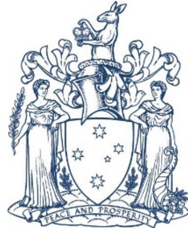

IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

COR 2022 001126

FINDING INTO DEATH WITHOUT INQUEST

Form 38 Rule 63(2)

Section 67 of the ***Coroners Act 2008***

Findings of:	Coroner Paresa Antoniadis Spanos
Deceased:	Ms RM[1]
Date of birth:	1934
Date of death:	On or about 28 February 2022
Cause of death:	1(a) Carbon monoxide toxicity
Place of death:	Cohuna Island Road, Cohuna, Victoria, 3568

[1] This finding has been de-identified in accordance with the family's wishes.

INTRODUCTION

1. On 28 February 2022, Ms RM was 88 years old when she was found deceased in her campervan. At the time, Ms RM lived alone in Orange, New South Wales.

2. Ms RM married her husband in 1954 and the couple remained together until his passing in 2011. They shared four children together. Ms RM worked as a market researcher until she retired when she was about 65 years old.

3. Ms RM's medical history included first degree heart block, coronary stent, myocardial infarction, hypertension, atrial fibrillation, gastro-oesophageal reflux disease, fibromyalgia, left subclavian stenosis, cataracts, and a meningioma (brain tumour).

4. In about 2015, Ms RM purchased a 2008 Toyota Hi-Ace van registered in New South Wales. With the assistance of her son who was a carpenter, Ms RM converted the van into a campervan. A 3-way portable fridge unit was installed in the rear of the campervan powered by LPG gas from a portable 4kg bottle. When in use, the fridge and gas bottle were both located within the van. An exhaust tube connected to the fridge was required to be placed outside through a window to ventilate the exhaust gases. Ms RM and her daughter discussed the safe operation of the gas-powered fridge on numerous occasions.

5. Ms RM was part of a social club called the 'Golden West Wanders' with several of her close friends. The group frequently went on camping trips in their campervans, including long trips to South Australia and to Perth. Ms RM had used the same gas-powered fridge on her trips for many years.

THE CORONIAL INVESTIGATION

6. Ms RM's death was reported to the Coroner as it fell within the definition of a reportable death in the *Coroners Act 2008* (the Act). Reportable deaths include deaths that are unexpected, unnatural or violent or result from accident or injury.

7. The role of a coroner is to independently investigate reportable deaths to establish, if possible, identity, medical cause of death, and surrounding circumstances. Surrounding circumstances are limited to events which are sufficiently proximate and causally related to the death. The purpose of a coronial investigation is to establish the facts, not to cast blame or determine criminal or civil liability.

8. Under the Act, coroners also have the important functions of helping to prevent deaths and promoting public health and safety and the administration of justice through the making of comments or recommendations in appropriate cases about any matter connected to the death under investigation.

9. Victoria Police assigned First Constable Lynden Goulding to be the Coroner's Investigator for the investigation of Ms RM's death. The Coroner's Investigator conducted inquiries on my behalf, including taking statements from witnesses – such as family, the forensic pathologist, treating clinicians and investigating officers – and submitted a coronial brief of evidence.

10. This finding draws on the totality of the coronial investigation into the death of Ms RM including evidence contained in the coronial brief. Whilst I have reviewed all the material, I will only refer to that which is directly relevant to my findings or necessary for narrative clarity. In the coronial jurisdiction, facts must be established on the balance of probabilities.[2]

MATTERS IN RELATION TO WHICH A FINDING MUST, IF POSSIBLE, BE MADE

Identity of the deceased

11. On 28 February 2022, Ms RM born 1934, was visually identified by her friend, Barbara, who signed a formal Statement of Identification to this effect.

12. Identity is not in dispute and requires no further investigation.

Medical cause of death

13. Forensic Pathologist Dr Gregory Young, from the Victorian Institute of Forensic Medicine (**VIFM**), conducted an examination of Ms RM's body in the mortuary on 2 March 2022 and provided a written report of his findings dated 11 April 2022.

14. The post-mortem examination did not show any unexpected signs of trauma. A post-mortem computerised tomography (**CT**) scan showed evidence of coronary artery calcification in the heart. In the head, there was a left frontal craniotomy with subjacent brain hypodensity with no evidence of an intracranial haemorrhage.

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[2] 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.

15. Routine toxicological analysis of post-mortem samples detected markedly elevated carboxyhaemoglobin levels at 59% blood saturation. In a supplementary toxicology report, Dr Young advised:

> *Carbon monoxide (CO) is a colourless and odourless gas produced by the incomplete combustion of organic fuels. CO binds to haemoglobin, displacing oxygen, leading to progressive asphyxia. The level of carboxyhaemoglobin seen here is markedly elevated, and can be considered as life threatening.*

16. Toxicological analysis also detected oxycodone[3], bisoprolol[4] and paracetamol[5] at levels consistent with normal therapeutic use but no alcohol or other commonly encountered drugs or poisons.

17. Dr Young provided an opinion that the medical cause of death was *1(a) carbon monoxide toxicity.*

18. I accept Dr Young's opinion.

Circumstances in which the death occurred

19. On 24 February 2022, Ms RM and three of her friends departed Orange, New South Wales to take part in the Campervan Motorhome Club of Australia's Solos Network Rally. Ms RM and each of her friends each drove their own individual campervans. The group travelled around 300 kilometres to the Ariah Park Campground where they settled for the night. As Ms RM was tired from the heat and the long drive, the group decided to stay an additional night.

20. On 26 February 2022, Ms RM had recovered from her bout of tiredness and the group left Ariah and travelled to Finley, New South Wales. The following day, being 27 February 2022, the group travelled into Victoria and settled at a campsite in Cohuna for the evening.

21. Around dinner time on 27 February 2022, Ms RM approached her friend and group member, Barbara, and complained that her gas-powered fridge was not getting cool. Barbara assisted Ms RM light the pilot light within the fridge and a short time later the fridge began to cool.

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[3] Oxycodone is a semi-synthetic opiate narcotic analgesic related to morphine used clinically to treat moderate to severe pain.

[4] Bisoprolol is a synthetic beta-blocker indicated for hypertension

[5] Paracetamol is an analgesic drug available in many proprietary products either by itself or in combination with other drugs such as codeine and propoxyphene. It is often sold under the brand name 'Panadol.'

Using soapy water, the pair checked for gas leaks and did not find any. Barbara recalled that Ms RM placed the fridge ventilation hose out the side window.

22. Later that evening, Ms RM again checked the gas bottle and connecting hose for gas leaks with soapy water. She did not discover any gas leaks. At this time, Barbara again observed the ventilation hose outside the van. Ms RM retired for the evening at about 8.30pm and asked Barbara to wake her in the morning. The evidence suggests this was the last time Ms RM was seen alive.

23. At about 6.25am the following morning, 28 February 2022, Barbara knocked on Ms RM's campervan window and on the door but was unable to rouse her. Another member of the travelling group, Silvia, woke and joined Barbara at Ms RM's campervan. Silvia peered through the window and could see Ms RM's feet. All the windows of Ms RM's campervan were shut.

24. Concerned for their friend, Barbara and Silvia walked up a hill to find better mobile phone reception. Another camper assisted and called emergency services on their behalf.

25. Ambulance Victoria paramedics responded to the call and were the first to arrive at 7.24am. Fire Rescue Victoria (**FRV**) members arrived minutes later and obtained access to the van. Paramedics attended to Ms RM at 7.33am and noted that she appeared pink and was warm to the touch. They did not detect any signs of life and at 7.35am on 28 February 2022, Ms RM was formally verified deceased at the scene.

26. Victoria Police members attended a short time later and conducted a search of the scene and Ms RM's campervan. Attending members discovered a black ventilation hose connected to the fridge in the rear of the van. A plastic bag tied was to the end of the hose and was filled with liquid. The fridge was operating at this time and was turned off by police.

Energy Safe Victoria

27. Following Ms RM's death, Victoria Police requested Energy Safe Victoria (**ESV**) conduct an examination of Ms RM's campervan and the gas-powered fridge. ESV inspectors found that the fridge appeared to be in reasonable condition with no obvious damage or deterioration that would affect its normal operation. The rear of the fridge had the following warning label:

DO NOT OPERATE THIS APPLIANCE IN ANY UNVENTED ENCLOSED AREAS SUCH AS TENTS OR MOTOR VEHICLES. FRESH AIR CIRCULATION MUST BE AVAILABLE TO THE UNIT AT ALL TIMES WHILST OPERATING.

28. The fridge had been modified with a flue extender. ESV inspectors believed this modification had been made to condense and capture water from the fridges exhaust gases. Testing confirmed this modification did not impact the fridge's operation.

29. ESV inspectors re-created the conditions that prevailed when Ms RM was found deceased by closing all the van's doors and windows and running the fridge within the van. The re-creation showed that after six hours of operation, carbon monoxide levels reached a concentration that is expected to produce a fatal outcome after a further two hours of exposure. The evidence suggests Ms RM was in the van overnight between 27 and 28 February 2022 for over 10 hours.

30. The serial number on the fridge indicates it was manufactured in 1993. Current mandatory safety standards for gas fridges require a large red danger label informing that indoor use may cause death when operating on gas. ESV advised the current mandatory safety standards for gas fridges and similar appliances require such appliances to be equipped with an automatic shutdown system when carbon monoxide concentration (**PPM**) exceeds 75ppm or when oxygen saturation levels decrease below 18%.[6]

31. Mandatory safety standards also require gas fridges permanently installed in a campervan to be installed in a sealed recess with outside ventilation.

DATA REQUEST- NCIS AND CPU

32. As part of my investigation, I sought data from the Coroners Prevention Unit (**CPU**) and from the National Coronial Information System (**NCIS**) regarding the prevalence of deaths of a similar nature. That is, accidental carbon monoxide poisoning in the setting of campervans/ caravans in Victoria.

33. The CPU was established in 2008 to strengthen the coroners' prevention role and assist in formulating recommendations following a death. The CPU is comprised of health professionals and personnel with experience in a range of areas including medicine, nursing, mental health, public health, family violence and other generalist non-clinical matters. The

[6] ESV's recreation test of Ms RM's campervan produced ppm levels exceeding 400 and an oxygen saturation level below 19.5% after 6 hours of testing.

unit may review the medical care and treatment in cases referred by the coroner, as well as assist with research related to public health and safety.

34. The NCIS is a database containing information on deaths reported to a coroner in any of the Australian States and Territories and in New Zealand. Data includes demographic information on the deceased and contextual details on the nature of the fatality.

CPU Data

35. When collating the data, The CPU considered all deaths reported to a Victorian coroner between 1 January 2013 and 3 April 2023. The search was refined to include deaths found by coroners to be unintentional and where the cause of death contained the words 'carbon monoxide.'

36. As a result of their search, the CPU identified 16 deaths between 2013 and 2023 which occurred in the context of unintentional carbon monoxide poisoning or toxicity. Relevantly, of these 16 deaths, eight occurred in a vehicle and only Ms RM's death occurred in a campervan.

37. In addition to Ms RM's death, one other death which occurred 2014 was attributed to a gas-powered fridge used in a vehicle without properly vented exhaust gasses.

38. The remaining seven deaths that occurred in vehicles comprised:

    i. Three deaths where a butane burner was used for heating inside a car; and
    ii. Three deaths caused by the vehicle's exhaust fumes

NCIS Data

39. NCIS data included deaths reported to a Victorian Coroner between 1 July 2000 and 2 April 2023. The search was confined to deaths due to unintentional carbon monoxide poisoning occurring in a vehicle. Their search excluded deaths where fire or exhaust gasses were the primary cause of death.

40. The NCIS identified nine relevant cases in total within their search criteria. Four of these deaths occurred in either a campervan or caravan, three of which were prior to 2013.

41. The sets of data between CPU and NCIS have some minor discrepancies. This is in part due to the CPU having only searched for cases between 2013-2023, whereas NCIS searched for cases between 2000 and 2023, and due to the slightly different search methods adopted.

FINDINGS AND CONCLUSION

42. Pursuant to section 67(1) of the *Coroners Act 2008* I make the following findings:

    iii. the identity of the deceased was Ms RM, born 1934;

    iv. the death occurred on or about 28 February 2022 at Cohuna Island Road, Cohuna, Victoria, 3568;

    v. the cause of Ms RM's death was carbon monoxide toxicity; and

    vi. the death occurred in the circumstances described above.

43. The portable gas fridge Ms RM had fitted in the rear of her campervan was not designed for use within an enclosed space. The evidence suggests that for many years, Ms RM used a makeshift ventilation hose system to ventilate exhaust gases from the fridge via a window. When Ms RM was found deceased on 28 February 2022, the fridge was running, the ventilation hose was inside the campervan, and the windows were shut.

44. The available evidence supports a finding that Ms RM's death was the accidental result of carbon monoxide poisoning caused by the portable gas-powered fridge. Tragically, it appears Ms RM either forgot to place the ventilation hose out of the window or forgot to turn the fridge off for the night.

45. There is no evidence to suggest Ms RM intentionally ended her own life.

COMMENTS

Pursuant to section 67(3) of the Act, I make the following comments connected with the death.

1. This case highlights the dangers the use of gas-powered appliances being operated within enclosed spaces like in campervans. Such appliances, like the gas-powered fridge fitted in Ms RM's campervan, emit carbon monoxide, which is an odourless, colourless gas that cannot be seen or tasted.

2. The data obtained from both the CPU and NCIS show carbon monoxide poisoning is not a particularly prevalent cause of unintentional deaths in Victoria. Despite the rarity, it must be said that such deaths are entirely preventable.

3. The fridge installed in Ms RM's campervan was not designed to be used in an enclosed space. Current mandatory safety standards require gas-powered fridges fitted in campervans to be installed in a sealed recess with permanent outdoor ventilation.[7]

4. Ms RM's death clearly highlights the need to have gas-powered appliances correctly installed by a suitably licenced professional in a manner in accordance with the purpose for which they were designed.

5. In this case, I have not made any recommendations as installation of the gas-powered fridge in Ms RM's campervan was a DIY project and not a professional installation. Energy Safe Victoria already have mandatory safety standards in place that address the installation of gas-powered fridges and similar appliances.

6. I have directed that this finding be provided to Energy Safe Victoria and to the Department of Health to highlight the importance of compliance with the safety standards already in place, and the dangers of inadvertent carbon monoxide poisoning.

I convey my sincere condolences to Ms RM's family and friends for their loss.

Pursuant to section 73(1B) of the Act, I order that this finding be published on the Coroners Court of Victoria in accordance with the rules.

[7] AS/NZS5601.2 Gas installations, Part 2: LP Gas installations in caravans and boats for non-propulsive purposes.

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

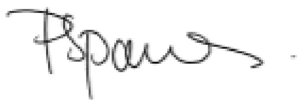
The family of Ms RM

Energy Safe Victoria

Department of Health

First Constable Lynden Goulding, Victoria Police, Coroner's Investigator

Signature:



Coroner Paresa Antoniadis Spanos

Date : 26 June 2023

NOTE: Under section 83 of the ***Coroners Act 2008*** ('the Act'), a person with sufficient interest in an investigation may appeal to the Trial Division of the Supreme Court against the findings of a coroner in respect of a death after an investigation. An appeal must be made within 6 months after the day on which the determination is made, unless the Supreme Court grants leave to appeal out of time under section 86 of the Act.