IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2015 5622

FINDING INTO DEATH WITHOUT INQUEST

Form 38 Rule 60(2)
Section 67 of the ***Coroners Act 2008***

I, JACQUI HAWKINS, Coroner having investigated the death of WARREN FREDERICK GLOVER

without holding an inquest:
find that the identity of the deceased was WARREN FREDERICK GLOVER
born on 16 January 1939
and the death occurred on 4 November 2015
at 475 Geelong-Ballan Road, Moorabool, Victoria, 3213
from:

1 (a) ELECTROCUTION

Background

1. Warren Glover was 76 years old at the time of his death. He lived in Marshall with his wife Bernice. Mr Glover was previously employed by Swagman Outback Safaris, a guided tour business, operated by James Mangan. He retired in approximately 2002 and started doing odd jobs and gardening one or two days a fortnight at Mr Mangan's farm at 475 Geelong-Ballan Road, Moorabool.

The purpose of a coronial investigation

2. Mr Glover's death was reported to the Coroner as it fell within the definition of a reportable death in the *Coroners Act 2008.*

3. The jurisdiction of the Coroners Court of Victoria is inquisitorial. The role of a coroner is to independently investigate reportable deaths to establish, if possible, identity, medical cause of death and with some exceptions, surrounding circumstances. Surrounding circumstances are limited to events which are sufficiently proximate and causally related to the death. The law is clear that coroners establish facts; they do not lay blame, or determine criminal or civil liability[1].

4. For coronial purposes, the circumstances in which death occurred refers to the context or background and surrounding circumstances of the death. Rather than being a consideration of all circumstances which might form part of a narrative culminating in the death, it is confined to those circumstances which are sufficiently proximate and causally relevant to the death.

5. The broader purpose of coronial investigations is to contribute to a reduction in the number of preventable deaths, both through the observations made in the investigation findings and by the making of recommendations by coroners. This is generally referred to as the 'prevention' role.

6. Coroners are also empowered:

   (a) to report to the Attorney-General on a death;

   (b) to comment on any matter connected with the death they have investigated, including matters of public health or safety and the administration of justice; and

   (c) to make recommendations to any Minister or public statutory authority on any matter connected with the death, including public health or safety or the administration of justice. These powers are the vehicles by which the prevention role may be advanced.

7. All coronial findings must be made based on proof of relevant facts on the balance of probabilities. In determining these matters, I am guided by the principles enunciated in *Briginshaw* v *Briginshaw*.[2] The effect of this and similar authorities is that coroners should not make adverse findings against, or comments about individuals, unless the evidence provides a comfortable level of satisfaction that they caused or contributed to the death.

8. Victoria Police assigned Detective Senior Constable John McKinnon to be the Coroner's Investigator for the investigation into Mr Glover's death. The Coroner's Investigator conducted

[1] In the coronial jurisdiction facts must be established on the balance of probabilities subject to the principles enunciated in *Briginshaw* v *Briginshaw* (1938) 60 CLR 336. The effect of this and similar authorities is that coroners should not make adverse findings against, or comments about, individuals unless the evidence provides a comfortable level of satisfaction as to those matters taking into account the consequences of such findings or comments.

[2] (1938) 60 CLR 336.

inquiries on my behalf, including taking statements from witnesses and submitted a coronial brief of evidence.

9. WorkSafe Victoria (WorkSafe) also conducted an investigation into Mr Glover's death. On 23 May 2016, WorkSafe advised they had completed their investigation and did not commence a prosecution against any party in relation to Mr Glover's death. A copy of the WorkSafe brief of evidence was forwarded to the Court, which formed part of the coronial brief.

10. After carefully considering the evidence, I finalised my investigation and wrote a Finding into Death without Inquest dated 13 July 2016.

Application and Determination to Set Aside Finding

11. On 17 October 2016, Mr Scott Glover submitted an Application to Set Aside Finding (Application) on the basis of new facts and circumstances including a statement from Douglas Parker (that was not provided to me until after my finding had been completed), a letter of opinion produced by Ms Sue Sizer from Energy Safe Victoria (Energy Safe) dated 27 September 2016, and a memorandum from Detective Senior Constable McKinnon, supporting Mr Glover's Application dated 4 October 2016.

12. Based upon the information provided to me, I was satisfied the Application did raise new facts and circumstances and I determined it was appropriate to re-open the investigation. I consequently made a Determination Following Application to Set Aside Finding dated 3 November 2016 in favour of Mr Scott Glover's Application to re-open this investigation.

13. Following my Determination to re-open the investigation, I considered the original coronial brief, the new material provided by Mr Scott Glover and I also conducted my own further investigations, in particular with WorkSafe.

14. I met with representatives of WorkSafe on two occasions to gain a better understanding of the complex issues and circumstances associated with Mr Glover's death. The second occasion was on 29 March 2017, when I met with Mr Brett Thompson, Technical Inspector, WorkSafe who conducted a demonstration of the workings of the 'Onga JSP120' water pump (water pump) and provided an explanation of the events that occurred on the day of the incident. As I found this demonstration and explanation extremely helpful, this demonstration was also offered to Mr Glover's sons, Scott and Randall Glover who met with WorkSafe on 10 May 2017.

15. After the demonstration, I requested Mr Thompson prepare a report to summarise the electrical workings of the water pump and any other relevant factor that may have caused or contributed to Mr Glover's death.

16. In writing this Finding, I do not purport to summarise all of the evidence, but refer to it only in such detail as appears warranted by its forensic significance and the interests of narrative clarity.

Identity

17. Mr Glover was visually identified by James Mangan[3] on 17 November 2015. Identity was not in issue and required no further investigation.

Medical cause of death

18. On 6 November 2015, Professor Stephen Cordner, Forensic Pathologist at the Victorian Institute of Forensic Medicine performed an autopsy on the body of Mr Glover, reviewed the post mortem computed tomography (CT) scan and the Form 83 Victoria Police Report of Death.

19. Professor Cordner reported the autopsy findings are those of electrocution. In addition, Mr Glover had underlying severe coronary artery atherosclerosis. Toxicological analysis of post mortem blood did not detect alcohol, common drugs or poisons. Professor Cordner provided an opinion that the medical cause of death was 1a) ELECTROCUTION.

Circumstances in which the death occurred

20. On 4 November 2015, Mr Glover attended the farm and was helping out with some odd jobs. Patrick O'Brien, a local plumber was also in attendance doing maintenance. At approximately 1pm, Mr O'Brien decided to clean a drain, which ran from the main shed to an old concrete water well. To assist, Mr Glover walked to the concrete water well, approximately 30 metres away, to see if any water was running into the well. Mr O'Brien was unable to see the well from inside the shed but fed the cable down the pipe and called out for Mr Glover, however he did not respond.

21. Consequently, Mr O'Brien walked down to the well and found Mr Glover slumped over a fence, near the water pump. He was unresponsive. Mr O'Brien called out for assistance to Jarrad Waugh, who is employed as a farm hand. Concerned that he may have received an electric shock, they both pulled Mr Glover off the fence by his t-shirt. Mr Waugh called emergency services and helped Mr O'Brien commence cardiopulmonary resuscitation (CPR). Attending

[3] Son of James Patrick Mangan.

paramedics arrived shortly after. Mr Glover was unable to be revived and was pronounced deceased.

Coronial investigation

22. Victoria Police attended the scene and immediately commenced a coronial investigation.

23. Officers from WorkSafe and Energy Safe also subsequently attended the scene to conduct their own independent investigations. WorkSafe seized the water pump, the outside power point and the junction box from the house for further testing.

24. Police observed Mr Glover had a triangular shaped burn mark on his left calf and several irregular shaped wounds on the back of his right hand and the front of his neck. He was lying near an electrically powered water pump.

25. Enquiries with Mr Mangan revealed that the water pump had been installed in May 2006 by Parker Pumps. The water pump attached to the underground concrete well, provided pressure for the house water supply including internal bathrooms. The water pump was plugged into an outside double power point (also known as a socket outlet) affixed to some cyclone wire fence.

26. Mr O'Brien advised police that after they had moved Mr Glover onto the ground, he had switched off the power to the water pump, at the junction box attached to the house. Energy Safe officers unplugged the power supply switch to the water pump and initial enquiries revealed it may have been incorrectly wired, thus causing the outside of the water pump to become live.

27. The only time Mr Mangan was aware of any work done on the water pump was possibly in September or October 2015, when new weather proof power points were installed near the water pump by his electrician, Douglas Parker.

28. According to Mr Waugh, approximately three weeks before Mr Glover's death, Mr Mangan told him to prime the pump, as it had recently been fixed. Mr Waugh was unable to remember if it was that day or a couple of days later that he went to switch the pump on, but it would not turn on. He flicked the on/off switch attached to the pump, but he still was unable to turn it on. He tried again and it turned on, but he felt a little tingle. He subsequently told Mr Glover about this issue and showed him the switch which had given him a tingle. They both discussed the need for an electrician to attend. Mr Waugh then stated that Mr Glover put an earth stake in the ground and attached it to the pump with some wire. Mr Waugh said he assumed Mr Glover knew what he was doing, even though he did not really agree with it.

29. Mr Parker, who had done some electrical work for Mr Mangan previously, stated that he could not recall the exact date, but Mr Mangan called him and told him that someone had reported getting a shock from the power point attached to the water pump. He believed this conversation was held several weeks before Mr Glover's death.

30. Mr Parker subsequently attended the property and inspected the power point attached to the water pump and found it to be a domestic interior power point, fitted externally. It was not a weather proof power point, so he replaced it with a weather proof one.

31. A few weeks later, Mr Glover called him and said that someone was getting a shock from the pump and asked whether Mr Parker could come and have a look at it. Mr Parker said he was unable to at that time but told him to switch the water pump off and leave it alone.

32. When Mr Parker attended the farm to complete some further electrical work, after Mr Glover's death, he noticed the neutral and active wires were interchanged at the outside power point for the water pump. He tested the power point and found the earthing conductor at the power point to be ineffective. Mr Parker was later shown a photo of the same power point, after the death of Mr Glover, which confirmed that the active and neutral wires were interchanged. Mr Parker denied wiring the power point this way and said that he wired it properly. He further stated that after installing it, he did a basic polarity test on the power point and found it to be correct. He then plugged in the water pump and at no time did he receive any indication that the pump was live. Mr Parker was not aware that a star picket had been put in the ground and attached to the pump. He believes the pump was working properly when he finished work on it.

33. Further investigations by Mr Parker revealed that the earthing conductor from the junction box attached to the house was burnt off from the earthing system and may have been in contact with the active conductor. Mr Parker then disconnected the junction box because there was no sleeving on the earthing conductor, which is required under current electrical regulations.

34. Mr Parker believes the fault with the junction box may have been caused by a lightning strike. He recalled a severe electrical storm in the Geelong area and surrounding district on or around 30 October 2015, just prior to Mr Glover's death. Mr Parker believes that if there was a lightening hit this could explain the earth conductor being burnt off in the junction box at the house. The electrical wiring of the house was old and Mr Parker noted that there were no safety switches (earth linkage devices) on any circuits of the house.

Energy Safe Victoria Investigation

35. Sue Sizer and Greg Johnson, both Compliance Officers with Energy Safe, attended the scene after Mr Glover's death. As part of their enquiries, Mr Johnson informed WorkSafe that there were irregularities in the pump and that he had detected the presence of an electrical current where there should not have been one.

36. Ms Sizer observed the water pump plugged into a power point mounted on the fence. Near the water pump was a plastic crate that appeared to have been used as a cover for the pump. Copper piping ran from the water pump to an underground well located in front of the fence. A star picket was driven into the soil next to the pump and was connected to the metal frame of the water pump with some wire. Ms Sizer observed that the star picket and wire were not an original component of the water pump.

37. Ms Sizer compiled an incident report and made the following observations:

- The wiring to the power point supplying the water pump was not correctly connected. The active and neutral conductors were found to be transposed.
- The metal frame of the water pump was measured with a volt-meter and found to be live, indicating 248 volts AC to the ground, the metal fence and copper water pipe.
- The star picket was connected via a wire to the outer metal frame of the water pump. The star picket was measured with a volt-meter and found to be live, indicating 248 volts AC to both ground and the metal fence.
- There was no connection between the earth at the power point and the general mass of earth.
- There was no connection between the earth at the power point and the earth bar at the switchboard supplying the power point. This switchboard was located at the house.
- The circuit supplying the power point was protected by a 20 Amp circuit breaker. There were no residual current devices (RCDs) installed on the house switchboard.
- The metal fence was in contact with the ground at numerous locations across its length.

38. Ms Sizer reported that she observed tracking and corrosion in the water pump between live parts and earth. This fault caused the metal frame of the water pump to become live. Connecting the star picket to the metal frame of the water pump caused the star picket to also become live. Ms Sizer believes that Mr Glover contacted the live star picket with his right shin and simultaneously contacted the metal fence, possibly with his hands and neck.

39. The transposed conductors at the power point meant that the metal frame of the water pump would have been live, regardless of whether the power point was switched on or off. In Ms Sizer's opinion the transposed conductors may have indicated unlicensed electrical work. The overcurrent circuit protection to the water pump power point did not operate and would not have been expected to operate, due to the circuit earth not being continuous to the switchboard. She considered the impedance of the earth return path through Mr Glover's body to the ground would have been too high to allow sufficient current flow to cause the circuit protective device to operate.

40. Energy Safe tested the earth from the power point to the switchboard and found it to be not connected. They considered that due to there being no effective earth return path, either via the earth conductor from the switchboard to the power point or via the ground, insufficient current was able to flow to operate the short-circuit protective device.

41. Ms Sizer confirmed that Mr Parker reported that the cause of the lack of continuity between the earth at the power point and the earth bar at the switchboard, was a broken earth wire, located in a junction box in the laundry and showed them photos of the damage to the junction box. As to when this damage was caused, Energy Safe advised it was not possible to prove when the blackening or burning occurred, which is likely to have caused the disconnection of the earthing conductors. Consequently, I am unable to determine when this occurred.

42. Ms Sizer summarised her review of the incident and stated that the internal fault in the water pump caused the frame of the pump to become live. She further concluded that the transposition of the conductors at the power point did not have an impact on the incident, as the frame of the pump would have been live due to the tracking from both active and neutral to earth, internal to the pump. She reported that the lack of earth continuity from the power point to the switchboard, (which is meant to provide a low impedance path for the fault current) did contribute to Mr Glover's death because it meant that the circuit protection would not operate as intended. Ms Sizer also confirmed that "*the installation and connection of the star picket to the pump, whilst it was under fault, introduced another hazard, in that the star picket became another live metal part, in addition to the pump frame.*"

43. In Ms Sizer's opinion, it was unlikely that the wiring of the power point had been tampered with or altered since its installation. She considered that the testing of the power point at the time of its installation, if carried out fully and correctly, should have identified the transposed conductors. Further, testing should also have identified the lack of continuity in the earthing

conductor, but only if the fault (broken connection) between the earthing conductors at the junction box existed at the time of testing.

44. Mr Parker's evidence was that he correctly wired the power point and conducted a basic polarity test. There was no evidence provided to me which revealed whether or not the power point had been tampered with after Mr Parker installed it.

45. Ms Sizer advised that a Certificate of Electrical Safety (COES) should have been submitted to Energy Safe for the changeover of the power point, however Energy Safe had no record of this occurring. Ms Sizer confirmed that given the nature of the work that was undertaken, there was no legal requirement for Mr Parker to install an RCD.

WorkSafe Victoria investigation

46. WorkSafe conducted an investigation into the circumstances of Mr Glover's death. They advised that they looked at all of the circumstances and did not commence a prosecution against any party in relation to this matter.

47. Following my Determination to re-open the investigation, Mr Thompson, conducted a review of the water pump, power point and house junction box. As part of the further investigations, Mr Thompson identified the following three faults:

- **Fault 1** – the interconnector plug of the pressure switch and pump motor had failed and 'tracking of electrical current' or short circuit of the active neutral and earth male and female plug socket connecting pins occurred.
- **Fault 2** – the electrical cable supplying the power, 240 Volt power point was found to have a defective earth conductor. The fault was identified as a broken earth cable join in an electrical junction box located in the laundry of the house. There was scoring consistent with the un-insulated earth conductor being exposed to sufficient current to overwhelm the current capacity of the conductor causing the conductor to melt and break the continuity of the earthing system.
- **Fault 3** – The active and neutral conductors of the external power point were observed to be interposed, in other words, incorrectly fitted to the electrical cable termination points located at the back of the power point. The fault meant that on operating the on/off switch of the power point, the active conductor was not isolated or turned off, which allowed electricity to continue to flow to the water pump pressure switch. The water pump would appear to turn on and off from the power point as the neutral conductor (the return path

for electricity) was isolated on operation of the power point. This meant that the pump would also continue to operate.

48. Mr Thompson also considered the presence of the star picket connected to the water pump. He commented that the star picket was an ineffective means of providing a temporary earthing point to the water pump. He added further that the star picket did not operate as intended (as an effective earth bond) because of the conditions of the soil, which were observed to be dry and sandy soil, also because the water table and depth of penetration and the insulating effect of any painted surface of the star picket could all serve to impede the operation of the star picket to drain fault current to earth potential.

49. Mr Thompson concluded that fault one and two described above were the root cause of the electrical shock, which resulted in Mr Glover's death. He further concluded that the position of Mr Glover's body against the fence and the star picket were consistent with accidental contact with the star picket and either tripping or reaching for the fence which resulted in the fence providing an earth return path for the fault current, as Mr Glover's body bridged the distance between the fence (earth metal surface) and the star picket (electrically live metal surfaces).

50. In relation to the transposed wires, Mr Thompson stated that due to the presence of the pressure switch double pole switch (on the water pump) the transposing of the active and neutral conductors at the power point would not have contributed to the incident as the double pole switch makes and breaks both active and neutral conductors.

Conclusions

51. The circumstances of the events on 4 November 2015 that led to Mr Glover's death are complicated and had tragic consequences.

52. Having now conducted a thorough coronial investigation, which included obtaining assistance from WorkSafe and Energy Safe, it appears that when Mr Glover went to investigate whether the water pump was working, his shin made contact with the star picket (which was live) and at the same time made contact with the metal fence. The injury wounds to Mr Glover are consistent with electrical contact with the star picket and the metal fence.

53. I find there was a confluence of events that contributed to the unfortunate death of Mr Glover. The first was the failure of the interconnector plug of the pressure switch and water pump motor, the second was a broken earth cable in the electrical junction box located at the laundry of the house, which prevented the fault current from being drained to earth and the water pump and associated metal surfaces becoming live. In combination, these events caused Mr Glover's

death. The presence of the star picket was not a fault as such, but was identified as an ineffective means of providing a temporary earthing point to the frame of the water pump, which meant that the star picket became live when the first two events occurred.

54. In relation to the transposed wires at the outdoor power point, Mr Parker denied incorrectly installing the wires. He also stated that he conducted a polarity safety test after installing this power point and did not identify any problem at the time. Ms Sizer stated that it was unlikely that the wiring of the power point had been tampered with or altered since its installation.

55. Consequently, I am unable to determine whether or not Mr Parker installed the power point correctly. In any event, WorkSafe and Energy Safe both agree that the transposed wires at the power point did not contribute to the incident.

56. Incidental to this incident, Ms Sizer advised that a COES should have been submitted to Energy Safe by Mr Parker for the changeover of the outside power point, however Energy Safe had no record of this. Mr Parker conceded to DSC McKinnon, as part of the further investigations that he did not submit a COES for the change to the outdoor power point. It is clear, however, that the lack of a COES did not cause Mr Glover's death. Whether or not Mr Parker submitted a COES, is not relevant to my investigation. Even if a COES had been submitted, I find it would not have prevented Mr Glover's death.

57. I am very grateful to WorkSafe and especially Mr Thompson for sharing his expertise and knowledge with me and Mr Glover's family. It greatly assisted my understanding of a very complex and technical incident.

FINDINGS

58. Having considered the evidence I am satisfied that no further investigation is required.

59. Pursuant to section 67(1) of the *Coroners Act 2008*, I make the following findings connected with the death:

60. I find that:

    a. the identity of the deceased was Warren Frederick Glover born 16 January 1939; and

    b. Mr Glover died on 4 November 2015 from 1a) ELECTROCUTION;

    c. in the circumstances described above.

61. I wish to express my sincere condolences to Mr Glover's family. I acknowledge the grief and devastation that you have endured as a result of your loss. I admire Mr Glover's sons for their advocacy in ensuring this investigation was appropriately and adequately investigated.

COMMENTS

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

62. According to Energy Safe Victoria, a residual current device was not required to be installed for the work undertaken by Mr Parker when he installed the outside power point. However, it is apparent that if a residual current device was installed it may have potentially prevented Mr Glover's death. A residual current device is a cost effective, lifesaving device and can be easily installed by any electrician. Shortly after Mr Glover's death, a second fatality involving an electrocution and an external water pump occurred. It is for this reason that I have made a recommendation to Energy Safe Victoria.

RECOMMENDATION

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

I RECOMMEND THAT Energy Safe Victoria issue a Safety Alert to registered electrical contractors in regional Victoria notifying them of the circumstances of this death and the importance of installing a residual current device protected power point or utilising a portable residual current device on a power point when installing or performing maintenance work on an external water pump.

Pursuant to section 73(1) of the *Coroners Act 2008,* I order that this Finding be published on the internet.

The family of Mr Glover;
Mr Paul Fearon, Director of Energy Safety, Energy Safe Victoria;
WorkSafe Victoria;
Interested Parties; and
Coroner's Investigator, Victoria Police

Signature:

JACQUI HAWKINS
CORONER
Date: 31 May 2017