ Audio A2–30
⁹⁸ T.3377
⁹⁹ T.4692
¹⁰⁰ T.5574–75
¹⁰¹ B.8771
¹⁰² B.8778
¹⁰³ T.8669–70
¹⁰⁴ “Operations Review of the Linton Fire/Midlands Fire” ,
p.45; B.2296, Exhibit 115D and the Expert Panel per
Cheney, T.8651 and 8656
¹⁰⁵ “Operations Review of the Linton Fire/Midlands Fire”,
p. 45, B.2296, Exhibit 115D
¹⁰⁶ Para. 16.2.5, B.3750
¹⁰⁷ Section 10
¹⁰⁸ Tactics and Administration if the Field (Volume 1),
p.10–1
¹⁰⁹ Op cit, p.10–2
¹¹⁰ Chapter 10.3, p.10–5
¹¹¹ Chapter 10.3, p.10–5 to 10–6
¹¹² P. 10.6–10.7
¹¹³ See for example CFA “Operations Guidelines,” paras.
6.3.3, B.3650, 16.1.1, B.3731, 16.1.3, B.3733, 16.2.2,
B.3737–38, 16.6.2, B.3755
¹¹⁴ Para. 16.6.1, B.3731
¹¹⁵ “Operations Guidelines”, 16.9.2, B.3764, see also para.
23.21, B.3839
¹¹⁶ “Operations Guidelines”, p.23.21, B.3839
¹¹⁷ “Operations Review of the Linton Fire/Midlands Fire” ,
pp.25 and 31, B.2276, B.2282
¹¹⁸ Para. 11.4 B.9017–18
¹¹⁹ Para. 4.1 to 4.4 B.9426
¹²⁰ Para. 4.2, B.9426
¹²¹ Para. 2.7, B.9418
¹²² T.9032
¹²³ B.531
¹²⁴ B.531
¹²⁵ B.531
¹²⁶ CFA Submissions, para. 2.6; B.9417
¹²⁷ CFA Submissions, para. 2.7; B.9418

¹²⁸ CFA Submissions, para. 2.9; B.9419

¹²⁹ B.8780

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¹ Radio Transcripts, p.78, B.9120

² See for example radio communication at 2.37pm
directing Kavanagh to get tankers around to the east
side of the fire; B.9121

³ Audio 1–39; B.7134

⁴ Audio A1–72; B.7156

⁵ Audio 1–92; B.7172

⁶ B.607

⁷ Audio 1–99; B.7178

⁸ Audio 2–2; B.7179

⁹ A1–78, p.141

¹⁰ B.633

¹¹ B.731

¹² B.731

¹³ Audio A1–84; B.7189

¹⁴ Audio 2–4; B.7191

¹⁵ Audio 2–9; B.7193

¹⁶ Audio 2–13; B.7201

¹⁷ T.9657

¹⁸ B.633, T.9657, T.9747

¹⁹ B.634

²⁰ T.3666, T.3420

²¹ T.3765

²² T.3684

²³ T.3688

²⁴ T.3715

²⁵ T.3689

²⁶ T.4027–28

²⁷ T.9539–40

²⁸ T.9539–40

²⁹ B.5925

³⁰ B.5933

³¹ B.5938

³² B.5939–40

³³ B.5941

³⁴ B.5945

³⁵ B.634

³⁶ T.3687–88

³⁷ T.3687–98

³⁸ Audio 32457; A2–5; B.7229

³⁹ T.9734

⁴⁰ T.9735

⁴¹ T.9535–36, See also submissions made on behalf of
Mr Lightfoot at p.28, para. 12.5; B.9701

⁴² Lightfoot Submissions, B.9701

⁴³ Lightfoot Submissions, B.9685

⁴⁴ Volunteer Associations Submissions, B.9030

⁴⁵ p.47

⁴⁶ AFAC “Incident Control System”, p.6.

⁴⁷ “Operations Review of the Linton Fire/Midlands Fire”,
p. 44; B.2295

⁴⁸ CFA Submissions, B.9580–82

⁴⁹ B.9581

⁵⁰ CFA Submissions, para. 21.36; B.9581

⁵¹ CFA Submissions, para 21.38; B.9582

- ⁵² CFA Submissions, para. 21.38; B.9582
⁵³ See generally Chapter 10.5 of this Report
⁵⁴ Lightfoot Submissions, paras. 12.12– 12.15; B.9702–03
⁵⁵ See P.Cheney, J Gould and L. McCaw “The Dead-man Zone – a hitherto ignored area of firefighter safety”; B.8017
⁵⁶ B.8017 and following: Cheney/Gould/McCaw
⁵⁷ B.7229; B.4205–06
⁵⁸ Volunteer Associations Submissions, para. 12.3; B.9028–29
⁵⁹ Volunteer Associations Submissions, para. 12.4
⁶⁰ Volunteer Associations Submissions, para. 12.5; B.9030–31
⁶¹ Volunteer Associations Submissions, para. 12.5; B.9030–31
⁶² CFA Submissions, para. 5.3; B.9431

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- ¹ B.7181
² B.7180
³ B.7180
⁴ B.7183
⁵ B.7189
⁶ B.7192
⁷ B.731
⁸ B.4583
⁹ B.4625
¹⁰ T.3370
¹¹ T.3375–76
¹² T.3412–13
¹³ T.3701
¹⁴ T.3373
¹⁵ T.3386
¹⁶ T.3396
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²⁰ T.3734, T.3825
²¹ T.3736, T.3710–11
²² T.4125
²³ T.4128–29
²⁴ T.4129
²⁵ T.4131–32
²⁶ T.4172
²⁷ T.4202
²⁸ T.4158
²⁹ B.5221
³⁰ B.5221
³¹ B.5221
³² B.5222
³³ B.5222–23
³⁴ B.5223
³⁵ B.5224
³⁶ T.3483
³⁷ B.5225–26
³⁸ T.3504
³⁹ T.3318
⁴⁰ T.3321

- ⁴¹ T.3330–31
⁴² T.3330–31
⁴³ T.3652–53
⁴⁴ B.8575
⁴⁵ “Operations Review of the Linton Fire/Midlands Fire”, p.122, B.8608
⁴⁶ B.6054–55
⁴⁷ B.6055–56
⁴⁸ B.6056–57
⁴⁹ B.6057
⁵⁰ B.6058
⁵¹ B.6016–17
⁵² B.6166
⁵³ B.6168
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⁵⁵ B.6171
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⁵⁷ B.6172
⁵⁸ B.6173–74
⁵⁹ B.6175
⁶⁰ B.6176
⁶¹ B.6176
⁶² B.6177
⁶³ B.6177–78
⁶⁴ B.6178–79
⁶⁵ B.6032–33
⁶⁶ B.6033–34
⁶⁷ B.6104
⁶⁸ B.6105
⁶⁹ B.6105
⁷⁰ B.6193
⁷¹ B.6194
⁷² B.6194
⁷³ B.6195
⁷⁴ T.9665
⁷⁵ T.9539–40
⁷⁶ B.8768
⁷⁷ B.8780
⁷⁸ B.8783
⁷⁹ Audio 2–25, p.173
⁸⁰ CFA Submissions, B.9432
⁸¹ B.9036, para. 13.5
⁸² B.9037, para. 13.7.4
⁸³ B.9037, para. 13.7.5
⁸⁴ CFA Submissions, B.9432–33
⁸⁵ T.8658
⁸⁶ T.8658
⁸⁷ CFA Submissions, B.9437
⁸⁸ CFA Submissions, B.9434

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- ¹ B.4092, B.639, T.1060
² T.8998, T.9516
³ T.9741
⁴ T.9742
⁵ B.521
⁶ B.521
⁷ B.776

⁸ B.776
⁹ B.793
¹⁰ Exhibit 20U, CFA “Operations Guidelines” 16.1.5
¹¹ B.7446 and 7447
¹² B.7467
¹³ B.805
¹⁴ B.806, T.531
¹⁵ B.806
¹⁶ B.807
¹⁷ B.807
¹⁸ T.5312
¹⁹ T.5312
²⁰ B.798–799
²¹ B.838–39
²² B.340–41
²³ See photographs 97–102, 104–110 (also see photograph at the end of Chapter 23)
²⁴ See photographs 90–96 (also see photograph at the end of Chapter 23)
²⁵ B.455
²⁶ B.8701–02
²⁷ B.8608
²⁸ While the cause of death is the same for all 5 men, ie. “Effects of Fire”, the mechanism between those on the back of the truck and those on the ground behind the truck may have been different. In particular, those on the back of the truck showed significant carbon monoxide levels consistent with being poisoned by gases from the burning plastics making up the truck. The men on the truck probably died as a result of hypoxaemia.
²⁹ B.9643
³⁰ B.9770
³¹ B.9261
³² B.9263
³³ B.9263
³⁴ B.9109 and B.9768–70
³⁵ B.9262–63. See also B.9397
³⁶ B.9644–52
³⁷ B.9398
³⁸ B.10,477
³⁹ See Chapter 6 of this Report.
⁴⁰ Submissions: Families B.9778–89; Scharf and Stepnell B.9239–41; UFU B.9312–24; and Volunteer Associations B.9038–40. Replies: Families B.10,393–95, 10,398–03, 10,408–10; Scharf and Stepnell B.10,326–27, 10,328–29 and 10,342; UFU B.10,348–55; and Volunteer Associations B.10,424.
⁴¹ Submissions: CFA B.9499–23; DNRE B.9931–36, 9947–49, 9969–72, 9974–75, 9987–88, 9991–10,010. Replies: CFA B.10,170–75, 10,191–92, 10,199–10,200, 10–206–13, 10,236–37, 10–259–67, 10,311–13; DNRE B.10,469–75, 10,479–85, 10,494–97, 10–504–06, 10,515–16, 10,519–23, 10,532–44.
⁴² B.9711–12.
⁴³ B.9931–34
⁴⁴ B.10,395
⁴⁵ Section 6.8
⁴⁶ Noonan Report B.202
⁴⁷ S.O. 3.01 and S.O. 3.02.
⁴⁸ S.O. 3.01.

⁴⁹ S.O. 3.02
⁵⁰ B.10, 211
⁵¹ B.228–29.
⁵² B.726–27
⁵³ T.9777
⁵⁴ T.9777; See also T.9860
⁵⁵ T.9777
⁵⁶ The Operations Guidelines were Exhibit 20 and are found at B.3600–68.
⁵⁷ T.9800
⁵⁸ T.9898
⁵⁹ T.9871
⁶⁰ Transcript of Radio Communications, B.7043–7536
⁶¹ Transcript of Radio Communications, B.7043–7536
⁶² T.9860
⁶³ T.9861
⁶⁴ B.3662
⁶⁵ Chief Officer Roche B.4360, para 145.
⁶⁶ B.4362–64
⁶⁷ B.4362
⁶⁸ B.4363–64
⁶⁹ B.4581
⁷⁰ B.4581
⁷¹ B.4581
⁷² B.4581
⁷³ B.4581
⁷⁴ T.9557; See also T.9570–71 and 9580.
⁷⁵ T.9517
⁷⁶ T.9700
⁷⁷ T.9700 and 9718
⁷⁸ T.9517
⁷⁹ T.9567
⁸⁰ T.9568
⁸¹ Exhibit 20U Operations Guidelines Section 5.2 B.3637
⁸² Exhibit 20U Operations Guidelines Section 10.3.2 B.3688.
⁸³ T.9567–68.
⁸⁴ Exhibit 20U; in particular B.3688
⁸⁵ T.9570
⁸⁶ T.9718
⁸⁷ See para 14.2.50 above.
⁸⁸ T.9614
⁸⁹ B.7043–36; T.9588, T.9713.
⁹⁰ T.9577
⁹¹ T.9532–33
⁹² T.9574
⁹³ T.9532–34, 9557, 9569, 9627, 9574–75, 9576, 9578–79, 9596–98, 9614–17, 9621–23, 9627–28, 9630, 9639, 9651–52, 9654–55, 9687–88, 9697, 9701, 9719–21 and 9727.
⁹⁴ B.4071
⁹⁵ B.4071
⁹⁶ B.4071
⁹⁷ B.4071
⁹⁸ B.4071
⁹⁹ B.4072
¹⁰⁰ B.4072

- 101 B.4076–80
 102 B.4082–83
 103 B.4083
 104 They are Exhibits ss14–17A (inclusive).
 105 See Instructor's Module Guide Exhibit ss16 to Scharf's Additional Statement.
 106 B.4072
 107 See Chapter 6.2 to this Report
 108 B.4074
 109 B.4074
 110 B.4075
 111 B.4075
 112 B.4076
 113 B.4076
 114 B.4076
 115 B.4076
 116 B.4077
 117 B.4076
 118 B.4072
 119 B.4072–73
 120 B.3836
 121 Exhibit 25C
 122 Exhibit 25C p.7–9 (inclusive).
 123 Exhibit 25C p.15
 124 para. 14.2 71
 125 B.4077
 126 B.4077
 127 B.4077
 128 B.4078
 129 Exhibit ss15 to Scharf's additional statement.
 130 B.4080
 131 B.4080
 132 B.4080
 133 B.4081
 134 B.4082
 135 Exhibit SS16 p.2
 136 Exhibit SS16, p.4–5
 137 Exhibit SS16
 138 Exhibit SS16, p.7
 139 B.3734–36
 140 Exhibit SS16, p.35–36
 141 Exhibit SS16 p.37
 142 T.10,113–18.
 143 T.10,113
 144 T.10,113
 145 T.10,114
 146 T.10,116
 147 T.10,109–10
 148 T.10,111–12
 149 T.10,097–98
 150 See paras 14.1.37 – 14.1.39
 151 See DNRE submission
 152 B.4086
 153 B.4086
 154 B.4086
 155 T.10,221
 156 T.10,079
 157 T.10,079
 158 T.10,079
 159 T.10,080
 160 T.10,080
 161 T.10,080
 162 T.10,097
 163 T.10,140
 164 T.10,142
 165 T.10,149
 166 T.4089–99
 167 T.10,247–59
 168 B.9992
 169 See para 14.8
 170 B.4098
 171 B.4099
 172 T.10,094
 173 B.4099
 174 See David Bendle B.339; Rhett Daly B.455; Edward Handley B.535; Darrell Jennings B.563; Jeffrey Lowe B.644; Steven McPhail B.659; William Robertson B.768–69; David Rowan B.775; Colin Sharrock B.821–22; Malcolm Stepnell B.835–36; and Paul Moore B.4062–63.
 175 See the *“Operations Review of the Linton Fire/Midlands Fire”* and Joint Report of the Panel of Experts
 176 B.9456–60 (CFA); B.9974 (DNRE)
 177 T.10,120–21
 178 T.10145–46
 179 T.10,206–07
 180 B.9231
 181 *Coroners Act* 1985 s.44
 182 T.10,094–95
 183 See para 14.2.98
 184 B.10,003 (DNRE Submission)
 185 T.10,253–54
 186 For example, DNRE Submission B.9947. The point is that entry to and exit from the control line for the purpose of refilling a tanker with water is part and parcel of the construction of the a control line.
 187 T.10,135–36 and T.10,254
 188 T.10,189, B.4100
 189 T.10,120
 190 T10,143
 191 B.4133
 192 B.4133
 193 B.4233
 194 B.4133 and 4115
 195 B.4113
 196 B.4113
 197 B.4113
 198 B.4113
 199 B.4114
 200 B.4113
 201 B.4113
 202 B.4114
 203 B.4114
 204 T.9928
 205 T.9929
 206 T.9929

207 B.4114
 208 B.4115
 209 Attachment "MS4" to Ex. 243S.
 210 B.4115
 211 B.4115
 212 B.4117
 213 B.4116
 214 B.4117-18
 215 B.4119
 216 T.9930-34.
 217 T.9928
 218 T.9928
 219 T.9929 and 9935
 220 T.10,006
 221 T.9947
 222 T.10,024
 223 T.10,027; See also T.10,042
 224 T.10,064
 225 See Exhibit 28 Photographs 135-145
 226 B.836
 227 B.8124
 228 T.10,120
 229 See paras 14.2.79 to 14.2.112
 230 T.9971-72; see also T.10,028-29
 231 T.9971-72, 9974 and 10,030
 232 T.9973
 233 T.9974
 234 T.10,040-41
 235 T.9995
 236 T.9994
 237 T.10,010-11
 238 T.9962-63
 239 B.4118
 240 T.10,007
 241 See Chapter 9 (Pittong-Snake Valley Road Line-up
 and Burn-over) and Chapter 10 (Snake Valley 'A'
 entrapment).
 242 T.10,253-54
 243 T.10,032
 244 T.10,041-42
 245 T.10,064
 246 T.9947-9948
 247 B.7467
 248 T.10,065
 249 T.10,189-90
 250 Exhibit 245
 251 B.219
 252 See paras 14.2.26 to 14.2.27
 253 T.9969
 254 T.10,020
 255 T.10,189-90
 256 Chapter 14.9 to this Report
 257 Noonan Report B.220
 258 Noonan Report B.220
 259 Noonan Report B.220
 260 Exhibit 125
 261 Noonan Report B.221.

262 B.4514
 263 CFA training Records Folder 1 – Service History
 Details.
 264 B/4513
 265 B.4513-14
 266 B.4514
 267 T.616-18
 268 T.545
 269 T.601-02
 270 T.646
 271 T.576-78
 272 B.793
 273 B.798
 274 B.798-99
 275 B.4000
 276 B.4000
 277 B.340
 278 T.652
 279 B.9947
 280 B.776
 281 T.4802-03
 282 T.4826-4827
 283 E-mail 3 April 2001.
 284 E-mail 21 March 2001
 285 T.9534
 286 T.9795
 287 T.91942-43
 288 T.9149
 289 Exhibit 51D
 290 Exhibit 51D, para 1.1
 291 Ex. 51D, para 1.2
 292 B.4363
 293 Exhibit 51D, para 2.1
 294 Exhibit 51D, para 2.2
 295 Exhibit 51D, para 2.2
 296 Exhibit 51D, para 2.4
 297 B.3835-40; see also Exhibit 25C "*Wildfire safety and
 survival*".
 298 P.10.7
 299 B.4327-28
 300 See para 14.2
 301 B.4135
 302 See Ferguson T.7962-62; Leach T.9247-49; and Roche
 T.10,682-83 and 10,709-10.
 303 See Graham T.9146-48; Phelan T.9803-04; and
 Lightfoot T.9697
 304 See references in footnote 302.
 305 T.9247-49
 306 B.478
 307 B.483
 308 T.7961-26
 309 T.10,709-10
 310 B.9521
 311 T.10,7098-10
 312 T.10,683
 313 See paragraph 14.3.4
 314 Roche B.4328

315 B.4553
 316 B.4553–54
 317 B.4554
 318 See Chapter 8 of this Report.
 319 B.4554
 320 B.4555
 321 B.4555
 322 B.4556
 323 B.4556
 324 B.4558
 325 B.4101
 326 B.4101
 327 B.4101
 328 B.4558
 329 T.6396–97
 330 B.4188
 331 B.4188–89
 332 B.790–91
 333 B.4087
 334 T.6466–68
 335 T.6488–90
 336 B.765–66
 337 T.10,126–27
 338 B.790–91
 339 B.4086
 340 para 14.3.43
 341 B.834
 342 B.614–42
 343 B.4060–61
 344 B.765–66
 345 B.534
 346 B.855
 347 See para 14.3.40
 348 See para 14.3.4
 349 B.776
 350 Scharf, B.792 and Gray, B.4189
 351 B.792
 352 B.4088
 353 B.4089
 354 B792
 355 B.792–93; B.4120
 356 B.793
 357 B.4089–90
 358 B.756
 359 B.4162
 360 B.54
 361 B.870–71
 362 B.4634
 363 T.6214
 364 B.4002
 365 B.573
 366 Rigg B.756 and Scharf B.794
 367 B.4003; B.7416
 368 B.4002
 369 B.4003
 370 B.573–74
 371 B.794–95

372 Scharf B.795; and Kavanagh T.6220–22
 373 B.715
 374 B.7402–03
 375 B.7420
 376 B.574
 377 T.6052–53
 378 B.7422
 379 B.4588
 380 B.795
 381 B.4631–32
 382 B.1079–80
 383 T.9986–87
 384 See para 14.2.246 – 14.2.247
 385 B.7158
 386 B.7160
 387 B.794
 388 See B.4002
 389 B.9998
 390 B.9860
 391 B.9336–37
 392 Evidence of this is seen after the deaths occurred and Mr Lightfoot was trying to make contact with the Geelong Strike Team, see B.7475–77
 393 T.9595–96
 394 T.9834–35
 395 B.796–97
 396 B.7447
 397 T.1693–95
 398 T.1837, T.1839–40
 399 B.7446
 400 Exhibit 60C Comm-Rep-009-1 p.a.
 401 Exhibit 60C Comm-Rep-009-1 p.9
 402 B.9735
 403 B.9487
 404 B.10,000
 405 B.7466
 406 T.10,207
 407 Lancaster B.599; McPhail B.660 and Coulter B.4015
 408 B.793
 409 B.9336
 410 B.9733
 411 B.9222
 412 Submission for the Families, B.9831–9846
 413 B.9846
 414 Submission for Families B.98645–46
 415 B7158
 416 B7160
 417 B794
 418 See B4002
 419 B9998
 420 B.9860

CHAPTER 15

1 B.4358
 2 B.4358
 3 B.4358
 4 B.4358-59
 5 B.4359

⁶ B.4359
⁷ B.4359
⁸ B.4360
⁹ B.4360
¹⁰ B.4361
¹¹ Exhibit 21U, para. 1.5, p.3
¹² Exhibit 21U, para. 1.7, p.4
¹³ Exhibit 21U, para. 1.7, p.4
¹⁴ Exhibit 21U
¹⁵ Exhibit 21U, pp. 13 & 14
¹⁶ Exhibit 21U, p.5
¹⁷ Exhibit 21U, para. 2.2, p.17
¹⁸ Exhibit 21U, para. 2.2 (ii), p.18
¹⁹ B.663
²⁰ B.663
²¹ B.663
²² B.366
²³ B.368
²⁴ B.605, B.784, B.664
²⁵ T.9224, B.606
²⁶ B.316
²⁷ B.354
²⁸ B.355
²⁹ B.521
³⁰ B.784
³¹ B.784–85
³² B.785
³³ B.785
³⁴ B.540
³⁵ B.541
³⁶ B.344
³⁷ T.7290
³⁸ B.483
³⁹ T.7994
⁴⁰ Exhibit 178D, p.3
⁴¹ T.7995, T.9263–64
⁴² Exhibit 21U, p.17, T.9358, T.9394–96
⁴³ T.9359–60
⁴⁴ T.8897
⁴⁵ Exhibit 191
⁴⁶ T.7305
⁴⁷ T.7870
⁴⁸ B.483
⁴⁹ B.484
⁵⁰ T.7863
⁵¹ Exhibit 21U, pp.80–81
⁵² T.7868–69
⁵³ T.7869–70
⁵⁴ T.7871–72
⁵⁵ T.7874
⁵⁶ T.7877
⁵⁷ T.7994–95
⁵⁸ T.9203–04
⁵⁹ T.9204–05
⁶⁰ T.9352–53
⁶¹ T.9258–59
⁶² T.9261–62

⁶³ T.9262–63
⁶⁴ T.9263–64
⁶⁵ T.7728–29
⁶⁶ T.7761
⁶⁷ T.7663
⁶⁸ T.7656
⁶⁹ T.7657
⁷⁰ T.7658
⁷¹ T.7590
⁷² T.7591
⁷³ T.7306–07
⁷⁴ T.7322
⁷⁵ T.7027
⁷⁶ T.6660
⁷⁷ T.6661–62
⁷⁸ T.7826
⁷⁹ B.3647–48 “Operations Guidelines”, para. 6.2.12
⁸⁰ B.3649, “Operations Guidelines”, para. 6.3.2
⁸¹ B.3650
⁸² B.3651, “Operations Guidelines”, para. 6.3.4
⁸³ B.3651
⁸⁴ B.3652
⁸⁵ B.3654
⁸⁶ B.3655
⁸⁷ B.3655
⁸⁸ “Operations Guidelines”, para. 7.1, Chief Officer’s Standing Order, SO2.01 Command and Control of Incidents, B.3662
⁸⁹ B.3664
⁹⁰ B.3665
⁹¹ B.3679
⁹² B.3729
⁹³ Exhibit 68D, para. 6.12
⁹⁴ B.9666
⁹⁵ Exhibit 68D, Recommendation No. 9, p.41
⁹⁶ T.8042
⁹⁷ T.10,727–28
⁹⁸ B.9057
⁹⁹ B.9059
¹⁰⁰ B.9060
¹⁰¹ B.9060
¹⁰² EAF3, 4 and 5
¹⁰³ B.9346
¹⁰⁴ See for example Exhibit 5 PIR Reports
¹⁰⁵ T.9301

CHAPTER 16

¹ Exhibit 21U
² T.8994–95
³ Exhibit 178D, p.15
⁴ Exhibit 178D, p.16
⁵ T.7066
⁶ T.6514
⁷ Exhibit 21U, pp.28–30
⁸ B.9073
⁹ B.4543
¹⁰ B.4545
¹¹ T.6917

- 12 T.6917–18
- 13 B.522, T.8997–98
- 14 T.9742
- 15 T.6530–31
- 16 B.9074
- 17 Exhibit 21U, p.3
- 18 Exhibit 207D, pp. 56–57
- 19 B.9075
- 20 B.9076
- 21 It would appear from the document jointly prepared by CFA/DNRE and identified as *“imprecise outline of Linton fireline management from Operations Point”* (B.8126) that this confusion remains for the agency
- 22 B.9355
- 23 B.9356
- 24 B.9081–82

CHAPTER 17

- 1 Exhibit 21U, p. 65
- 2 B. 609
- 3 B. 630
- 4 Exhibit 21U, p. 29
- 5 Exhibit 52D, p. 4
- 6 T.6852–53; As to the meaning of the different types of fire see Chapter 6.3 of this Report
- 7 T.9312
- 8 Exhibit 20U, p. 11.3 and Exhibit 21U, p. 65
- 9 B.8148
- 10 B.8160
- 11 B. 560
- 12 Exhibit 140, Log
- 13 T. 6561
- 14 B.316
- 15 T.6975 and 7109
- 16 T.6806
- 17 B.665
- 18 B.608
- 19 B.368
- 20 B.540
- 21 B.665
- 22 T.7742
- 23 T. 9265–66
- 24 Exhibit.162, Logbook 5
- 25 T.6362
- 26 Exhibit 82
- 27 T.7661
- 28 B.540 and T.6448
- 29 B.540
- 30 T.7309
- 31 See Harris Transcript, T.7465 and B.541
- 32 B.560
- 33 T.5546
- 34 T.5547
- 35 T.5548
- 36 T.5546
- 37 T.5577
- 38 B.869
- 39 B.869

- 40 T.5595
- 41 T.5602
- 42 Exhibit 144, p. 1
- 43 Exhibit 144, p. 1
- 44 T. 5679–80
- 45 B. 9558
- 46 B. 9360–61
- 47 B. 10227
- 48 Exhibit 21U, p. 4
- 49 Exhibit 20U, p. 10.4
- 50 T. 7796
- 51 T. 7309
- 52 T. 9058
- 53 T. 9058–59
- 54 p. 6936
- 55 T.6975. See also p. 6978, 7028, 7110
- 56 T. 6978 and 7110
- 57 B. 2809
- 58 T. 6889
- 59 T. 6820–6821
- 60 T. 6605
- 61 T. 6606
- 62 T. 9372
- 63 T. 9373
- 64 T. 9371
- 65 T. 9373
- 66 B.560–61 and T. 5537 and T. 5553
- 67 p. 5552
- 68 B. 871
- 69 T. 5601 and 5649
- 70 T. 5684
- 71 T. 5670 and 5675
- 72 T. 5535
- 73 T. 5595
- 74 T. 5686
- 75 T. 5591 and See Exhibit 142S, point 22
- 76 See Exhibit 145S
- 77 T. 5673
- 78 Submissions, B. 9084, 9362, and 9367
- 79 Replies, B.10527–28
- 80 T. 9058
- 81 Exhibit 21U, p. 29
- 82 B. 525–26
- 83 B. 526
- 84 See Exhibit 142S, p. 3, Exhibit 68D, p. 42, Exhibit 52D, p. 4
- 85 T. 9060
- 86 T. 9059 and 7661
- 87 B. 9560
- 88 Submissions, B. 9560
- 89 T 5649–50
- 90 T. 5589
- 91 T. 5535
- 92 T. 5592, and 5595
- 93 See B. 560 and B. 870
- 94 See Exhibit 140 and T 5539–40
- 95 B. 870 and T. 5597

- 96 T. 5536
- 97 See Westwood T. 5597 and Roberts T. 196
- 98 B. 870 and T.5654
- 99 Exhibit 144, p. 1
- 100 T. 5686
- 101 B. 870 & Ex. 144, p.1
- 102 T. 5660
- 103 T. 5537
- 104 T. 5663–64
- 105 T. 6124–25
- 106 See Exhibit 142S, “Minutes of Staging Area Debrief”
- 107 T. 5674 and 5582
- 108 T. 5618
- 109 Exhibit 142S, Issues 7, 11, 13, & 15
- 110 Exhibit 68D, p. 42
- 111 T. 5553
- 112 T. 5537
- 113 T. 5538
- 114 T. 5538
- 115 T. 5539
- 116 Exhibit 140, p.1
- 117 See Sinclair, T. 5695
- 118 T. 6569–70
- 119 T. 6748
- 120 Exhibit 3
- 121 T. 422
- 122 T. 5552
- 123 T. 6936 and 7030
- 124 T. 5536
- 125 T. 5536
- 126 T. 5566
- 127 B. 869
- 128 T. 5596
- 129 B. 869
- 130 T. 7030
- 131 T. 7030
- 132 T. 5637
- 133 T. 5598
- 134 B. 870
- 135 T. 5597–98
- 136 T. 5678
- 137 T. 5658
- 138 T. 5608
- 139 T. 6936
- 140 See 20A Log, Exhibit 12 – There is only half a page of entries up until “2040” hours.
- 141 T. 326
- 142 T. 421–22
- 143 See Statements – Exhibit 140, 141 and 144
- 144 T. 5552
- 145 T. 5556
- 146 Exhibit 140, p.1
- 147 B. 541
- 148 Exhibit 190
- 149 Exhibit 190, p. 2
- 150 B. 560
- 151 Exhibit 140, p.1
- 152 T. 5541
- 153 Exhibit 140, p.1
- 154 T. 5543
- 155 B. 7344–45
- 156 Exhibit 140, p. 1
- 157 Exhibit 2, p. 157
- 158 Exhibit 2, p. 157
- 159 Exhibit 12, 20A Log
- 160 Exhibit 1
- 161 See Exhibit 2, p. 157 and Transcript of Radio Transmissions, B. 7349 and 7360
- 162 T. 113
- 163 Exhibit 142S, p. 3
- 164 T. 5592
- 165 T. 5603 and 5671
- 166 B. 561
- 167 T. 5592
- 168 T. 5625
- 169 T. 5626
- 170 T. 5625
- 171 T. 5659–5660 and 5670
- 172 B. 871
- 173 T. 5620 and 5626
- 174 B. 870 and T. 5603
- 175 B. 561
- 176 B. 870
- 177 T. 5597–98
- 178 B. 4089 and T 10195
- 179 T. 5675
- 180 B. 756 and T.5210
- 181 T. 5241–42
- 182 Exhibit 144, p. 1
- 183 T. 5658
- 184 T. 5667–68
- 185 T. 5659
- 186 T. 5659
- 187 T. 5675
- 188 B. 4089–90
- 189 T. 5231–32
- 190 T. 5253
- 191 T. 10166 and B. 4302
- 192 See Exhibit 24 and 135 for maps
- 193 B. 4302 and B.4091
- 194 T. 5185
- 195 B. 4091
- 196 T. 5624
- 197 B. 9088
- 198 B. 9089
- 199 B. 9758 and T.11412
- 200 B. 9649
- 201 B. 9364
- 202 B. 11015
- 203 B. 9798
- 204 B. 9198
- 205 B. 9563
- 206 B. 870
- 207 p. 5686

- ²⁰⁸ See section 17.9 of this Chapter and Exhibit 24 and 135 for maps. Also see T. 5681 and B. 4091
- ²⁰⁹ T. 5567
- ²¹⁰ Exhibit 234S, p. 11
- ²¹¹ Exhibit 234S, p. 12
- ²¹² T. 9370
- ²¹³ T. 9372–73
- ²¹⁴ T. 6855–56
- ²¹⁵ T. 7728
- ²¹⁶ Exhibit 142S, p. 5

CHAPTER 18

- ¹ Exhibit.20U, p. 15.1, B. 3726
- ² B.630; See also Exhibit 169C, B. 12950
- ³ B. 104
- ⁴ B. 621
- ⁵ B. 105
- ⁶ B. 105
- ⁷ B. 629
- ⁸ B. 104
- ⁹ B. 630
- ¹⁰ Exhibit.20U, p. 15.4, B. 3729, and Exhibit 21U, B. 11624
- ¹¹ B. 622
- ¹² B. 104
- ¹³ B. 630
- ¹⁴ Exhibit.20U, p. 10.6, B. 3691, p. 11.4, B. 3697 and B. 630
- ¹⁵ B. 630
- ¹⁶ B. 676
- ¹⁷ Exhibit 20U, p. 15.2, B. 3727
- ¹⁸ Exhibit 20U, p. 15.2, B. 3727
- ¹⁹ B. 4101
- ²⁰ B. 760
- ²¹ T. 110
- ²² T. 116
- ²³ Exhibit 11, B. 11202 and B. 761
- ²⁴ B. 761
- ²⁵ T. 6648
- ²⁶ Exhibit. 4U, B. 11016
- ²⁷ T. 179
- ²⁸ T. 6695
- ²⁹ T. 181–82
- ³⁰ T. 182–83
- ³¹ See Exhibit.1, B. 11000, Exhibit.2, B. 11005, Exhibit.3, B. 11009 and Exhibit12, B. 11300 for 20A Log
- ³² Exhibit11, B. 11201 and B. 761
- ³³ Exhibit 1, B. 11000
- ³⁴ T. 247
- ³⁵ Exhibit 11, B. 11203
- ³⁶ T. 321
- ³⁷ T. 322
- ³⁸ T. 324
- ³⁹ T. 6619
- ⁴⁰ T. 2014–15
- ⁴¹ T. 2036
- ⁴² T. 2324

- ⁴³ B. 761
- ⁴⁴ T. 133
- ⁴⁵ Audio 33937, B. 7446 and Audio 33956, B. 7447
- ⁴⁶ Exhibit 1, B. 11000
- ⁴⁷ Exhibit 53, B. 11934
- ⁴⁸ Audio 33939, B. 7447–48 and T. 133–34
- ⁴⁹ T. 5698
- ⁵⁰ The MCV 16A logbook indicates Snake Valley Sub-base acknowledged the message. Ms Foy was unclear as to the circumstances regarding this message and whether she acknowledged it, but her log also indicates she may have acknowledged the message after hearing it broadcast by the MCV on 16A. See T. 2063 and Exhibit 53, B. 11943
- ⁵¹ T. 9594
- ⁵² T. 9758–59
- ⁵³ T. 117
- ⁵⁴ T. 134
- ⁵⁵ T. 117
- ⁵⁶ T. 118
- ⁵⁷ T. 6639
- ⁵⁸ T. 6572
- ⁵⁹ T. 6688
- ⁶⁰ Exhibit 11, B. 11199
- ⁶¹ T. 6663
- ⁶² T. 6664
- ⁶³ See Chapter 14.5 and Chapter 19
- ⁶⁴ B. 9547–50
- ⁶⁵ T. 6600
- ⁶⁶ T. 6538
- ⁶⁷ T. 6904
- ⁶⁸ B. 9501
- ⁶⁹ B. 10036–39
- ⁷⁰ B. 9081
- ⁷¹ B. 9251–53
- ⁷² Exhibit. 12, Mobile Communications Vehicle Firefighter Training Module, June 1998, B. 11365
- ⁷³ T. 254
- ⁷⁴ T. 244
- ⁷⁵ T. 3919 and 5764
- ⁷⁶ B. 585
- ⁷⁷ T. 5925
- ⁷⁸ Exhibit 156, B. 12708
- ⁷⁹ T. 5924
- ⁸⁰ T. 5934
- ⁸¹ T. 5939
- ⁸² T. 5925–26
- ⁸³ T. 5927
- ⁸⁴ Audio 1–63, B. 7158
- ⁸⁵ Audio 1–77, B. 7160
- ⁸⁶ T. 5931
- ⁸⁷ T. 5932
- ⁸⁸ T. 5933
- ⁸⁹ Audio 34111, B. 7467
- ⁹⁰ T. 5933
- ⁹¹ T. 9843
- ⁹² T. 9530
- ⁹³ B. 9249–50, B. 9858 and B. 10046

- 94 B. 9727
- 95 B. 9722
- 96 B. 9550
- 97 B. 9550
- 98 B. 9373
- 99 B. 9094
- 100 T. 2002
- 101 Exhibit 53, B. 11934
- 102 T. 2006
- 103 T. 2012
- 104 B. 505
- 105 B. 505
- 106 T. 2006–07
- 107 T. 2003–04
- 108 T. 2005
- 109 Exhibit 55, B. 11996–97
- 110 T. 2008
- 111 T. 2008
- 112 T. 2009
- 113 T. 2009–10
- 114 T. 2012–13
- 115 T. 2014
- 116 T. 6565
- 117 T. 2014
- 118 T. 2015
- 119 T. 2324
- 120 Exhibit 53, B. 11934
- 121 T. 2017–18
- 122 Exhibit 1, B. 11000
- 123 T. 2018–19
- 124 T. 2019
- 125 B. 9551 and B. 9091
- 126 B. 707
- 127 T. 5765
- 128 T. 5776
- 129 T. 5755
- 130 T.5757
- 131 T.5758–59
- 132 T.5759–61
- 133 Audio 33912, B.7443
- 134 T.5763–64
- 135 Audio 33922, B.7444
- 136 T.5775–76
- 137 T.5764
- 138 Audio 34110, B.7467
- 139 T.5765
- 140 T.5776
- 141 T.3279
- 142 T.4669
- 143 T.4669 and 7678
- 144 B. 9092, B. 9761, and B. 9550 and 9628
- 145 T. 3880
- 146 B. 6069–70
- 147 T. 3883
- 148 Exhibit 104, B. 12301–06
- 149 T. 3882
- 150 T. 3884
- 151 Exhibit 104, B. 12303
- 152 T. 3885
- 153 T. 3886
- 154 T. 3887
- 155 T. 3888–89
- 156 Exhibit 104, B. 12305
- 157 T. 3890
- 158 T. 3890
- 159 Exhibit 104, B. 12305
- 160 T. 3891
- 161 T. 3892
- 162 B. 9374
- 163 B. 105
- 164 B. 666
- 165 Photograph 159
- 166 B. 666
- 167 Exhibit 82, B. 12287
- 168 Exhibit 82, B. 12287 and T. 7659
- 169 T. 2854–55
- 170 See evidence of Searby T. 2616, Scherger T. 5323, and Bell T. 3150
- 171 B. 9477
- 172 Exhibit 23C, Audio 4–19, B. 7410
- 173 Exhibit 23C, Audio 1–4, B. 7055 and Audio 1–9, B. 7064
- 174 T. 5189
- 175 T. 1818
- 176 B. 4091
- 177 B. 9202
- 178 B. 9201
- 179 T. 6233–34
- 180 T. 6151–52
- 181 B. 9202 and B. 9377
- 182 B. 4143
- 183 T. 9810
- 184 T. 9810–11
- 185 T. 9419–21
- 186 B. 10230
- 187 T. 2689
- 188 See Exhibit 23C, B. 7000
- 189 See Balm, T. 293, Anderson, T. 6804, Britton, T. 7034, Graham, T. 8992, and Leach, T. 9241
- 190 T. 9241
- 191 T. 10116 and B. 4143
- 192 B. 755
- 193 T. 5029
- 194 T. 5250–51
- 195 T. 6595
- 196 B. 548
- 197 T. 10749
- 198 Exhibit 212C, B. 13623
- 199 T. 116
- 200 T. 186
- 201 T. 6574, and T. 9255
- 202 Exhibit 247C, B. 4376
- 203 T. 10751–52
- 204 B. 9481 and B. 9763

205 B. 10036–37
 206 T. 9008 and 9254
 207 T. 9529
 208 T. 117
 209 T. 9010
 210 T. 9013–14
 211 B. 10047
 212 T. 2005
 213 T. 2013–14
 214 B. 9490
 215 Exhibit 247C, B. 4376
 216 Exhibit 206, B. 13455
 217 T. 10690
 218 Exhibit 71D, B. 12247
 219 B. 9381
 220 T. 2013–14 and B. 505
 221 T. 2106
 222 T. 2721
 223 T. 2948
 224 T. 6652 and B. 316
 225 T. 7944
 226 T. 117 and Exhibit 11, B. 11206
 227 Exhibit 55, B. 11996
 228 T. 2005 and T. 3892
 229 T. 2053
 230 B. 356
 231 T. 7176
 232 Exhibit 68D, B. 8517
 233 Exhibit 11, B. 11203
 234 T. 9000
 235 Exhibit 60C, B. 4157
 236 T. 4419
 237 T. 4812
 238 T. 4812
 239 T. 3460
 240 T. 3460
 241 Exhibit 60C, B. 4155 and See Original Exhibits for Report
 242 B. 9094
 243 B. 9301
 244 B. 9547 and 9628
 245 Exhibit 247C, B. 4327
 246 Workcover Report of Mr Noonan, B. 214
 247 Exhibit 247C, B. 4348
 248 Exhibit 247C, B. 4349
 249 CFA Training Operations Manual, 1999
 250 Exhibit 20U, Chapter 15, B. 3725
 251 Exhibit 247C, B. 4375
 252 Fire Training Management System, NRE, 1999
 253 Fire Training Management System, NRE, 1999
 254 B. 630
 255 T. 2028
 256 Exhibit 51D, B. 11916
 257 Exhibit 212C, B. 13623–35
 258 Exhibit 212C, B. 13623–24
 259 B. 360
 260 Exhibit 212C, B. 13624, 13627 and 13628

261 Exhibit 212C, B. 13624
 262 Exhibit 212C, B. 13625
 263 Exhibit 212C, B. 13628
 264 Exhibit 212C, B. 13623–28
 265 T. 10648–49
 266 Exhibit 212C, B. 13626–27
 267 Exhibit 212C, B. 13628–29
 268 Exhibit 212C, B. 13626–27
 269 T. 2801
 270 Exhibit 212C, B. 13629
 271 T. 2897 and 5359
 272 See Videos of Fiskville View, 28/9/00
 273 T. 6885
 274 T. 6885–86
 275 T. 6886
 276 Exhibit 212C, Attached article entitled “*Bluetooth: the good, the bad and the reality.*” B. 13633
 277 Exhibit 212C, B. 13631
 278 Exhibit 212C, B. 13631–32
 279 Exhibit 212C, B. 13629
 280 B. 9630
 281 Exhibit 197D, B. 13388
 282 Exhibit 197D, B. 13391
 283 Exhibit 197D, B. 13388
 284 Exhibit 197D, B. 13388
 285 Exhibit 51D, B. 11916
 286 B. 104
 287 B. 105
 288 B. 105
 289 B. 105
 290 B. 4096
 291 T. 2721, 2268, 5856, 6034, and 6108
 292 T. 6177–78
 293 B. 579
 294 B. 674
 295 T. 2619 and 2824, and B. 805
 296 T. 5370
 297 B. 10081
 298 B. 674
 299 T. 2279 and B. 941
 300 B. 674
 301 See Balm T. 420, Brown T. 6363, Jenkins T. 5537, and Stewart T. 4909
 302 T. 6843
 303 Exhibit 11, B. 11204
 304 B. 505
 305 B. 316, 345, 356
 306 B. 369
 307 T. 480 and 2032
 308 T. 7545
 309 B. 345
 310 B. 905 and 923
 311 B. 4211
 312 T. 5607–08
 313 B. 4211
 314 T. 7521–22
 315 T. 6723 and 6832

316 T. 6832
 317 B. 9382
 318 T. 9000 and 9011
 319 T. 9044
 320 T. 6745, 7067, and 7075
 321 T. 9241
 322 B. 105
 323 Exhibit 52D, B. 11929
 324 B. 9553–54
 325 B. 10036
 326 B. 9382
 327 Exhibit 51D, B. 11917
 328 Exhibit 181, B. 8170
 329 T. 6823
 330 Exhibit 247C, B. 4365
 331 T. 9010
 332 Exhibit 20U, B. 3697
 333 B. 8325
 334 B. 8327
 335 Exhibit 51D, B. 11916–17
 336 B. 9668 and 10085
 337 B. 10085
 338 T. 2067, 2616, 2332, 3305, 5941, 6034
 339 T. 6034
 340 T. 2331, 2720, 3359, 3460, 4918, 6188
 341 T. 3359
 342 T. 10686
 343 T. 9253, p. 9008, and p. 7860
 344 B. 4374
 345 Exhibit 60C
 346 Exhibit 60C, B. 4156
 347 Exhibit 60C, COMM-REP-009-1, p. 6
 348 Exhibit 60C, COMM-REP-009-1, Annex J&K
 349 Exhibit 60C, COMM-REP-012-1
 350 Exhibit 60C, COMM-REP-029-2, p. 8
 351 T. 9774, 6791, and 5536
 352 T. 9879, 3563, and 9530
 353 T. 3563
 354 B. 9547
 355 Exhibit 60C, B. 4157
 356 Exhibit 60C, COMM-REP-030-1, p. 2
 357 Exhibit 60C, COMM-REP-030-1, p. 4
 358 Exhibit 60C, COMM-REP-031-1, p. 6
 359 Exhibit 60C, COMM-REP-031-1, p. 4 & 8
 360 Exhibit 60C, COMM-REP-031-1, Annex A & B
 361 Exhibit 60C, COMM-REP-031-1, Annex A & B
 362 Exhibit 60C, COMM-REP-031-1, p. 6
 363 Exhibit 60C, COMM-REP-031-1, Annex A & B
 364 Roberts, T. 139, Millar, T. 2331, and Graham, T. 9000
 365 Exhibit 60C, B. 4157
 366 B. 9096
 367 B. 9628
 368 B. 9999
 369 B. 9764–65
 370 B. 9628 and 9096
 371 B. 10040 and 10045

CHAPTER 19

1 *“The Operations Review of the Linton Fire/Midlands Fire”, p.22*
 2 B.8773, Joint Experts Report: *“The two year old fuel reduction burn east of Kelly Road stopped the spread of the head fire that developed after the wind change This burn would have stopped the spread of a more intense surface fire burning under extreme fire danger conditions although such a fire could throw firebrands more than 1000m across one burn to start new fires.”*
 3 B.8773
 4 B.8449–80
 5 B.8766
 6 B.8766–67
 7 B.8768–69
 8 B.8768
 9 B.8771–72
 10 B.8772
 11 B.8773
 12 B.8773–75
 13 B.8775–76
 14 B.8779–80
 15 *“Pittong Road Line up” – Chapter 9, “Snake Valley A entrapment” – Chapter 10, “Possum Gully/Madden Flat Road Backburn and Entrapment” – Chapter 13, “Pittong/Madden Flat Road Backburn” – Chapter 11.*
 16 B.8781–82
 17 B.8782
 18 B.8783
 19 B.8783–84
 20 B.8784
 21 See Chapter 14 (14.2.58 to 14.2.123)
 22 B.8789
 23 See Exhibit 21U paras 1.5, 1.6, 1.7, 1.8, 2.2, 2.3, 2.5, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 4.6
 24 B.3836
 25 Exhibit 25C
 26 Exhibit 25C, p.7
 27 Exhibit 25C, p.7
 28 Exhibit 25C, p.8
 29 Exhibit 20U p.16.5, B.3735
 30 Exhibit 25C p.15
 31 Exhibit 25C, p.15
 32 Exhibit 20U p.5.2 B.
 33 Exhibit 21U PP.16–22
 34 Exhibit 21U p.27
 35 Exhibit 21U, pp.28–29
 36 Exhibit 21U p.33
 37 Exhibit 21U p.34
 38 Exhibit 21U p.34
 39 Exhibit 21U
 40 Exhibit 21U p.38
 41 Exhibit 21U p.38
 42 Exhibit 21U p.39
 43 Exhibit 21U p.40
 44 Exhibit 21U p.49
 45 B.8633–93
 46 B.8642
 47 B.8784

48 B.8642
 49 B.8642
 50 B.8642
 51 B.8643
 52 B.8643
 53 B.8643
 54 B.8644 and following
 55 B.8644
 56 B.8645
 57 B.8646
 58 T.8204
 59 Exhibit 215M
 60 T.8327, line 5. See also T.8461, line 18 and following
 in the evidence of Rooney.
 61 Statement of CFA Chief Officer Roche, p.173 B.
 62 T.8295
 63 B.8648
 64 T.8259, T.8262, T.8303, T. 8304, T.8305, T.8332
 (Williams) T.8127 (Reeder) T.8456 (Rooney)
 65 B.8652
 66 B.8653
 67 B.8661
 68 B.8661
 69 B.925
 70 B.925
 71 B.4033–34
 72 B.4034
 73 T.8378
 74 T.8377
 75 T.8378
 76 B.8750 and following
 77 T.8353
 78 T.9228
 79 T.8228
 80 Reeder Report, p.15 B.8733
 81 B.925
 82 Reeder Report, p.15
 83 B.931
 84 B.936
 85 B.4035
 86 B.4035
 87 B.4039
 88 B.4035
 89 B.4035
 90 B.4035
 91 B.4040
 92 B.4035
 93 B.933
 94 B.4131
 95 B.4042
 96 B.4036
 97 B.4036
 98 B.4036
 99 B.4036
 100 B.4046
 101 B.4037
 102 T.8294

103 T.8470
 104 Tange was in charge of the Situation Unit of the
 Planning section of the IMT.
 105 B.4066
 106 B.4067
 107 B.4067
 108 B.4055
 109 B.4067
 110 B.4067
 111 B.4067
 112 B.935
 113 B.938
 114 B.4067
 115 B.935
 116 B.938
 117 B.935
 118 T.8439
 119 T.8433–34
 120 Part of Exhibit 214M set out in Appendix A3 at the
 end of this Report.
 121 B.639
 122 T.6798, T.6552, T.6766
 123 Exhibit 165
 124 Exhibit 165 T.6382
 125 T.6386
 126 T.6446
 127 T.8389
 128 T.7133
 129 T.7134
 130 T.1737
 131 T.7135
 132 T.7139, Exhibit 184 & 185, T.7143
 133 T.7139
 134 T.7139
 135 T.7140
 136 T.7153
 137 B.444
 138 B.444
 139 B.445
 140 B.445
 141 B.445
 142 T.7531
 143 T.6552, 6766, 6798 and 6534
 144 T.7042
 145 T.7056
 146 T.9194
 147 T.7525
 148 T.7526
 149 T.7975
 150 T.7891
 151 T.7912
 152 T.7912
 153 T.7893
 154 T.7892
 155 T.7913
 156 B.1951–52
 157 T.7685

158 T.7685-86
 159 T.7687
 160 T.7687
 161 T.7687
 162 T.7687-88
 163 T.7694
 164 T.7695
 165 T.7446
 166 T.7367
 167 T.7385
 168 T.7399
 169 T.8909
 170 T.8909
 171 T.8910
 172 T.8910
 173 B.938
 174 T.8912
 175 T.8912
 176 T.8914-15
 177 T.9759
 178 T.9833
 179 T.9009
 180 T.9011-12
 181 T.9638
 182 T.9625
 183 T.9626
 184 Audio 34110; B.7467
 185 T.9383
 186 T.9383
 187 T.9294
 188 B.499
 189 T.9301
 190 T.9301-02
 191 T.9255-56
 192 T.9387
 193 T.9596
 194 B.526
 195 T.9066
 196 T.9066-67
 197 T.9066
 198 T.9069
 199 T.9070
 200 B.1076-77
 201 B.1078
 202 T.9790
 203 T.9791
 204 T.9808-09
 205 T.9541
 206 T.9542-43
 207 Exhibit 104
 208 T.3885
 209 T.3886
 210 T.3887
 211 T.3909
 212 T.3912
 213 Audio 33417; B.7371
 214 Audio 33434

215 Audio 33455
 216 Audio 33464
 217 Audio 33503
 218 Audio 33517
 219 T.3888
 220 T.3888-89
 221 Audio No.33747 at 7.17pm
 222 T.3889
 223 T.3890
 224 Audio No.33905 at 7.48pm, B.7444-7445
 225 Audio No.33923 at 7.51pm, B.7446
 226 Audio No.33937 at 7.53; B.7446
 227 Audio No.33956 at 7.59pm; B.7447
 228 Audio No. 34110 at 8.28pm; B.7467
 229 T.3892
 230 T.3891
 231 B.762
 232 Audio 33937
 233 Audio 33942
 234 See also Dianne Foy log Ex. 53 entry at 1956
 235 B.762
 236 T.117
 237 T.118
 238 T.6690
 239 T.6534
 240 T.6534
 241 T.6789
 242 T.135
 243 T.5687
 244 T.5687
 245 T.9759
 246 T.10207
 247 T.7321
 248 T.3238
 249 T.2836
 250 T.9613
 251 T.383
 252 T.5195
 253 T.2329
 254 T.3553
 255 T.2051
 256 T.6032
 257 T.2588
 258 T.2960
 259 T.6958
 260 T.9833
 261 T.9617
 262 T.9638
 263 T.2191
 264 T.2105
 265 T.2683.
 266 T.2867, T.2835
 267 T.6789
 268 T.6789
 269 T.9009
 270 T.2825
 271 T.2836

272 T.9009
 273 T.4221
 274 T.4225
 275 T.4226
 276 T.4272
 277 T.9007–09
 278 T.9254
 279 T.6790–91
 280 T.9750–51
 281 T.9524
 282 B.878–938
 283 B.938
 284 B.884
 285 B.884
 286 B.909
 287 B.926
 288 B.929
 289 B.929
 290 2.40pm 2 December 1998, B.932, 5.20pm, 2
 December 1998, B.933, 6.20pm 2 December 1998,
 B.934, 7.45pm 2 December 1998, B.935
 291 2.12pm – B.936, 5.00pm – B.937 and 7.53pm –
 B.938.
 292 B.936 (Fig 19.3)
 293 B.932 (Fig. 19.4)
 294 B.933 (Fig 19.6)
 295 B.934 (Fig 19.7)
 296 B.935 (Fig 19.8)
 297 B.938 (Fig.19.9)
 298 B.8758
 299 T.8303, B.883, T.8262, T.8332
 300 T.8304
 301 B.8759
 302 B.882
 303 B.883
 304 B.887
 305 B.888
 306 T.8430
 307 T.8433–34
 308 T.8303
 309 T.8303
 310 T.8262
 311 T.8234
 312 T.8235
 313 *“Preliminary Report on Meteorological Aspects of the
 Linton Fire on 2 December 1998”, Bureau of
 Meteorology, July 1999*
 314 B.883 (paragraph 9)
 315 B.883 (paragraph 9)
 316 B.883–84
 317 B.909
 318 B.909
 319 T.8317; B.908
 320 B.908
 321 T.8315
 322 B.9139
 323 T.8430
 324 B.9144

325 B.9156
 326 T.3888–98
 327 T.3890
 328 T.8139
 329 T.8184–87
 330 B.9156
 331 T.8294
 332 T.8470
 333 Part of Exhibit 214M
 334 B.9633
 335 T.8333
 336 T.8333–34
 337 B.9634
 338 B.9634
 339 T.8327
 340 T.8355
 341 T.8460–61
 342 Exhibit 20U B.3735
 343 Exhibit 20U p.16.5, B.3735
 344 Part Exhibit 214 M Fig.19.11

CHAPTER 20

- ¹ Fleming, Law of Torts, 7th ed, p.483–86
- ² Fleming, Law of Torts, 7th ed, p.81–82
- ³ (1985–86) 160 C.L.R. 301, p.313–314
- ⁴ [1937] A.C. 57 at p.64
- ⁵ [1937] A.C. 57 at p.64–65
- ⁶ Fleming, Law of Torts, 7th ed, p.341
- ⁷ [1937] A.C. 57 at p.70
- ⁸ [1937] A.C. 57 at p.73
- ⁹ [1937] A.C. 57 at p.78
- ¹⁰ [1937] A.C. 57 at p.80
- ¹¹ [1937] A.C. 57 at p.81
- ¹² [1937] A.C. 57 at p.83–84
- ¹³ [1937] A.C. 57 at p.84–85
- ¹⁴ [1937] A.C. 57 at p.87
- ¹⁵ [1937] A.C. 57 at p.88
- ¹⁶ B.10,460
- ¹⁷ B. 10,460
- ¹⁸ B.10,462
- ¹⁹ B. 10,465
- ²⁰ Glass, McHugh and Douglas, The Liability of
 Employer, 2nd ed, p.79–80
- ²¹ B. 10,646–65
- ²² Section 21
- ²³ [1999] 3V.R. 834
- ²⁴ [1999] 3V.R. 834 at p. 848–50
- ²⁵ B. 10,461
- ²⁶ Exhibit 227U. UFU Submission, B.9276.
- ²⁷ DNRE Reply, B.10490–91.
- ²⁸ DNRE Reply, B.10490–91.
- ²⁹ Exhibit 238D – *‘The National Wildfire Coordinating
 Group, NFES 2225, March 1992’*
- ³⁰ Exhibit 238D
- ³¹ Exhibit 238D.
- ³² Exhibit 238D.
- ³³ Exhibit 238D, (Tab heading Assorted US documents)
 Firefighter Safety in Wildland and Urban Interface

- Fires, National Wildfire Coordinating Group, PMS 417-1, April 1990, p.4.
- ³⁴ Exhibit 238D, April 1990, pp.4-5
- ³⁵ Exhibit 238D, April 1990, pp.5-6.
- ³⁶ Exhibit 238D, April 1990, pp.6-7.
- ³⁷ Exhibit 238D, April 1990, pp.6-7.
- ³⁸ Exhibit 238D, April 1990, p.7.
- ³⁹ Exhibit 238D, April 1990, p.8.
- ⁴⁰ B.1592-1604. Paix B. *"Improving Burnover Protection for Australian Bushfire Appliances"*, South Australian Country Fire Service.
- ⁴¹ A document that did not receive an Exhibit number produced by DNRE.
- ⁴² Exhibit 238D, April 1990, pp.6-7.
- ⁴³ Exhibit 238D, April 1990, pp.6-7.
- ⁴⁴ Exhibit 238D, April 1990, pp.6-7.
- ⁴⁵ Exhibit 238D, *"Introduction"* April 1990, pp.6-7.
- ⁴⁶ It is noted that the Department was unable to locate records prior to 1974.
- ⁴⁷ A document that did not receive an Exhibit number produced by DNRE, p.1. It is noted that the Department did not have copies of the coroner's findings in the incidents summarised.
- ⁴⁸ Exhibit 21U, p.19
- ⁴⁹ B.9276
- ⁵⁰ UFU Submission B.9276-77
- ⁵¹ Exhibit 249U Sheers R. Risk-e *"Draft CFA Safety First Culture Project"* – Phases I & II – OH&S Culture Assessment, March 2001. This Draft Report had neither been finalised nor accepted by the CFA Board at the time of completion of evidence at the Inquests is a confidential document.
- ⁵² B.10108
- ⁵³ B.10488
- ⁵⁴ B.9922
- ⁵⁵ B.9922
- ⁵⁶ B.9923
- ⁵⁷ B.9931
- ⁵⁸ B.9280
- ⁵⁹ B.9280
- ⁶⁰ B.10108
- ⁶¹ B.10108
- ⁶² B.10108
- ⁶³ B.10108
- ⁶⁴ B.10108
- ⁶⁵ B.10108-09
- ⁶⁶ B.10109
- ⁶⁷ B.10109
- ⁶⁸ B.10096
- ⁶⁹ B.10096
- ⁷⁰ Section 21 (2) (e)
- ⁷¹ Exhibit 21U, p.3.
- ⁷² Exhibit 21U, p.3.
- ⁷³ UFU Submission, B.9282.
- ⁷⁴ UFU Submission, B.9283.
- ⁷⁵ This document produced during the Inquest but did not receive an exhibit number (see p.3).
- ⁷⁶ Section 21 (2)(e).
- ⁷⁷ Exhibit 20U.p.16.20.
- ⁷⁸ DNRE Submission, B.10096
- ⁷⁹ The manual *"Incident Control System – The Operating System of AIMS"* provides under Chapter 6 *"Incident Action Planning – Planning Section"* for an optional *"Safety Officer"* to *"Participate in planning meetings and review Incident Action Plans"*.
- ⁸⁰ See generally CFA Submission, B.9603-07.
- ⁸¹ Exhibit 207 p.6.
- ⁸² Exhibit 207 p.64.
- ⁸³ Exhibit 207 p.64.
- ⁸⁴ See generally discussion in CFA Submissions B.9601-07, DNRE Submissions, B.9943-45 and 10082-83 and Volunteer Associations' Submission, B.9101-02 (although the Volunteers indicated they would welcome the opportunity to further analyse the issues with the other parties).
- ⁸⁵ T.10656.
- ⁸⁶ T.10656.
- ⁸⁷ T.10656.
- ⁸⁸ T.10657.
- ⁸⁹ T.10662.
- ⁹⁰ T.10659.
- ⁹¹ Exhibit 218D. Mr. Edgar (a joint author with Mr. Euan Ferguson on the *"Operations Review of the Linton Fire/Midlands Fire"*) travelled to the United States in August 2000 to assist with the deployment of Australian and New Zealand firefighters who were to help managing a series of wildland fires in the States.
- ⁹² Exhibit 218D, p.4 (and see Attachment – The United States 1998 *'Fireline Handbook'*).
- ⁹³ Exhibit 218D, p.4.
- ⁹⁴ Exhibit 218D, p.4.
- ⁹⁵ Exhibit 71D, p.8, para.34
- ⁹⁶ Exhibit 71D, p.8, paras.34 and 35.
- ⁹⁷ Exhibit 71D, p.8, para.36.
- ⁹⁸ Exhibit 71D, p.8, para.37.
- ⁹⁹ Exhibit 71D, p.8, para.37.
- ¹⁰⁰ Exhibit 71D, p.8, para.38.
- ¹⁰¹ Exhibit 71D, p.9 para.39.
- ¹⁰² Exhibit 71D, p.9, para.40
- ¹⁰³ T.10593.
- ¹⁰⁴ UFU Submissions, B.9284.
- ¹⁰⁵ UFU Submissions, B.9284.
- ¹⁰⁶ UFU Submissions, B.9288.
- ¹⁰⁷ Exhibit 238D consisting of two volumes of edited material entitled *'FIRE FIGHTER SAFETY IN THE UNITED STATES OF AMERICA'*. Produced about 23rd March 2001.
- ¹⁰⁸ Exhibit 238D, 4-36. (March 1998 – Phase 111)
- ¹⁰⁹ Exhibit 238D, 4-35. (March 1998 – Phase 111)
- ¹¹⁰ Exhibit 238D, 4-36, Goal 51 (March 1998 – Phase 111)
- ¹¹¹ Exhibit 238D, 4-36. (March 1998 – Phase 111)
- ¹¹² Exhibit 238D, 4-36. (March 1998 – Phase 111)
- ¹¹³ Exhibit 238D, 4-36. (March 1998 – Phase 111)
- ¹¹⁴ Exhibit 238D, 4-37. (March 1998 – Phase 111)
- ¹¹⁵ Exhibit 238D, 4-37. (March 1998 – Phase 111)
- ¹¹⁶ Exhibit 238D, 4-37. (March 1998 – Phase 111)
- ¹¹⁷ Exhibit 238D, 4-37. (March 1998 – Phase 111)
- ¹¹⁸ Exhibit 238D, 4-38. (March 1998 – Phase 111)
- ¹¹⁹ Exhibit 238D, 4-38. (March 1998 – Phase 111)
- ¹²⁰ UFU Submission, B.9286.

121 Section 21.
 122 Section 21(2)(e).
 123 NRE Submission, B.10108.
 124 Exhibit 59, Roche p.64.
 125 Exhibit 59, Roche p.71.
 126 Exhibit 59, Roche p.71.
 127 Exhibit 59, Roche p.71.
 128 Exhibit 59, Roche p.71.
 129 The alert is a amber light in the cabin, a strobe light at the rear, also an alarm sounds.
 130 Exhibit 59, Roche p.68.
 131 Exhibit 59, Roche, p.72.
 132 ACT Emergency Services Bureau.
 133 NSW Rural Fire Service.
 134 See Exhibit 59, Roche, pp.72–73.
 135 DNRE Submission, B.p.10085.
 136 DNRE Submission, B.p.10085.
 137 DNRE Submission, B.pp.10085–86.
 138 DNRE Submission, B.p.10086.
 139 DNRE Submission, B.p.10086.
 140 DNRE Submission, B.pp.10086–87.
 141 DNRE Submission, B.p.10086.
 142 DNRE Submission, B.p.10087.
 143 DNRE Submission, B.p.10086.
 144 CFA Submission, B.p.9632.
 145 T.8620–1.
 146 Exhibit 68D, p.122
 147 B.1592–1604. Paix B. “*Improving Burnover Protection for Australian Bushfire Appliances*”, South Australian Country Fire Service.
 148 B.1600. Paix B. Op cit (and see general discussion B.1597–1599)
 149 B.1600. Paix B. Op cit
 150 Exhibit 238D, Op cit, April 1990, p.21.
 151 See generally Exhibit 59, Roche, pp. 56–77.
 152 Section 22
 153 Mr Rowan – see Chapter 14
 154 DNRE Submission, B.10092 – Recommendation 9
 155 See Chapter 9 “*Pittong Road Line-up and Burnover*”; Chapter 10 “*Snake Valley ‘A’ Entrapment*”; Chapters 11 and 13 “*Pittong/Madden Flat Road Backburn*” and “*Possum Gully/Madden Flat Road Backburn and Entrapment*”; Chapter 12 “*Lightfoot Vehicle Incineration*”; Chapter 14 “*Geelong City and Geelong West Entrapment and Deaths.*”

CHAPTER 21

- ¹ Eg: the failure to ensure that vital radio messages on safety issues such as wind change were received by Strike Team Leaders or training on identifying fuel loads and related topographical issues.
- ² B.9584
- ³ For example the AIMS-ICS Incident Management System which operates Australia wide.
- ⁴ B.9583
- ⁵ B.9583–84
- ⁶ B.9586, T. 10632 and 10779–82
- ⁷ A WorkCover Inspector
- ⁸ B.9587 and Noonan’s Report, p.167
- ⁹ B.9587

- ¹⁰ B.9585, Roche statement para.244
- ¹¹ Exhibit 116. Standing Order 5.01 – “*The safety of all firefighters, at the scene of a fire or incident is of the paramount importance to all concerned, be they families, brigades and, indeed, the Country Fire Authority.*”
- ¹² B.9621. It is noted that Mr. Noonan was critical of the quality of the training records. This fact was acknowledged by the CFA early in the Inquests.
- ¹³ B.9621
- ¹⁴ B.9621. See the evidence of Roberts, T.148; McInnes. T.2118–9: Buckley T. 5872. 5892;;Taylor. T.6082: Scharf. T.10124.
- ¹⁵ B.9621
- ¹⁶ B.9621–24 (especially evidence of Roche, T.10631 and T.10779)
- ¹⁷ B.9623
- ¹⁸ B.9623
- ¹⁹ B.9624
- ²⁰ Exhibit 20U
- ²¹ Exhibit 20U
- ²² B.9588
- ²³ B.9588 (T.10635–6)
- ²⁴ B.9589
- ²⁵ B.9590
- ²⁶ B.9590
- ²⁷ B.9631
- ²⁸ B.9631
- ²⁹ CFA Submission, B.9631. See also comments in Chapter 23 under the sub-heading “*Engineering solutions – the last resort*”
- ³⁰ See Appendix 1.1, FAI Project Final Report “*Executive Summary*” in 1997 Dandenong Ranges Fires Inquest – Coroner’s Case No: 38/97.
- ³¹ See FAI Project Final Report “*Executive Summary*” in 1997 Dandenong Ranges Fires Inquest – Coroner’s Case No: 38/97 (Appendix 1.1).
- ³² See CFA Submission to the Coroner in the Dandenong Ranges Fires.
- ³³ B.9590
- ³⁴ B.9590
- ³⁵ B.9625 and T.10643
- ³⁶ B.9590–91
- ³⁷ B.9591
- ³⁸ B.9591
- ³⁹ Exhibit 51D, Multi Agency Incident Management Agreement, p.1.
- ⁴⁰ Exhibit 51D, Multi Agency Incident Management Agreement, p.1.
- ⁴¹ B.9591
- ⁴² B.9591
- ⁴³ B.9591
- ⁴⁴ B.9591
- ⁴⁵ B.9591–92
- ⁴⁶ B.9592
- ⁴⁷ B.9592
- ⁴⁸ This document was produced during the Inquests but did not receive an exhibit number (see p.3).
- ⁴⁹ See discussion under sub-heading “*Reporting/investigation of wildfire incidents/near misses*” in Chapter 23 to this Report.

50 Exhibit 20U – “Operations Guidelines – A Guide to Operations and Tactics in the Field”, Chapter 21 “Operational Analysis” pp.21.1–21.5.

51 Exhibit 215M (dated 02 November 1998).

52 B.9128

53 B.9127

54 B.9128

55 B.9128

56 B.9128 and see Exhibit 215M.

57 B.9128 and see Exhibit 215M.

58 B.9128 and see Exhibit 215M. The “RFC” is the Bureau’s Regional Forecasting Centre.

59 See generally Exhibit 215M

60 See for example the extensive testing by the CFA on water retention issues relating to Firefighting Tankers, the September 2000 Position Paper by DNRE on “Further issues which NRE considers to be of importance to the provision of rural firefighting services in Victoria in general and to the findings and recommendations to be made in the Linton Coronial Inquest.” (Exhibit 71D and DNRE Submission B 10080) and the comparative research undertaken by the Bureau on the relative accuracy in forecasting between the local Laps/Meso-Laps and the European ECMWF forecasting models.

61 Exhibit 68D “The Operations Review of the Linton Fire/Midlands Fire.”

62 See summary in DNRE Submission, B.10079

63 B.10079

64 B.10079

65 B.10080 and see Exhibit 51D

66 B.10080

67 B.10080

68 B.10080

69 B.10080–81

70 B.10081

71 B.10091 – DNRE Recommendation 1

72 Exhibit 51D, p.1

73 Exhibit 51D, p.1

74 Exhibit 51D, p.1

75 Exhibit 51D, p.3

76 The policy document explains “The effectiveness of information flow, particularly by electronic means, is dependent on the location chosen for incident control. There are limits to fast access to data management systems and difficulties in distribution where fire coordination occurs in remote locations.” (Exhibit 51D, p.3)

77 Exhibit 51D, p.3

78 Exhibit 51D, p.3

79 Exhibit 51D, p.4

80 Exhibit 51D, p.4.

81 Exhibit 51D, p.4.

82 Exhibit 51D, p.4.

83 Exhibit 51D, p.13.

84 Exhibit 51D, p.13

85 Exhibit 51D, p.13

86 Exhibit 51D, p.14

87 B.10081

88 B.10081

89 B.10081

90 B.9592

91 B.9592–93

92 B.10080–82

93 B.10081

94 B.10081–82

95 Exhibit 249U Sheers R. Risk-e “Draft CFA Safety First Culture Project” – Phases I & II – OH&S Culture Assessment, March 2001.

96 B.9608

97 B.9608

98 B.9622 (Roche, T.10631)

99 B.9627

100 Training program given by Mr. Jamie McKenzie.

101 “Overall Fuel Hazard Guide”, Third Edition 1999, Dept. of Natural Resources and Environment (replacing the 1992 Eucalypt Bark Hazard Guide and 1993 Elevated Fuel Guide).

102 B 9625–26

103 Called “TRAIN.”

104 This may be undertaken through the use of ID cards and by automating the “T” CARD system.

105 B.9631

106 Exhibit 59, Roche, pp.69–70

107 See generally Exhibit 59, Roche, pp.64–77

108 B.9632 and also see discussion under sub-heading “Engineering solutions – the last resort” in Chapter 23 of this Report.

109 Exhibit 214M – “Preliminary Report on Meteorological Aspects of the Linton Fire on 2 December 1998.”

110 Exhibit 214M, B.909

111 Exhibit 214M, B.909

112 But see comments in Chapter 19 to this Report under the sub-heading “Conclusion”

113 Exhibit 214M, B.910

114 B.9158–9165

115 Exhibit 214M, B.9160–61

116 Exhibit 214M, B.9163

117 Exhibit 214M, B.9163

118 Exhibit 214M, B.9165

119 CFA, DNRE and Bureau of Meteorology. See generally the recommendations in Chapter 23 of this Report under the heading – “Meteorological Information and ‘Wildfire’.” Sub-headings – “Respective roles of the Bureau of Meteorology, DNRE and CFA” and “The role of the Grimmers”.

120 Exhibit 51D, Multi-Agency Incident Management Agreement 1997/98, p.1.

121 B.9607

122 Exhibit 197.

123 See Exhibit 59.

124 Exhibit 212C.

125 See Bureau Submission, B. 9158–65, CFA Submission, B. 9665–70 and DNRE Submission, B. 10091–93 (Note: all of the parties recommendations are contained in Appendix A4 to this Report).

126 B.9584

CHAPTER 22

- ¹ Coroner’s Case Number – 3656/98. Stuart Davidson was aged 28.
- ² Coroner’s Case Number – 3657/98. Garry Vredeveltdt was aged 47.

- ³ Coroner's Case Number – 3658/98. Christopher Evans was aged 27.
- ⁴ Coroner's Case Number – 3660/98. Jason Thomas was aged 25.
- ⁵ Coroner's Case Number – 3659/98. Matthew Armstrong was aged 17.
- ⁶ Region 15 includes the township of Linton and is part of the Grenville Group.
- ⁷ Region 16 includes the township of Snake Valley, which is about 6 km. north of Linton and has a population of about 300. The Group for this area is known as the Beaufort Group.
- ⁸ Exhibit 71D, para 115
- ⁹ Exhibit 71D, para 122
- ¹⁰ AIIMS-ICS Manual, p.47
- ¹¹ Exhibit 20U p.16.5. Published by the CFA in 1995.

CHAPTER 23

- ¹ Lord Cullen, *"The Public Inquiry into the Piper Alpha Disaster"*, Volume Two, London HMSO Cm 1310, para. 18.3, p.291.
- ² By way of example, two of the factors that lead to the entrapment and deaths were, firstly, the Strike Team leader of the Geelong Strike Team was inadequately trained in one significant area (identifying fuel loads) and secondly, he had no experience.
- ³ See also Coroner's comments in the inquest findings into *"The 1997 Dandenong Ranges Fires"* and the deaths of Jennifer Lindroth, Graham Lindroth and Genevieve Erin. Coroner's Case No. 238/97 pp.52–53.
- ⁴ See for example the methods described in *"Wildfire Suppression 2"*
- ⁵ The IMT was unaware of the Pittong-Snake Valley Road burnover and the Madden Flat extension burnover. Fire-ground management at the local level (Divisional and Sector Commanders) was also aware of some of the incidents.
- ⁶ The Snake Valley 'A' tanker entrapment and the incineration of Lightfoot's utility.
- ⁷ The fire suppression methodologies specified in *"Wildfire Suppression 2"* would also indicate that the risks were well known
- ⁸ B.1592–1604. Paix B. *"Improving Burnover Protection for Australian Bushfire Appliances"*, South Australian Country Fire Service.
- ⁹ This is document produced to the Inquests by DNRE (it did not receive an Exhibit number). In summary, it reports on the known fatalities of Department employees during fire-line suppression operations since the 1939 "Black Friday" fires and non-suppression fire activities since 1974. It also deals with the Department's procedures for reporting and investigation of *"significant fire related incidents."* This aspect of the document will be raised in this Chapter under the sub-heading *"Reporting/investigation of wildfire incidents/near misses."*

The deaths need to be placed in the context of the Department's overall annual exposure, which is:

"...around 640 unplanned fires which burn some 120,000 hectares. In addition the Department aims to treat between 80,000 and 150,000 hectares of public land with prescribed fire for fuel management, and/or ecological, or silvicultural reasons."

The summary of the deaths described by DNRE depicts a range of fire suppression circumstances from 1983 to date. The summaries include entrapment of 2 bulldozer operators, a single vehicle collision following an extended shift at a fire, a heart attack of a 71 year old sub-contractor bulldozer operator, a pilot dropping fire retardant from an aircraft, 3 deaths (crew and pilot) dropping an incendiary device from an aircraft and a fall (possible heart attack where the body was badly burnt) during a prescribed burning operation.
- ¹⁰ Exhibit 238D, (Tab heading Assorted US documents) *"Firefighter Safety in Wildland and Urban Interface Fires"*, National Wildfire Coordinating Group, PMS 417-1, April 1990, pp.6–7.
- ¹¹ Exhibit 238D, (Tab heading Assorted US documents), pp.6–7.
- ¹² Exhibit 238D, (Tab heading Assorted US documents), pp.6–7.
- ¹³ Exhibit 238D, (Tab heading Assorted US documents), pp.6–7
- ¹⁴ Exhibit 225, p.21
- ¹⁵ Exhibit 20U, *"Operations Guidelines"*, p.16.24
- ¹⁶ For example the Pittong-Snake Valley Road burn over, the Snake Valley 'A' tanker entrapment, the entrapment of the Lightfoot utility and the Madden Flat Road burn over.
- ¹⁷ See also discussion in Chapters 21.
- ¹⁸ It is noted that the UFU suggested restructuring of the firefighting agencies. This may be one option to reduce the risk of safety problems stemming from joint operations with differing methodologies and/or philosophies for wildfire fighting between two agencies. This issue is beyond the Coroner's role in this case – it is a matter for Government. Also see discussion about the meaning of the Multi-Agency Agreement in Chapter 6 of this Report.
- ¹⁹ See Inquest findings into *"The 1997 Dandenong Ranges Fires"*, Op cit, p. 24 and see generally pp.22–24
- ²⁰ The Commissioner's Office has been instrumental in developing the community fire warning system at Ferny Creek following the Coronial recommendations in the 1997 Dandenong Ranges Fires. The Office is also currently working on the development of the model of fire cover following a recommendation in these 1997 fires (and a 1994 recommendation of the Public Bodies Review Committee into the operations of the MFESB). The Commissioner's Office is but one of the potential agencies that may be considered as an effective facilitator for the work on these recommendations.
- ²¹ Whilst the recommendations refer specifically to the Union (UFU) and the two Volunteer Associations there may be circumstances in which reference to another Peak Union may be relevant.
- ²² B.9929
- ²³ B.9933
- ²⁴ B.9933–34
- ²⁵ See for example the Recommendations in the *"Operations Review of the Linton Fire/Midlands Fire."* Exhibit 68D, B. 8529–32. Also see generally Chapter 21 of this Report.
- ²⁶ See discussion and recommendations in this Chapter under the sub-headings – *"The AIIMS system of incident control and its potential for safety"* and *"The need for a 'Safety Officer' for 'wildfire' – using AIIMS"*
- ²⁷ [1995] VR
- ²⁸ (1984) 155 C.L.R. at pp. 311–313
- ²⁹ See Putnam T. *"The Collapse of Decision making and Organizational Structure on Storm King Mountain."* Wildfire Magazine, June 1995.

30 Putnam T. *"The Collapse of Decision making and Organizational Structure on Storm King Mountain."* Op cit.

31 Exhibit 21U, p.19

32 B.9276

33 UFU Submission B.9276-77

34 Exhibit 249U Sheers R. Risk-e *"Draft CFA Safety First Culture Project"* – Phases I & II – OH&S Culture Assessment, March 2001. This Draft Report had neither been finalised nor accepted by the CFA Board at the time of completion of evidence at the Inquests is a confidential document.

35 B.10108

36 B.10488

37 B.9922

38 B.9922

39 B.9923

40 B.9931

41 B.9280

42 B.9280

43 B.10108

44 B.10108

45 B.10108

46 B.10108

47 B.10108

48 B.10108-09

49 B.10109

50 B.10109

51 B.10096

52 B.10096

53 See Hierarchy of Control – item 4

54 Exhibit 21U, p.6

55 See *"Wildfire Suppression 2"* for other methodologies.

56 B.9281-82

57 B.9282

58 Exhibit 20U, *"Operations Guidelines"*, p.16.24

59 Exhibit 249U Sheers R. Risk-e *"Draft CFA Safety First Culture Project"* – Phases I & II – OH&S Culture Assessment, March 2001.

60 B.9608

61 B.9607

62 B.10091 – DNRE Recommendation 2

63 B.9101

64 B.9601

65 B.9393 (Cited Fleming, *The Law of Torts* [9th Ed] at pp. 563-6)

66 B.9393

67 B.9393

68 B.9608

69 B.9607

70 B.9608

71 B.9280

72 B.9280

73 B.9597

74 Exhibit 238D, p.4

75 Exhibit 238D, pp.6-7

76 Exhibit 238D, (Tab heading Assorted US documents), p.7

77 It is noted that the CFA's earlier Operations book *"Tactics and Administration in the Field"*, Volume 1 (predating the *"Operations Guidelines – A Guide to Operations and Tactics in the Field"*) recognises:
"Fire fighting in forest country demands experience in forest fire behaviour. The best way brigades can attain this experience is by carrying out hazard reduction burns in mild conditions during early spring or late autumn. Even on a small scale these will give brigade members an appreciation of forest fire behaviour as well as reducing the fuel quantity in scrubby areas." (Exhibit 29S P.10-7)

78 See generally Putnam T. *"The Collapse of Decision making and Organizational Structure on Storm King Mountain"* Op cit.

79 At T.10377-78 Noonan stated:
"... see there are often two types of safety officers, and with all due respect to all companies concerned, company A may hire a safety officer whose role is merely to meet the inspector at the gate and show them around. Company B may hire a safety officer who sits at the board meetings and has an active participatory role in planning the organisation's safety."

And:
"I know one particular company where the safety officer sits on the board, but the point I am making is more that it's somewhere between an advisory role because 'advisory' seems to me to devalue the position to a certain degree, 'Hey, look, we will listen to what you say but at the end of the day if we don't want to take any notice of you we won't."

Later at T.10592:
"In your evidence you mentioned something that I had never heard of before, and that is a safety officer that is put on to a board of management? —Yes.
So, in other words, they are part of the organisational structure? —Yes, and that is one of the clearest ways an organisation can indicate to its people that it has a genuine commitment to safety, is to involve itself at that board level.
Well, are there any other advantages of doing it that way rather than simply an incident based one?—There are. As I said, it gives an indication to the people in the organisation of the commitment of the senior levels of management, but it flows through then, it then incorporates the management of safety into all other aspects of the management of an organisation that might be discussed at board level whether it is production, exports, incomes, managing budgets, finances, whatever, the point being that organisations need to manage safety in the same ways as they would manage those examples...'

80 Lord Cullen, *"The Public Inquiry into the Piper Alpha Disaster"*, Op cit, Volume Two, para. 18.45, p.300.
 Lord Cullen stated:
'Companies with a good safety record are dedicated to the proposition that safety starts with the unfailing commitment of the most senior management, and that of the chief executive officer in particular. They are personally responsible for setting the safety standards for the whole company and for setting the safety philosophy and communicating it to all the workforce.... The latter may be expressed in such simple and easily understood concepts as "nothing is so important that it cannot be done safely" or "if we cannot do it safely we won't do it" but underlying those is the belief that safety is a basic element in conducting business and cannot be considered a discrete and separate activity. Safe, prudent working practices and procedures are good business practices.'

- ⁸¹ Hopkins A. *"Making Safety Work"* 1995, Allen & Unwin, p.171.
- ⁸² Hopkins A. *"Making Safety Work"* Op cit, p.170.
- ⁸³ Finding into the death of *Attilio Unali* – Coroners Case No. 2517/95, p.9. The case involved a worker being crushed whilst cleaning out the agitator barrel of a concrete mixer. The barrel spun and crushed him between the barrel and the chassis of the mixer.
- ⁸⁴ T.10675–76
- ⁸⁵ T.10652. The Unit is made up of a Manager, two OHS Officers, a Workcover Officer, a Volunteer Claims Officer and a Claims Support Officer (See the Structural Chart – Exhibit 251C for additional information on qualifications of the various officers). C/f – The Structural Chart for the Community Safety Directorate (Exhibit 252C) which has an EMT Director, six Managers and 47 full-time, casual and contract staff.
- ⁸⁶ See Hopkins, *"Making Safety Work"* Op cit p.170.
- ⁸⁷ Roche, T.10676
- ⁸⁸ Exhibit 249U Sheers R. Risk-e *"Draft CFA Safety First Culture Project"*, Op cit, p.17.
- ⁸⁹ Exhibit 249U Sheers R. Risk-e *"Draft CFA Safety First Culture Project"*, Op cit, p.18.
- ⁹⁰ Exhibit 249U Sheers R. Risk-e *"Draft CFA Safety First Culture Project"* Op cit, p.24.
- ⁹¹ Exhibit 249U Sheers R. Risk-e *"Draft CFA Safety First Culture Project"* Op cit, p.24.
- ⁹² See generally Lord Cullen, *"The Public Inquiry into the Piper Alpha Disaster"*, Op cit, Volume Two, paras. 18.39–18.43, pp.299–300. on the investigation of incidents. Lord Cullen examined the incident reporting system of a particular company (Conoco (UK) Ltd) and said:
- '...it is part of the safety policy that all accidents or near misses are automatically investigated. A "near miss" is defined as a near accident that could have involved serious injury or had the potential for serious damage to property or the environment. The chief executive has a system to ensure that he is informed immediately of every significant incident and virtually all accidents no matter how minor. He is kept fully briefed on the progress and results of any investigation. Any personal injury greater than "first aid" severity is discussed in fortnightly meetings of the company directors. I have to point out that the frequency of accidents in Conoco is so low that the commitment of time by the directors to the discussion of injuries is not burdensome. It is also company policy to disseminate incident reports up and down throughout the organisation.'* (para. 18.41, p.299)
- ⁹³ Exhibit 21U, p.3
- ⁹⁴ Exhibit 21U, p.3
- ⁹⁵ Exhibit 21U, p.6
- ⁹⁶ A functional section with a safety focus could usefully be divided into two areas – *"Community Safety"* and *"Firefighter Occupational Safety"*
- ⁹⁷ B.10092 – DNRE Recommendation 7
- ⁹⁸ Ensuring that an appropriately experienced officer was in charge of the Strike Team.
- ⁹⁹ CFA Submission B.9607–08 and Volunteers Associations Submission, B.9102–03.
- ¹⁰⁰ B.9607–08
- ¹⁰¹ See in addition the list of responsibilities for the Auditors suggested by the Volunteers (B.9102).
- ¹⁰² See generally CFA Submission, B.9603–07
- ¹⁰³ Exhibit 207 – *"Operational Management Learner's Guide"* 26/08/98
- ¹⁰⁴ Exhibit 207 p.6
- ¹⁰⁵ Exhibit 207 p.64
- ¹⁰⁶ Exhibit 207 p.64
- ¹⁰⁷ Exhibit 21U p.51
- ¹⁰⁸ See generally discussion in CFA Submissions B.9601–07, DNRE Submissions, B.9943–45 and 10082–83 and Volunteer Associations' Submission, B.9101–02
- ¹⁰⁹ T.10656
- ¹¹⁰ T.10656
- ¹¹¹ T.10656
- ¹¹² T.10657
- ¹¹³ T.10662
- ¹¹⁴ T.10659
- ¹¹⁵ Exhibit 218D. Mr. Edgar (a joint author with Mr. Euan Ferguson on the *"Operations Review of the Linton Fire/Midlands Fire"*) travelled to the United States in August 2000 to assist with the deployment of Australian and New Zealand firefighters who were to help managing a series of wildland fires in the States.
- ¹¹⁶ Exhibit 218D, p.4 (and see Attachment – The United States 1998 *"Fireline Handbook"*).
- ¹¹⁷ Exhibit 218D, p.4
- ¹¹⁸ Exhibit 218D, p.4
- ¹¹⁹ Exhibit 218D, p.4
- ¹²⁰ On request of the Coroner
- ¹²¹ Exhibit 71D, p.2
- ¹²² Exhibit 71D, p.8, para.34
- ¹²³ Exhibit 71D, p.8, paras.34 and 35
- ¹²⁴ Exhibit 71D, p.8, para.36
- ¹²⁵ Exhibit 71D, p.8, para.37
- ¹²⁶ Exhibit 71D, p.8, para.37
- ¹²⁷ Exhibit 71D, p.8, para.38
- ¹²⁸ Exhibit 71D, p.9 para.39
- ¹²⁹ Exhibit 71D, p.9, para.40
- ¹³⁰ T.10593
- ¹³¹ B.9284
- ¹³² B.9284
- ¹³³ B.9288
- ¹³⁴ Given adequate knowledge, understanding and experience of the three factors that influence fire behaviour – fuel, topography and weather.
- ¹³⁵ Putnam T. *"The Collapse of Decision making and Organizational Structure on Storm King Mountain."* Op cit
- ¹³⁶ Wildfire Magazine (Published by the International Association of Wildland Fire) – *"Safety Officer Does His Job"* (Anonymous)
- "The following is excerpted from a report done by a team of investigators for an Incident Management Team on August 26, 1996: On this date, the fire displayed vigorous activity, increasing from 6,000 acres to nearly 40,000 acres in a short amount of time. The fire advanced from the North Fork John Day Wilderness southward across Highway 52, burning several structures at Pearson's Guard Station, and moving toward the North Fork of the John Day River. Crews moved out from the path of the advancing fire, and staged on Highway 52 on the east and west flanks of the head of the fire. Operations personnel were present on both flanks, along with 250–300 firefighters, buses and fire apparatus. The*

- Operations person in charge directed firefighters to enter their vehicles to prepare to traverse Highway 52, across the head of the fire to go to the other flank of the fire. A Safety Officer was on the scene and demanded that the plan be aborted. Had that a Safety Officer not been on the scene, he is fairly certain that the caravan would have proceeded forward into the path of the fire. Comment: A full analysis of this incident is not available, and it is doubtful that more will be learned about it. All the hand crews present were green crews, but their overhead was not green. It is apparent that firefighters failed to intervene on their own behalf. Why did they not do so? Were they held back by their own hesitation to speak up as green firefighters, or were they caught in an escalating situation without adequate input? It is very fortunate that Safety Officers work directly for the IC and can order a halt to activity.'
- 137 Exhibit 238D which consists of two volumes of edited material entitled "Fire Fighter Safety in the United States of America." Produced about 23rd March 2001.
- 138 Exhibit 238D, 4-36. (March 1998 – Phase 111)
- 139 Exhibit 238D, 4-35. (March 1998 – Phase 111)
- 140 Exhibit 238D, 4-36, Goal 51 (March 1998 – Phase 111)
- 141 Exhibit 238D, 4-36. (March 1998 – Phase 111)
- 142 Exhibit 238D, 4-36. (March 1998 – Phase 111)
- 143 Exhibit 238D, 4-36. (March 1998 – Phase 111)
- 144 Exhibit 238D, 4-37. (March 1998 – Phase 111)
- 145 Exhibit 238D, 4-37. (March 1998 – Phase 111)
- 146 Exhibit 238D, 4-37. (March 1998 – Phase 111)
- 147 Exhibit 238D, 4-37. (March 1998 – Phase 111)
- 148 Exhibit 238D, 4-38. (March 1998 – Phase 111)
- 149 Exhibit 238D, 4-38. (March 1998 – Phase 111)
- 150 B.9286
- 151 Also see generally sub-heading "The AIIMS system of incident control and its potential for safety" and Recommendations 3-8 in this Chapter.
- 152 Exhibit 21U, p.2
- 153 Exhibit 20U.p.16.20
- 154 B.10096
- 155 B.10096
- 156 Exhibit 20U, pp. 11.3-11.4
- 157 It is noted that DNRE officer Scherger came across the Geelong Strike Team during reconnoitring.
- 158 See Putnam T. "The Collapse of Decision making and Organizational Structure on Storm King Mountain." Op cit.
- 159 B.10093 – DNRE Recommendation 13
- 160 B.10089
- 161 B.10089
- 162 B.10089
- 163 B.9625-26
- 164 Called "TRAIN"
- 165 This may be undertaken through the use of ID cards and by automating the 'T' CARD system.
- 166 See Chapter 8 to this Report (para. 8.6).
- 167 "The Operations Review of Linton Fire/Midlands Fire" – Recommendation 38, B.996
- 168 See generally Cook J. "Fire Environment Size-up: Human Limitations vs. Superhuman Expectations", Wildfire Magazine, US.
- 169 Exhibit 20U p.16.5
- 170 Also see "The Operations Review of Linton Fire/Midlands Fire," Recommendations 13-17. B.994
- 171 See NSW State Coroner's finding into the death of John William Dean, et al. Finding dated 12/12/2000. For another incident where weather information was important see the Report of the Court into the loss of 51 lives during the sinking of T.E.V. Wahine, Wellington Harbour, NZ on 10 April 1968 (p.103).
- 172 See generally B.9158-65
- 173 Exhibit 214M – "Preliminary Report on Meteorological Aspects of the Linton Fire on 2 December 1998."
- 174 Exhibit 214M, B.909
- 175 Exhibit 214M, B.909
- 176 Exhibit 214M, B.910
- 177 B.9162
- 178 B.9158-9165
- 179 B.8759-60
- 180 Exhibit 214M, B.9160-61. See also "The Operations Review of Linton Fire/Midland Fire," Recommendation 28, B.995
- 181 Exhibit 214M, B.9163
- 182 Exhibit 214M, B.9163
- 183 Exhibit 214M, B.9165
- 184 B.10085
- 185 Exhibit 59, Roche p.64
- 186 Exhibit 59, Roche p.71
- 187 Exhibit 59, Roche p.71
- 188 Exhibit 59, Roche p.71
- 189 Exhibit 59, Roche p.71
- 190 The alert is an amber light in the cabin, a strobe light at the rear, also an alarm sounds.
- 191 Exhibit 59, Roche p.68
- 192 Exhibit 59, Roche, p.72
- 193 ACT Emergency Services Bureau
- 194 NSW Rural Fire Service
- 195 See Exhibit 59, Roche, pp.72-73
- 196 B.10085
- 197 B.10085
- 198 B.10085-86
- 199 B.10086
- 200 B.10086
- 201 B.10086-87
- 202 B.10086
- 203 B.10087
- 204 B.10086
- 205 B.10092 – DNRE Recommendation 7
- 206 B.9632
- 207 T.8620-21
- 208 Exhibit 68D, p.122
- 209 B.1592-1604. Paix B. "Improving Burnover Protection for Australian Bushfire Appliances", South Australian Country Fire Service.
- 210 B.1600. Paix B. Op. Cit. (and see general discussion B.1597-1599)
- 211 B.1600. Paix B. Op. Cit
- 212 Exhibit 238D, (Tab heading Assorted US documents) "Firefighter Safety in Wildland and Urban Interface Fires", National Wildfire Coordinating Group, PMS 417-1, April 1990, p.21.

- ²¹³ Generally see also *"The Operations Review of Linton Fire/Midlands Fire"*, Recommendations 30–34, B.995
- ²¹⁴ See generally Exhibit 59, Roche, pp. 56–77
- ²¹⁵ See also the Recommendation in this Chapter under the sub-heading *"A joint agency Research Unit."*
- ²¹⁶ See Putnam T. *"The Collapse of Decision making and Organizational Structure on Storm King Mountain."* Op cit.
- ²¹⁷ See the Recommendation in this Chapter under the sub-heading *"A joint agency Research Unit."*
- ²¹⁸ B.10092 – DNRE Recommendation 9
- ²¹⁹ With some assistance of expert firefighters
- ²²⁰ Kew Residential Services Fire. Inquest Findings, Comments and Recommendations, 17th October 1997, State Coroner's Office at p.297 (under sub-heading – 9.3 Audit Reports: Need to define and manage)
- ²²¹ See for example problems associated with failure to follow-up on recommendations (auditors, fire reports, coroners, etc) in relation to the management of fire safety at the Kew Residential Services Centre (Kew Residential Services Fire. Inquest Findings, Comments and Recommendations, 17th October 1997, State Coroner's Office. PART 2 pp.33–81; PART 3 pp.110–119, 126–128, 141–145; PART 9, Recommendations 2–7, pp.297–299).
- ²²² Hopkins A. *"Managing Major Hazards – The Lessons of the Moura Mine Disaster"* 1999, Allen & Unwin, p.70.
- ²²³ Hopkins A. *"Managing Major Hazards"*, Op cit pp.70–71.
- ²²⁴ Hopkins A. *"Managing Major Hazards"*, Op cit p.72.
- ²²⁵ Hopkins A. *"Managing Major Hazards"*, Op cit pp.72–73.
- ²²⁶ Hopkins A. *"Managing Major Hazards"*, Op cit p.73.
- ²²⁷ Hopkins A. *"Managing Major Hazards"*, Op cit p.74.
- ²²⁸ Hopkins A. *"Managing Major Hazards"*, Op cit p.74.
- ²²⁹ F.A.I.I. Project Final Report, September 1997, Executive Summary. Referred to in the inquest findings into *"The 1997 Dandenong Ranges Fires"* and the deaths of Jennifer Lindroth, Graham Lindroth and Genevieve Erin. See Coroners Case No. 238/97.
- ²³⁰ Kew Residential Services Fire Inquest Findings, Comments and Recommendations, 17th October 1997, State Coroner's Office at p.297 (under sub-heading – 9.3 Audit Reports: Need to define and manage).
- ²³¹ Kew Residential Services Fire. Inquest Findings, Comments and Recommendations, 17th October 1997, State Coroner's Office at pp.297–98 and Recommendation 2 (under sub-heading – 9.3 Audit Reports: Need to define and manage)
- ²³² Exhibit 20U – *"Operations Guidelines – A Guide to Operations and Tactics in the Field"*, pp.21.1–21.5.
- ²³³ Exhibit 20U, *"Operations Guidelines – A Guide to Operations and Tactics in the Field"* (Exhibit 20U) has a detailed chapter on *"Initial Fire Investigation"* (Chapter 19) and Chapter 21 deals with a process of *"Operational Analysis."*
- ²³⁴ See generally Lord Cullen, *"The Public Inquiry into the Piper Alpha Disaster"*, Op cit, Volume Two, paras. 18.39–18.43, pp.299–300. on the investigation of incidents. Lord Cullen examined the incident reporting system of a particular company (Conoco (UK) Ltd) and said:
- "...it is part of the safety policy that all accidents or near misses are automatically investigated. A "near miss" is*

defined as a near accident that could have involved serious injury or had the potential for serious damage to property or the environment. The chief executive has a system to ensure that he is informed immediately of every significant incident and virtually all accidents no matter how minor. He is kept fully briefed on the progress and results of any investigation. Any personal injury greater than "first aid" severity is discussed in fortnightly meetings of the company directors. I have to point out that the frequency of accidents in Conoco is so low that the commitment of time by the directors to the discussion of injuries is not burdensome. It is also company policy to disseminate incident reports up and down throughout the organisation." (para. 18.41, p.299)

- ²³⁵ Putnam T. *"The Collapse of Decision making and Organizational Structure on Storm King Mountain"* Op cit. Putnam stresses the importance of including a psychologist or sociologist in the investigation team.
- ²³⁶ This document produced during the Inquest but did not receive an exhibit number (see p.3).
- ²³⁷ B.10093 – Part of DNRE Recommendation 14
- ²³⁸ See *"The Operations Review of the Linton Fire/Midlands Fire"* Recommendation 37, B.996.
- ²³⁹ Hopkins A. *"Making Safety Work"* Op cit p.143
- ²⁴⁰ See Lord Cullen, *"The Public Inquiry into the Piper Alpha Disaster"*, Op cit, Volume Two at para. 18.43, p.299 where he said:
- "I am convinced that learning from accidents and incidents is an important way of improving safety performance..."*
- ²⁴¹ Under the procedures *"the steps involved in an investigation"* are:
- Describing the chronological sequences of events before, during and after the incident
 - Describing the contributing factors
 - Management systems planning, adequate and suitable supervision, identification. Assessment and control of hazards, induction and maintenance programs)
 - The task (verbal or written instructions or procedures. Training)
 - Equipment and materials (plant, machinery, substances, safeguards, protective equipment, housekeeping)
 - The environment (lighting, footing, ventilation, noise, temperature, weather)
 - Human factors (competency, authorisation, decision-making, fatigue, duress, tension)
 - And *"Recommending corrective actions"*:
 - Elimination
 - Substitution
 - Engineering/isolation Engineering/isolation
 - Administration
 - Personal protective equipment.

It is noted that MANAGEMENT SOLUTIONS ARE NOT REFERRED TO IN THE HEADING *"RECOMMENDING CORRECTIVE ACTIONS."* It is assumed that this is included under the heading *"Administration"*.

- ²⁴² The Recommendation in this Report for a joint Investigation and Review Unit would assist.
- ²⁴³ See for example the model developed by the Victorian Office of Corrections following fatalities in prison.
- ²⁴⁴ Exhibit 21U p.30

- 245 *"The Operations Review of the Linton Fire/Midlands Fire"*
Recommendation 39, B 996
- 246 Exhibit 71U, p.5
- 247 DNRE burns between 80,000 and 150,000 hectares of
public land each year in its fuel management
program. Exhibit 71U, p.5
- 248 *"A model of fire cover for Victoria"* – Office of the
Emergency Services Commissioner, 2001, p.28
- 249 Melbourne City, City of Hume and Latrobe City.
- 250 Kew Residential Services Fire. Inquest Findings,
Comments and Recommendations, 17th October
1997, State Coroner's Office at p.307 (under sub-
heading 9.13)
- 251 See also Appendix A4 to this Report
- 252 Appendix A4.1 – CFA's Recommendation 8
(B 9668–69)
- 253 Appendix A4.1 – Comments in CFA's
Recommendation 5 (B.9667)
- 254 B.10093
- 255 *Holmes v R.E.Spence & Co Pty Ltd.* [1992] 5 VLR 119 at
123.
- 256 B.9292

APPENDIX A2.2

- ¹ *"Operations Manual 1"* p.4–4 to 4–5.

APPENDIX A2.3

- ¹ *"Operations Manual 1"* p.4–6 to 4–8

APPENDIX A4.4

- ¹ Unfortunately more accurate figures are not before the
inquest. Figures for the CFA are from Paix, B (1999)
*Improving Burnover protection for Australian bushfire
appliances* (Packham report, Attachment 16).

