IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2013 0648

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 60(1)
Section 67 of the ***Coroners Act 2008***

Inquest into the Death of:	STEVEN KADAR
Delivered On:	17 December 2015
Delivered At:	Coroners Court of Victoria 65 Kavanagh Street Southbank Victoria 3006
Hearing Dates:	11, 12, 13 ,14, 15, 18, 19 August 2014 15, 16 October 2014 31 March 2015
Findings of:	JOHN OLLE, CORONER
Representation:	Mr John Kelly instructed by Maurice Blackburn appeared on behalf of the Family and the Australian Workers Union Ms Kerri Judd SC appeared with Ms Mandy Fox instructed by Lander and Rogers on behalf of the Department of Environment, Water, Land and Planning, and Parks Victoria Ms Karina Popova appeared on behalf of the Country Fire Authority Ms Megan Fitzgerald on behalf of Ms Kelsy Gibos Mr Andrew Palmer instructed by in-house counsel on behalf of the Victorian WorkCover Authority
Police Coronial Support Unit	Leading Senior Constable Tracey Ramsey as counsel assisting the Coroner.

I, JOHN OLLE, Coroner having investigated the death of Steven Kadar

AND having held an inquest in relation to this death on 11, 12, 13, 14, 15, 18, 19 August 2014
15 and 16 October 2014 and 31 March 2015
at the Coroners Court of Victoria at WODONGA and SOUTHBANK
find that the identity of the deceased was STEVEN KADAR
born on 22 August 1978
and the death occurred on 13 February 2013
on the Pheasant Creek Track, Buckland Valley, Harrietville, Victoria 3741
from:

1 (a) CONSISTENT WITH INJURIES SUSTAINED BY FALLING TREE IMPACTING CABIN OF TRUCK

in the following circumstances:

BACKGROUND

1. Steven Kadar was 34 years old when he died as a result of a 30 metre tall alpine ash tree falling and impacting the cabin of the vehicle he was travelling in with his work colleague, Katie Peters.

2. At the time, Steven was an employee of the Department of Sustainability and Environment (The Department)[1] and was fighting the Harrietville Alpine North fire, which had been burning since 21 January 2013.

3. A preliminary examination was undertaken by Dr Jacqueline Lee, forensic pathologist at the Victorian Institute of Forensic Medicine. Dr Lee provided an opinion that, in the absence of a full post mortem examination, a reasonable cause of death could be formulated as 1(a) consistent with injuries sustained by falling tree impacting cabin of truck.

4. Steven was a devoted partner to Leah Edwards. He was raised in a loving family and was deeply respected by his work colleagues. At inquest, Steven's mother expressed a family wish for lessons to be learnt through my investigation that might reduce the likelihood of similar tragedies occurring in the future.

5. At the outset, I want to make clear my belief that firefighters are dedicated, selfless, and brave. They are deeply respected and valued members of our community. The deaths of

---

[1] I note that since the time of this incident, the department has undergone a number of name changes. At the time of the Inquest, it was known as the Department of Environment and Primary Industries. At the time of writing this finding, it is now called the Department of Environment Land, Water & Planning. In this Finding, I have referred to them as the Department.

Steven and Katie have not merely devastated their respective families but their colleagues and their community.

6. It is apparent that many individual are grieving and may be carrying a burden of guilt as a result of this tragic event. However, as this Finding will show, personal assumptions of responsibility are categorically misplaced. I have however, identified a number of **systemic** communication shortcomings and areas in which systemic improvements can be made to enhance information flow and firefighter safety generally.

THE CORONIAL JURISDICTION

7. The primary purpose of the coronial investigation of a reportable death[2] is to ascertain, if possible, the identity of the deceased person, the cause of death (interpreted as the medical cause of death) and the circumstances in which the death occurred.[3] An investigation is conducted pursuant to the *Coroners Act 2008* (Vic) (the Act).

8. The practice is to refer to the medical cause of death incorporating, where appropriate, the mode or mechanism of death, and to limit investigation to circumstances sufficiently proximate and causally relevant to the death.

9. Coronial findings must be made on the basis of proof of relevant facts on the balance of probabilities and that in determining whether a matter is proven to that standard, consistent with the principles enunciated in *Briginshaw* v *Briginshaw*[4].

10. Coroners are empowered to report to the Attorney-General on a death they have investigated; to comment on any matter connected with the death, including matters relating to public health and safety or the administration of justice; and to make recommendations to any Minister, public statutory or entity on any matter *connected with the death*, including recommendations relating to public health and safety or the administration of justice.[5] This is generally referred to as the prevention role of the coroner.

---

[2] Section 4 of the Act requires certain deaths to be reported to the coroner for investigation.

[3] Section 67 of the Act.

[4] (1938) 60 CLR 336

[5] Sections 72(1), 72(2) and 67(3) of the Act regarding reports, recommendations and comments respectively.

THE INVESTIGATION

11. My investigation was assisted by the Coroner's Investigator, Detective Senior Constable Neal Thompson of the Wangaratta Crime Investigation Unit who prepared a coronial brief. In addition the investigation was assisted by a WorkSafe brief.

Inquest into the death

12. I took over carriage of this investigation from Coroner Hawkins. Although an inquest into Steven's death is not mandatory under the Act, on 14 April 2014 Coroner Hawkins exercised her discretion to hold an inquest, given the public interest to be served in exploring the circumstances in which the death had occurred. On assuming responsibility for this matter I was of a similar view and accordingly held an inquest over 10 days.

13. Pursuant to section 54 of the Act, I also investigated the death of Ms Katie Peters at the same inquest hearing[6]. At inquest, I was assisted by Senior Constable Tracey Ramsey.

14. Prior to the commencement of the inquest, it was apparent that most of the facts about the deaths were known and were not in dispute. This included identity, medical cause of death and most of the circumstances surrounding the deaths, including mode of death, time and place of death.

Discrete Issues

15. Discrete issues were sought to be resolved at inquest including:

    - The risks associated with operating in forests in which alpine ash grow: the nature of operating in this environment and the specific risk of trees falling during a fire; and the identification and management of dangerous trees on the day.

    - The timing of the decision to withdraw having regard to the importance of Pheasant Creek Track as a containment line; available information about the weather; and communication between those on the fire ground and with personnel at the Incident Control Centre (ICC).

16. I now consider the evidence in relation to each of these issues in light of the applicable policies, procedures and training with a view to identifying opportunities for prevention focused interventions.

---

[6] Coroners Reference COR 2013 649.

17. I note at this juncture that a number of topics were canvassed at Inquest but have not been covered in this finding. This decision was made having considered carefully my core mandate to investigate circumstances sufficiently related to the deaths and my coronial obligation in respect of prevention.

18. I do not purport to summarise all the material/evidence in this finding, but will refer to it only in such detail as is warranted by its forensic significance and where otherwise appropriate. The absence of reference to any particular aspect of the evidence, either obtained through a witness or tendered in evidence, as well as submissions and replies, does not infer that it has not been considered.

Viva voce evidence

19. To assist my investigation, I heard *viva voce* evidence at Inquest from the following witnesses:

- Mrs Jan Kadar – Steven's mother
- Mr Chris Peters – Ms Peters' father
- Mr Ryan Incoll – Situation Officer
  Mr Reuben Tierney - Field Services Officer
- Mr Cameron McDonald – Field Services Officer
- Michael Todd – Strike Team Leader
- Mr Kyle Small – Field Services Officer
- Mr David Jackson – Field Services Officer
- Mr Darryl Jordon – Field Staff Member
- Mr Anthony Grey - Field Services Officer
- Mr Terrence Kingston – Safety Officer
- Mr Leslie Vearing – State Fire Investigation and Training Coordinator
- Mr Edan Brennan - Field Services Officer
- Mr Kelton Goyne – Senior Ranger
- Mr Scott Stowe – Field Services Officer
- Mr Owen Lord – Task Force Leader
- Michael Ritchie – Sector Commander
- Mr Craig Hore – Divisional Commander
- Mr Anthony Long – Incident Controller
- Mr Peter Cobb – Assistant Operations Officer

- Mr Graham Dudley – Safety Manager
- Mr Timothy Wells – Fire Behaviour Analyst (FBAN)
- Mr Brian Leith McKenzie – Deputy Operations Officer
- Mr Alan Goodwin – Chief Fire Officer
- Ms Kelsy Gibos - Fire Behaviour Analyst (FBAN)

20. I was also assisted by Submissions provided by counsel appearing at inquest.

FACTS AND CIRCUMSTANCES

21. On 21 January 2013, the Harrietville Alpine North fire started burning near the township of Harrietville. In response to this, a large number of personnel drawn from the Country Fire Authority (CFA), Parks Victoria, and other government agencies had been deployed together with considerable resources and assets to suppress the fire.

22. Prior to 13 February 2013, an Options Analysis was prepared for the purpose of determining the best overarching strategy for fighting the fire in the coming days. Options Analyses set out safety options, resource availability and probability of success and consequences. Strategy options are considered against risk factors, including fire fighter safety, and risk to the public. In the relevant Options Analysis, Pheasant Creek Track was proposed by fire strategists as the preferred option. This was subsequently endorsed by Tony Long as clearly the best option.

23. Also prior to 13 February, back burning operations had been carried out along the Pheasant Creek Track in a westerly direction descending toward Beveridge Station. The resources committed to this task included two bulldozers, 10 Toyota tray land cruisers with slip on fire-fighting equipment, one land cruiser tray and a 4WD station wagon manned by 24 personnel.

24. On 13 February 2013, two task force teams were deployed to the Pheasant Creek Track called upon predominately to conduct back burning operations and suppression of a spot over that had initiated the previous night.

25. Morning briefings were held at Ovens Incident Control Centre (ICC) where an overview of key messages for the day was provided which included key risks about falling trees. Expected weather prediction was also discussed for the day including predicted temperature of 34 degrees with thunderstorms in the afternoon and a wind change that was expected to come from the southern quarter.

26. Terence Kingston presented the safety briefing and re-iterated safety messages which were incorporated in the Incident Shift Plan (ISP) for that day. The ISP for 13 February 2013 was a comprehensive 23 page document supplemented by maps.

27. At 9.30am, the task force teams including Steven and Katie, arrived at the Pheasant Creek Track. At 10am, they attended a further briefing by Michael Ritchie; the plan was to directly attack the spot fires with dozers.

28. Also at 10am, Fire Behaviour Analyst (FBAN) Kelsey Gibos who was, for the duration of the day, located at the Ovens Incident Control Centre (Ovens ICC), briefed the Incident Management Team (IMT) on forecasted fire behaviour, including a reference to the previous day's Bureau of Meteorology warning for the chance of thunderstorms for the Harrietville fireground.

29. Meanwhile, on the fireground, Steven and Katie were tasked with assisting the D4 dozer, which was establishing containment lines in a northerly direction on the western flank of the spot over at Pheasant Creek Track.

30. By 11.38am, conditions were deemed unsafe for fire-fighting and all personnel were withdrawn to a safe section of the Pheasant Creek Track and awaited further instructions.

31. At 12.18pm, work commenced on a back burning operation on the Southern side of Pheasant Creek Track in a Westerly direction.

32. At 1pm, Operation Manager, Bob Charwell, who had previously been operating out of the ICC, was required in the field and was therefore replaced by Leith McKenzie as Acting Operations Manager.

33. At 1.15pm Mr Lord provided a briefing to the crew on the plans to backburn along the south side of Pheasant Creek Track in a Westerly direction. He highlighted the danger of hazardous trees, in particular of alpine ash and reminded the crew that the lunch area was a safe area they could relocate if required. However, he was unaware of a south easterly wind change, forecast for the afternoon.

34. At 1.30pm, Ms Gibos noted in her logbook that a plume[7]/convective activity was visible on the radar to the east of where the main fire activity was. Ms Gibos described that the significance of her observation was that the fire appeared to have "woken up early" and contrary to the forecast and her expectation. Ms Gibos made a phone call to the State Control Centre Bureau of Meteorology forecaster Stephen McGibbony to discuss what she had seen however, he was unavailable. Nevertheless, the information about the weather was communicated to the Situation Unit, also located at the ICC.

---

7 In evidence Ms Gibos described a plume as a "*big column of smoke that comes from a wild fire*" as she explained her observations were conveyed to the situation unit.

35. At 1.30pm, Field Officer Scott Stow was placed on 'look out' at the intersection of Links and Pheasant Creek Tracks to observe fire behaviour.

36. At 2pm, crews reported hearing thunder to the west of Mount Sara.

37. At 2.20pm, lightning strikes were reported near Mount Buller and in Mitta Mitta State Forest. This information was communicated by Ms Gibos to the Situation Unit and to an Operations Officer.

38. At 2.22pm, Ms Gibos downloaded the first of eleven screenshots of weather radar images showing thunderstorm cells.

39. At 2.25pm, Air Attack Supervisor Kelton Goyne, a passenger in a helicopter operating in the vicinity of Pheasant Creek Track, received a trunk call from radio operators advising weather change around Falls Creek, with possible dry lightning and a south easterly wind change which might be relevant to his situation.

40. At 2.25pm, Mr Hore was advised by Mr Sherwin that storm activity was distant to the fireground and of little significance.

41. After 2.25pm, Mr McKenzie, called Mr Hore, who relayed the information he recently received from Mr Sherwin to the effect that the fireground was not in imminent danger.

42. Subsequently, Mr Wells delivered the 2.22pm screen shot taken by Ms Gibos to Mr McKenzie in Operations. The evidence suggests that at this time, Mr Wells and Mr McKenzie discussed the storm activity approaching the western flank of the fireground. Mr Wells also referred to the Bureau of Meteorology radar loop to support his opinion that a storm looked likely to impact the fireground.

43. Prior to 2.30pm, although the exact time is unclear, Mr Stow observed from his look out post, a storm building and approaching the fire ground which he communicated over the open fireground channel[8] in the following terms:

> *big storm clouds were brewing - I got on the radio to Toddy and let Mick know they were there. I kept an eye on them and saw they were just coming in! Then Goyne told me to move so I moved to Paddy Hill.*

44. This call was logged at 2.30pm by Mr Goyne.[9] After making the call, Mr Stow moved his vehicle to Paddy Hill Track, following a radio call from Mr Goyne in the helicopter who had advised him to move his vehicle to safety.

---

8 The open fireground channel can be heard by all ground crew members.

45. At 2.30pm, Mr Hore received information from Mr Charwell which was consistent with the earlier information from Mr Sherwin.

46. At 2.45pm, Mr McGibbony advised Ms Gibos that severe storm activity would continue through the afternoon and 'drop off' when the sun went down. Further, he told her that the storms appeared to be converging on the ranges and intensifying.

47. At 3.07pm, the task force, including Steven and Katie, noticed a change in atmospheric conditions; the wind changed direction and dark clouds indicating a storm could be seen to the south of their location.

48. At 3.12pm, Mr Lord received information via the radio from Mr Goyne that the smoke from their back burn was standing straight indicating that there was no longer a northerly breeze. Mr Lord was unaware of how much the storm was going to influence their area as it was south of their location.

49. At 3.16pm, the wind suddenly changed direction and Mr Lord immediately put a halt to further ignition by contacting Steven. Steven informed Mr Lord that he had noticed the wind change and that he had not yet commenced the back burning at the knob where Mr Lord had placed him.

50. At 3.25pm, Mr Lord met with Mr Hore en route from the Buckland Valley. Mr Hore directed Mr Lord to effect withdrawal of all fire crews. Mr Lord caught up with Steven and Katie and discussed the direction of withdrawal. Steven said "*We will go the way we are pointing and I will follow you Lordy*", which was towards the east. Mr Lord observed Katie drive around his vehicle and shortly after, heard a loud sound and observed a large alpine ash tree fall onto Steven and Katie's vehicle, fatally injuring both occupants.

---

9 Mr Todd believed the storm activity impacted Pheasant Creek at 2.15 pm. I consider Mr Todd has made an innocent error as to timing. I am satisfied when Mr Stow departed his look out post at 2.30 pm, although he could observe the storm activity building, and in his opinion approaching the fireground, it had not arrived when he left Pheasant Creek.

OPERATING IN FORESTS WHERE ALPINE ASH GROWS

51. Firefighting is an inherently dangerous activity and exposes individuals to a number of significant risks which may result in injury or death.

52. Conducting firefighting operations in forests exposes firefighters to the particular risk of falling tree limbs or falling trees. Hazardous trees in this context have been the subject of significant research and publications. The inherent danger is well known and is reflected in relevant policies and procedures as well as being incorporated into firefighter training modules.

53. The evidence before me suggests that alpine ash is known to create a particularly heightened risk to firefighters as fire affected trees may weigh 30 to 40 tonnes and remain upright despite being lifeless and weakened.

54. Areas throughout the Victorian Alps were destroyed in previous bush fires, specifically 2003 and 2006. As such, there are numerous trees within the area that firecrews were operating, with the potential to fall without warning. There is evidence of trees falling in the fireground prior to 13 February 2013, including on 28 January when a salmon card report was made. I am satisfied the risk of trees falling was raised in daily safety briefings.

Decision to operate in alpine ash forests

55. The risk posed by operating in alpine ash forests was contemplated by the Options Analysis covering the firefighting tasks on 13 February 2013 and delicately balanced with a number of factors, including other risks, and strategic importance to determine which of the relevant options presented as the most likely to result in the greatest benefit, with the least amount of negative trade-off.

56. In particular, I note that the importance of holding the Pheasant Creek Track was clearly articulated in evidence. The potential consequences of losing that track as a containment line included an uncontrolled major bushfire with the potential consequent destruction of thousands of acres of bushland, and need for greater expenditure on resources.

57. The balancing act required to be undertaken at that long-term macro level is a complex and unenviable task. Accepting that there was some contention to the contrary, I accept that those undertaking it on the day did so with firefighter safety in the forefront of their mind.

58. In an ideal world, exposure of fire crews to hazardous trees would be eliminated all together by finding alternative fire suppression options. In reality however, this is not always possible and is particularly so in the Victorian Alps where areas without hazardous trees are rare.

59. In light of all the information before me, I do not consider that there is a reasonable basis to criticise the option chosen by strategists to use the Pheasant Creek Track as the containment line on 13 February 2013.

60. However, it is nevertheless critical to appropriately manage the risk posed by hazardous trees in order to minimise the potential for harm to firefighters, specifically through the identification and removal of hazardous trees. It is to the appropriateness of measures taken on the day with respect to hazardous trees, that I now turn my mind.

Management of the risk of hazardous trees

61. Les Vearing, bushfire investigator, explained that since a fireground fatality in 2009, training in hazardous trees established a process whereby they are identified and removed, prior to the commencement of a back burn. Upon identification of a risk, the sector commander must assign an experienced fire fighter, with requisite skills, the task of identifying hazardous trees. Thereafter, bulldozers clear a containment line and remove the marked hazardous trees.

62. Following the withdrawal from the side cut on 13 February 2013, the decision was made to commence a back burn. Although Pheasant Creek Track had been partially cleared prior to this day, a significant section of the track still required preparation, including by the identification and removal of hazardous trees.

63. The decision was made to prepare Pheasant Creek track before hazardous trees were marked. No designated fire fighter was assigned the task of marking hazardous trees. To his credit, Kyle Small, a relatively inexperienced fire fighter, took it upon himself to mark hazardous trees.

64. Mr Lord observed Mr Small appropriately marking trees in compliance with procedure. Mr Lord explained that back burning did not commence until the track preparation was complete.

65. Mr Small expressed concern, however, when the burning began along Pheasant Creek Track because both dozers were:

> *frantically trying to ready the track further to the northwest for burning. We were thus left with no easy way to deal with dangerous trees, our only options to call the dozers back up the line or to fall them manually.*

66. My investigation revealed that the subject tree had not been marked as hazardous. Without speculation, I cannot be satisfied that an experienced tree feller would have identified the tree as hazardous. It was situated on the down slope, approximately 25 metres from Pheasant

Creek track. Mr Vearing stated had he performed the task of marking hazardous trees on the day, he would not have marked the tree.

67. Mr Vearing observed that the leaves in the vicinity of the tree base were frozen in the direction facing towards the track, indicative of strong wind blowing in that direction at the time they were burnt. The tree itself had fallen uphill and the majority of burn scaring was on the uphill side, which is abnormal on steep slopes such as this. He explained the tree fell and struck a second tree, which had already been pushed over, causing a pendulum effect.

68. Mr Vearing would have expected 99% of the trees in that area to fall down hill, explaining

> *This tree in particular I would have expected to fall downhill. It appears to me there was a significant wind blowing up hill. This would have been a major contributing factor to the direction the tree fell.*

69. It follows, in the circumstances, there is no reasonable basis for Mr Small to have identified the tree as hazardous.

Improvements to policy and procedures

Policies and procedures

70. Mr Vearing explained this tragedy has revealed the capacity of trees falling against the slope. A new process requires tracks to be widened to four blade width, in stands of hazardous trees in particular alpine ash.

Training

71. Situational awareness is the bedrock of training programs.

72. At inquest, a number of firefighters endorsed the training they received from Mr Ron Waddell in Upper Murray Valley. Mr Waddell's training focused on hazardous trees and safety strategies to employ. Unfortunately, Mr Waddell's training is apparently limited to members of the Upper Murray.

73. Though I did not request Mr Waddell's participation in these investigations, I accept the various testimonials in respect to his teachings generally and specifically relating to hazardous trees.

74. I am fortified in this view by reference to Troy Butler's (DEPI) description of training re dangerous trees.

> *This year and last year I attended at Shelley, in the Upper Murray, for a 'Dangerous Tree Day' training day. We were shown how to identify dangerous trees, alive and dead and what to do when one was identified. We were told that every dangerous tree that we come across in our day to day activities should be identified and marked*

for future reference and for the information of other staff who may be in that area at a later date. We mark trees with a yellow spray paint or yellow caution tape. We are constantly told to, 'Look up and Live', and be aware of the surroundings that you are operating in. During back burning operations and planned burns during the cooler months, we do the same, marking trees that we believe could be dangerous and they are usually dealt with by an advanced faller or a dozer. The dangers we are looking for are whole trees or limbs that may fall during the event of wind.

75. On 13 February 2013 many firefighters had limited experience operating in the alpine environment. I acknowledge the various endorsements of the Department's hazardous tree identication training, together with the commendable work undertaken by Mr Vearing to enhance safety. Further, I commend the Department's expressed determination to learn from this tragedy and strive to improve firefighter safety –

    it is important to continually strive to increase learning in respect of the risks posed by hazardous trees', and it's willingness to participate in a national review of falling tree fatality, injury and near miss incidents involving trees during fire response operations, and a literature review.

76. In this spirit, I encourage the Department to access Mr Waddell's knowledge and impart his teachings to all fire fighters who may be called to fight fires in alpine regions.

TIMING OF THE DECISION TO WITHDRAW

77. I am satisfied the only call to withdraw was made by Craig Hore at 3.25 pm, shortly after his return to the Pheasant Creek track. The ultimate issue I am required to determine is whether there should have been an order to withdraw prior to this time.

78. The timing of this decision was the subject of much debate at Inquest. A number of witnesses gave evidence that they believe the order should have been made earlier in the day.

79. In particular, I note that crew member Darryl Jordan, a vastly experienced alpine fire fighter, expressed dismay that the order to withdraw was not made earlier, in the same way it had been ordered one and a half weeks earlier. On 13 February 2013, Mr Jordan had sought sanctuary prior to an order for withdrawal, and en route, encouraged three vehicles travelling west, to turn and follow his vehicle.

80. Mr Jordan expressed his experience thus:

    That's the most uncomfortable I've been at a fire, you know, like working in dead ash under those conditions. I wasn't hanging around - it was just too dangerous ... dead ash are dangerous enough (without those conditions) - - we should've been called out of there and out of the danger. That was the best solution.

81. In evidence, Mr Jordan indicated that his impression around the dangers posed to firefighter safety as a result of the weather at that time came from a number of factors including:

- His own observations of the storm that was building;
- Mr Stow's earlier communication on the open radio about the storm approaching; and
- The report made by Mr Goyne about the change of wind direction and the vertical smoke.

82. Mr Jordan was at the rear of the back burn. He observed the approaching storm and subsequently experienced its impact when the storm cell hit. He described the wind as howling across the track at 40-50kph. I have heard and accept evidence that storm cells can be localised and firefighters on the same fireground can experience totally different weather conditions. To this end, the weather conditions experienced by Mr Jordan at the rear of the back-burn, may not have been experienced at the same time or to the same extent along the fireground.

83. In contrast others contended that there was no reasonable basis for the order to be made prior to the time it was ultimately conveyed to the firefighters on the ground. Ground commanders strongly refuted that safety concerns were being compromised.

Factors influencing decisions about the need to withdraw

84. A number of static factors would have informed this decision such as firefighter safety and strategic importance. These factors were outlined and considered in the options analysis previously discussed. However, because the options analysis is a long-term strategic planning tool, it does not seek to dictate the specifics of firefighting activities on any given day. Therefore, active monitoring and consideration of dynamic factors was necessary throughout the course of the day, notably the impact of weather on the firefighting environment.

Was any individual in possession of sufficient information to have concluded that crews should have been withdrawn earlier in the day?

85. While I acknowledge that every firefighter must take responsibility for their own safety, including by way of situational awareness, a number of individuals had some responsibility for considering the management and direction of firefighters collectively. In particular, the following individuals had responsibility for turning their mind to the appropriateness of remaining on the Pheasant Creek Track throughout the afternoon:

    - Leith McKenzie
    - Craig Hore
    - Michael Ritchie
    - Tony Long

86. I now consider whether there was any earlier opportunity for any of these individuals to have made and conveyed the decision to withdraw. In so doing, I take this opportunity to reiterate that my intention is not to attribute blame.

Leith McKenzie

87. Mr McKenzie was the Acting Operations Manager located at the Ovens ICC.

88. His communication with the fireground was through his divisional commander, Mr Hore. On the afternoon of 13 February, Mr Hore's duties required him to be situated at Beveridge Station in the Buckland Valley.

89. After 2.25pm Mr McKenzie called Mr Hore for an update and was advised storm cells were some distance away over Falls Creek and the Mount Bulla area and were not significant. This information was based on a previous conversation Mr Hore had with Mr Sherwin.[10]

90. Following Mr Hore's update, Mr Mckenzie was approached by Mr Wells who delivered the first of a number of printed screen shots (referred to as the 2.22pm screen dump). There was a discussion about a storm approaching the western front of the fireground. Although he did not appreciate it at the time, in evidence, once the full picture was explained to him, Mr McKenzie could see the 2.22pm screen dump was supportive of potential impact on fireground. This information was in contradiction to the information he had contemporaneously received from his divisional commander, Mr Hore.[11]

91. I accept that Mr Wells indicated to Mr McKenzie that the 2.22pm screen dump, combined with his knowledge of previous days' fire activity together with the Bureau of Meteorology weather loops, meant that a storm was likely to impact the western front of the Harrietville fire. I note that Ms Gibos did not share Mr Wells' conviction that the storm cell was likely to impact the fireground. Nonetheless, she agreed that the screen dump was sufficiently important to inform operations. Neither were aware of Mr Stow's fireground observations of the approaching storm.

92. Mr Mckenzie had not been provided with the information provided to Mr Goyne by the radio operators at 2.25pm of storm activity potentially relevant to the fireground, or Mr Stow's pre-2.30pm observations from the fireground of the approaching storm.

---

10 I note that Mr Hore reports speaking subsequently to Mr Charwell at 2.30pm who provided the same information.

11 Both Mr Wells and Mr McKenzie were impressive witnesses and I do not consider that their account of events are necessarily inconsistent.

93. A further factor I take into account is that Mr McKenzie had no support staff, was untrained in reading EMAPS and had limited knowledge of, or exposure to FBANs. This is not meant as a criticism of Mr McKenzie but simply serves to highlight the stressful context in which the exchange of this critical information was occurring.

94. Therefore, absent information from the fire ground to the contrary, and no doubt fortified by the update from Mr Hore, there was no information available to Mr McKenzie to suggest that Mr Wells' concerns were being realised.

95. I unequivocally accept Mr McKenzie's evidence that he considered the safety of fire crews as paramount. Only weeks prior to this tragedy, for two days, he had not allowed fire crews to work amongst alpine ash. Further, he supported a recent decision to withdraw fire crews due to a potential storm cell approach. Although the storm cell did not eventuate, Mr McKenzie supported the decision not to permit fire crews to return to the fire ground until he was satisfied the risk had passed.

96. Without reservation, I accept the evidence of Mr McKenzie, that had he formed the view that a storm cell was likely to impact the western front of the Harrietville fire, he would have directed the withdrawal of fire crews.

97. In light of the information available to him at the relevant time, I consider that Mr Mckenzie's decision not to order withdrawal of firefighters, was not unreasonable.

98. However, in hindsight, the absence of the information held by Mr Goyne and Mr Stow in Mr McKenzie's decision making process, meant that he was not armed with all of the relevant facts when considering whether it was appropriate to order crew withdrawal at that time.

Craig Hore

99. Mr Hore was the Division Commander and the conduit between Operations and the fire ground.

100. Throughout the afternoon of 13 February, prior to his return to the Pheasant Creek fire ground, his duties occupied him at Beveridge Station in the Buckland Valley. Mr Hore did not receive any information that storm activity was approaching the Pheasant Creek fireground. On the contrary, at 2.25pm he received an update from Mike Sherwin at Mansfield that storm

activity was far removed from the fireground and was not significant. Mr Charwell provided Mr Hore similar information at 2.30pm. [12]

101. At approximately 3pm having requested situation reports from sector commanders on a channel which could be heard in the ICC, he received no adverse information.

102. However, whilst en route from Beveridge station to the fireground, he met Mr Lord and together:

> *observed lightning hitting the ground to the south on the divide and noted that the wind direction had changed to the south. The change in wind direction and the associated increase in wind speed meant that there was significant increase in risk of tree fall and that the fires behaviour may change for the worse.*

103. Mr Hore immediately instructed Mr Lord to get his crews to a safe area. Mr Todd advised that that his crews were away from alpine ash and in a safe area. Owen Lord's subsequent direction to withdraw was logged at 3.25 pm.

104. Mr Hore could offer no explanation as to why he had no knowledge of storm activity at Pheasant Creek Track, prior to his return. Having received updates from Messrs Sherwin and Charwell at 2.25pm and 2.30pm respectively, he understood storm activity was not likely to impact the fire ground. I make no criticism, however note in hindsight, it appeared to Mr Hore the information provided to him related to another location. He explained the significance of decision makers receiving relevant information - it assists decision makers to build a picture. Each segment of relevant information is important.

105. Mr Hore did not receive information including:

- The FBAN powerpoint forecast windspeed increase to 20 kph in afternoon;
- The opinion of Mr Wells in relation to the 2.22pm screen dump;
- Scott Stow's observations of the approaching storm;
- The information provided to Mr Goyne at 2.25pm by the radio operators
- The 2.45pm 'McGibbony update' indicated severe storm activity which appeared to be intensifying towards the ranges; and
- The 3.12pm observations by Mr Goyne in relation to the wind change and the smoke which was standing vertically.

106. I note that in contrast to the circumstances on 13 February 2013, Mr Hore explained that at a subsequent fire in Gippsland, he had a dozen personnel supporting him, including FBANs.

---

[12] This was an innocent misunderstanding. I make no criticism of no individual involved in the 2:25pm or 2:30pm exchanges.

107. I am satisfied that Mr Hore had no reasonable basis to direct crew withdrawal prior to 3.25pm.

Michael Ritchie

108. Mr Ritchie was relatively new to the alpine region. Throughout the morning he had appropriately sought advice and guidance from My Tony Grey. Mr Grey had considerable experience in alpine fire fighting. However, Mr Grey was driving machinery in the afternoon and was not in a position to offer Mr Ritchie advice. In evidence, Mr Grey explained in alpine regions with potential storm activity, it is essential to err on the side of safety and withdraw crews. Mr Grey was clearly an important support for Mr Ritchie and Mr Grey's unavailability in the afternoon denied Mr Ritchie a valuable resource.

109. A statement was not obtained from Mr Ritchie for eight months and placed him at a distinct disadvantage when endeavouring to recall precise details.

110. However, Mr Ritchie explained that his sole contact with Operations was via Mr Hore. He would expect Mr Hore to provide all relevant information to the fireground. In particular, weather changes which may impact the fireground. Mr Ritchie did not receive any adverse weather reports from Mr Hore.

111. Specifically, Mr Ritchie was not advised of Mr Wells' opinion that storm activity was likely to impact the fireground. He was not privy to information provide to Mr Goyne at 2.25pm, or the 2.45pm McGibbony BOM report of severe storm activity possibly intensifying in the ranges. Further, there is no evidence he was aware of Mr Stow's observation of approaching storm activity, prior to 2.30pm.

112. Mr Ritchie had been involved in a heated confrontation with Mr Stow earlier in the day. Mr Stow was concerned that crew safety was being compromised in respect to working below alpine ash. The concerns were steadfastly rejected by Mr Ritchie. Although crews were moved from the perceived danger, it is apparent tension between senior crew members and ground command remained. There is no evidence the tension hindered free flow of information on the fireground, however on any view, the situation was not ideal.

113. There is no evidence that Mr Ritchie or Mr Lord heard Mr Stow's pre- 2.30pm report of the approaching storm. Other crew members, including Mr Todd heard the report. I make no criticism of Mr Ritchie or Mr Lord for not hearing the report. Had either commander heard the report, I have no doubt Mr Ritchie would have informed Mr Hore.

114. The information provided to Mr Goyne at 2.25pm should have been provided to Mr Ritchie. Mr Long heard the information, and with Mr Goyne, assumed ground commanders, including Mr Ritchie and Mr Hore would also have been appraised. They were not.

115. In the circumstances, absent the benefit of hindsight, I do not consider criticism of Mr Ritchie reasonable.

116. Mr Ritchie acknowledged a tension between meeting a strategic objective, in this instance holding the Pheasant Creek Track, and ensuring there is no compromise to fire fighter safety. However, he explained the tension did not result in safety compromise.

Tony Long

117. Mr Long was the Incident Controller and was located at the ICC on the afternoon of 13 February 2013.

118. Mr Long was aware storm cells were likely to occur and believed that everyone was aware because of the ISP. As it transpired, this was not the case. In particular, that storm cells would build from the south and east. He described receiving the information from Ben Merritt in planning at the same time the information was provided to My Goyne.

119. Mr Long assumed the fire ground commanders were also informed and were thus aware that the weather was building from the south, thereby factoring in the information to their decision making throughout the afternoon.

120. Mr Long was not informed of the 2.45pm report of Mr McGibbony that severe storm activity appear to be converging on the ranges and intensifying. In hindsight, he conceded he should have asked Mr Merritt to ask the fireground commanders how the weather updates were affecting their judgements.

121. Mr Long was unaware that neither Mr Hore nor Mr Ritchie received those reports.

122. I do not consider any criticism should be reasonably levelled at Mr Long.

Conclusion as to individual assessments and decision making

123. I find that, on the basis of the information available to them at the time, each of the individuals exercised reasonable judgement in their analysis of the situation and I am not critical of them having not reached a conclusion that crews should be withdrawn earlier than they were.

124. In hindsight, there was arguably sufficient information to order crew withdrawal at various stages from approximately 2.30pm. However, no one person was in possession of all

fragments of information available. In particular, I note that the following critical pieces of information which were required to place each individual decision maker in the best position:

- Ms Gibos identification that the fire had woken earlier than forecast and her 1.30pm log that that convective activity was visible on the radar to the east of the main fire activity.
- Mr Stow's pre-2.30pm observations of storms building and approaching the Pheasant Creek fireground.
- Ms Gibos report of lightning strikes near Mount Buller and in the Mitta Mitta state forest.
- information conveyed to Mr Goyne at 2.25 that weather change around Falls Creek, had possible dry lightning and a south easterly wind change which could be relevant to his situation.
- Mr Wells expressed concerns that the 2.22pm screen dump, in addition to other factors, indicated storm activity was likely to impact the western front of the fireground.
- The 'McGibbony report' of 2.45pm severe storm activity which appeared to be intensifying towards the ranges.
- Mr Hore was provided information that storm activity was remote and of little significance to the fireground, when in hindsight it appears to have related to a different location to Pheasant Creek.
- The 3.07pm observation on the fireground that wind change and dark clouds indicated a storm was visible to the south of the fireground.
- The 3.12pm report of Mr Goyne that smoke from the back burn was standing vertical and the wind was no longer blowing from the north.
- The 3.16pm fireground observation of a sudden wind change.

125. I am satisfied that the system failed to ensure all available information was collated and considered by individual ground and operational commanders. Communication shortcomings and impediments to information flow were not the result of a departure from established principles that firefighter safety is paramount. However, the consequence was that there was a missed opportunity to consider whether earlier crew withdrawal was warranted, on the basis of the best available information.

126. The systemic communication failure denied decision makers the opportunity to analyse all relevant information with a view to best ensure the safety of fire crews, in particular the earlier withdrawal of firecrews.

127. On the balance of probabilities, I am unable to find that, had one person been in possession of all of this information, a decision would necessarily have been made earlier that it was. Nevertheless, with my preventative hat on, I note that ensuring effective and complete transfer

of information to the relevant decisions makers is essential to ensure, to the greatest extent possible, that the decision making is sound.

Safety zones and escape routes

128. It is unrealistic to say that every fire fighter bears responsibility for his or her own safety without recognition of the fact that inexperienced fire crew are entitled to expect direction and leadership. Decision makers must base their decisions on the best available information. Further, safety zones and escape routes must be regularly monitored, due to the dynamic nature of fire behaviour and conditions.

129. Darryl Jordan claimed he fortuitously located a cleared area to park his vehicle and the vehicles following his lead. I have heard disparate evidence whether or not safety zones and escape routes were identified at the various briefings. For my purposes, I do not intend to determine this issue.

130. Ideally, crews should either withdraw from the fireground or seek sanctuary in a clearing, before a storm cell hits a fireground. Further, re-location should take place in a considered and orderly manner. For example, Mr Hore stressed the need for vehicles to travel in the same direction. At 3.25pm, the firefront was experiencing the full brunt of the storm cell. The time for considered, orderly withdrawal had passed. Mr Lord and Steven discussed and agreed upon the direction of travel. Even if safety zones and escape routes were identified in the morning, the dynamic nature of fire behaviour would require regular review. Nonetheless, I accept the evidence of Mr Hore that withdrawal should be made in a considered and orderly manner – it is difficult to undertake after a storm cell has hit.

131. Mr Lord could not recall a forecast for a south easterly change however he stated decisions made "*on the fly increase the risk and pressure*".

Systemic improvements made since the fatal incident and suggestions for further improvements

Improvements made

132. A number of witnesses gave evidence of improvements that had been made to improve firefighter safety subsequent to the tragedy. These included:

- Mr Vearing explained fire tracks in alpine ash environments are now widened to four blade widths.
- Mr Lord described the improved communications at subsequent fires, together with access to a portable weather station.
- Mr Hore explained at the subsequent Gippsland fire, he had a dozen support staff, including FBANs.

- Mr Lord spoke of asking fire crews to check regularly with the ICC when adverse weather had been forecast.

Suggested further improvements

133. A number of witnesses made further suggestions for improvement including:

- Mr Goodwin suggested that the circumstances of this tragedy be used as a case study;
- Mr McKenzie suggested taking this as an opportunity to start again to develop a package to highlight the importance of firefighter safety;
- Mr Kingston suggested dedicated fireground fire safety officers;
- Mr Dudley suggested that firefighter safety officers are currently performing the task suggested by Mr Kingston albeit in a dual function role. He suggested the role could be formalised.
- Mr Dudley suggested clear mapping of all alpine ash forests for Fire Behaviour Strategists.
- Mr Lord highlighted the need for regular checks from fireground crew to the ICC in circumstances of adverse weather forecasts.
- Ms Gibos stressed the need for the placement of dedicated lookouts whenever adverse weather is forecast. She further suggested that all information in respect of adverse weather be passed along the full chain of command.

FINDINGS

Having considered all the evidence, in the circumstances described above:

1. I find that Steven Kadar born on 22 August 1978, died on 13 February 2013 of Consistent with Injuries Sustained by Falling Tree Impacting Cabin of Vehicle.

2. I find that there is no reasonable basis to criticise the option chosen by strategists to use the Pheasant Creek Track as a containment line on 13 February, 2013.

3. I find there is no reasonable basis to have identified and marked the subject tree as hazardous, and accordingly make no criticism of any person for failing to do so.

4. I find that the only call to withdraw fire crew was made at 3.25 pm on 13 February 2013.

5. I find in consideration of the information available to any individual, in particular Mr McKenzie, Mr Hore, Mr Ritchie and Mr Long, there is no reasonable basis to criticise their respective decisions not to order withdrawal of firefighters prior to 3.25 pm on 13 February 2013.

6. I find in hindsight, though not in the possession of any individual, there was sufficient information available to enable decision makers, individually and collectively, to at least consider crew withdrawal prior to 3.25pm.

7. I find the system failed to ensure all available information was collated and considered as a whole, by ground and operational commanders

8. However, I am unable to find that, if the information had been collated, the decision to withdraw fire crews would have been clear, prior to 3.25pm.

COMMENTS

Pursuant to section 67(3) of the **Coroners Act 2008**, I make the following comments connected with the death:

1. The purpose of this investigation has not been to point the finger or attribute blame. Rather, it has served as a valuable opportunity to reflect on what has occurred and identify areas in which improvements can be made so as to facilitate a continual trajectory of improvement towards best practice.

2. It is necessary to ensure that the principles of firefighter safety are not merely enshrined in documentation and training, but are unreservedly and consistently applied to firefighting activities.

3. I consider that the free flow of information can only be fully realised if the communication system in place ensures that decision makers receive all relevant information which is necessary to inform their decision.

4. To this end, I acknowledge the work undertaken by the Department to identify areas for improvement and implement processes to strengthen their systems.

5. However, having witnessed the distress of witnesses and also the fractured working and community relationships, I urge the Department to now also consider how they may promote the healing process and the rebuilding of relationships going forward.

6. I read with interest the suggestions made by Ms Gibos in relation the benefit of having a look-out permanently placed on the fireground, in particular when potential weather changes are forecast. I further read with interest, Ms Gibos suggestion that any information emanating from the FBANs be communicated along the entirety of the chain of command. Although I do not make a formal Recommendation to this effect, I strongly encourage that the Department canvass these suggestions with other agencies, in consideration of their implementation.

7. I note at a subsequent fire Mr Hore was provided a dozen support staff, including FBANS. I urge the Department, in liaison with other agencies, ensure that appropriate support staff are provided to decision makers, in particular Divisional, Operations and Ground Commanders.

RECOMMENDATIONS

Pursuant to section 72(2) of the **Coroners Act 2008,** I make the following recommendations:

Recommendation 1

In line with the submissions on behalf of DELWP and their indication that they would be willing to accept a recommendation to this effect, I recommend that DELWP highlight the necessity for two-way situation and weather reporting between the IMT and those on the fireground in its training and preseason briefings.

Recommendation 2

In line with the submissions on behalf of DELWP and their indication that they would be willing to accept a recommendation to this effect, DELWP require, where possible, more information be provided at both morning and evening briefings on the strategy of fighting the fire at particular locations.

Recommendation 3

In line with the submissions on behalf of DELWP and their indication that they would be willing to accept a recommendation to this effect, DELWP include information on the salmon card reporting process and how the information in a salmon card is used in its preseason briefings as well as providing specific feedback to each person who makes or is affected by a salmon card report.

Recommendation 4

In line with the submissions on behalf of DELWP and their indication that they would be willing to accept a recommendation to this effect, DELWP (together with any other relevant agencies) utilise an Options Analysis template that specifically nominates and identifies safety to firefighters and human life as the number one priority.

Recommendation 5

In line with the submissions on behalf of DELWP and their indication that they would be willing to accept a recommendation to this effect, DELWP participate in a national review of falling tree fatality, injury and near-miss incidents involving trees during fire response operations, and a literature review on the subject to bring in some international context as articulated in exhibit 52 (AFAC report) at page 8.

Recommendation 6

In line with the submissions on behalf of DELWP and their indication that they would be willing to accept a recommendation to this effect, DELWP continue to implement its program of designing fire vehicles to withstand greater tree impacts.

Recommendation 7

In line with the submissions on behalf of DELWP and their indication that they would be willing to accept a recommendation to this effect, DELWP re-emphasise the purpose of red flag warnings in its training and preseason briefings.

Recommendation 8

DELWP liaise with any other relevant agency, to develop a training package designed for Operations Managers and Incident Controllers together with their support staff, which facilitates liaison with FBANS, interpreting the data accessed by FBANS and in establishing protocols for the dissemination of weather forecasts relevant to fire fighter safety to strike force leaders and sector commanders or via the open channel to all personnel.

Recommendation 9

DELWP liaise with any other relevant agency to ensure that the Options Analysis specifically addresses the terrain, topography, type of trees and their individual dangers in the context of the work proposed, and further should incorporate reference to the mapped areas of fire burnt alpine ash.

Recommendation 10

DELWP liaise with any other relevant agency to develop a protocol which best ensures that firecrews are not exposed to fire effected alpine ash forests unless absolutely necessary and only if all safety precautions, in particular removal of hazardous trees and regular monitoring of weather conditions are undertaken.

I direct that a copy of this finding be provided to the following:

The Kadar family
Australian Workers Union
Country Fire Authority
DELWP
Victorian WorkCover Authority
Fire Services Commisioner

Signature:

JOHN OLLE
CORONER
Date: **17 December 2015**