IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2021 0877

FINDING INTO DEATH WITHOUT INQUEST

Form 38 Rule 63(2)
*Section 67 of the **Coroners Act 2008***

Findings of:	Caitlin English, Deputy State Coroner
Deceased:	VPZ[1]
Date of birth:	20 August 1985
Date of death:	15 February 2021
Cause of death:	1(a) Head injuries sustained in an explosion
Place of death:	Mount Cottrell, Victoria

[1] This Finding has been de-identified to replace the names of the deceased and their family members with pseudonyms of randomly generated three letter sequences to protect their identity and to redact identifying information.

INTRODUCTION

1. On 15 February 2021, VPZ was 35 years old when he sustained fatal injuries in an explosion. At the time of his death, VPZ lived with his wife.

THE CORONIAL INVESTIGATION

2. VPZ'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.

3. 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.

4. 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.

5. The Victoria Police assigned an officer to be the Coroner's Investigator for the investigation of VPZ'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.

6. This finding draws on the totality of the coronial investigation into VPZ's death, 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]

[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.

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

Identity of the deceased

7. On 17 February 2021, VPZ, born 20 August 1985, was visually identified by his father, RVF.

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

Medical cause of death

9. Forensic Pathology Fellow, Dr Chong Zhou (supervised by Dr Joanna Glengarry, Forensic Pathologist), from the Victorian Institute of Forensic Medicine (**VIFM**), conducted an examination on 28 February 2021 and provided a written report of his findings dated 12 April 2021.

10. The post-mortem examination revealed multiple fatal injuries caused by a combination of blast injury and blunt force trauma.

11. Toxicological analysis of post-mortem samples identified the presence of a cocaine metabolite.

12. Dr Zhou provided an opinion that the medical cause of death was *"1(a) Head injuries sustained in an explosion"*.

13. I accept Dr Zhou's opinion.

Circumstances in which the death occurred

14. VPZ had been employed as a diesel mechanic since his teenage years. He reportedly had a strong work ethic and was cognisant of his safety and safe work practices while undertaking work.

15. When not working, VPZ sometimes undertook extra mechanic-type work for himself and friends, sometimes earning extra money. He used his parents' property at Mount Cottrell, for this purpose.

16. On the morning of 15 February 2021, VPZ arrived at his parents' property to undertake some work. The weather was fine that day and approximately 20 degrees Celsius in the early afternoon.

17. At about 11.00am, he drove to the shed area where he met his father. VPZ said to his father that he had found a buyer for a 10,000-litre diesel tank that was stored on the property. VPZ's father, RVF, stated that had owned the tank for about 15 years and it had not been used for about six or seven years. The tank had stored diesel and there were remnants of diesel still left in the tank.

18. They subsequently elevated the tank with a forklift and RVF opened both taps. Approximately four litres of fuel poured out, along with a lot of rust.

19. VPZ then poured further fuel into the tank with the intention of mixing it around and flushing the tank to try to get the rust out. He then placed the tank on the ground and, using the forklift, rolled the tank around. When the taps were next opened, even more rust came out with the fuel.

20. To further clean out the inside of the tank, VPZ decided he would cut a hole in the tank and thereafter paint the inside with rust adhesive. RVF told his son to put at least one foot of water in the bottom of the tank so that no sparks from the grinder go into the tank. VPZ replied that the tank had only stored diesel so would not explode.

21. At about this time a friend, PRG, arrived at the sheds.

22. RVF began to fill the tank with water, which was now back up on the forklift. He told his son not to start cutting the tank.

23. VPZ remained outside with the tank while RVF and PRG walked into the shed. At this point, they both heard VPZ start to use the grinder to cut a square out of the end of the tank. RVF yelled at his son to stop using the grinder but VPZ unlikely heard his father due to the noise. RVF walked at a fast pace back to his son.

24. As he approached the doorway of the shed, the tank exploded, blowing out the entire end of the tank upon which VPZ was working. It appears that the end of tank struck VPZ, in turn causing the grinder to strike him in the forehead. The force of the explosion also threw RVF to the ground.

25. The two men found VPZ on the ground with significant injuries and provided assistance until emergency services arrived. Ambulance paramedics subsequently confirmed VPZ was deceased.

26. During the following police investigation, a sample of the liquid that was still in the tank was tested, which returned results of water and moderately evaporated diesel fuel. A sample of the oil was also taken from the area where the tank was located at the time of the incident and this returned results of low-level traces of both petrol and diesel. Detective Senior Constable Jayden Gebbie, Coroner's Investigator, noted that while the results raised the possibility that the tank had been washed with both petrol and diesel, there was no significant level of petrol detected in the remaining liquid in the tank.

27. RVF stated that when he later looked inside the tank, he noticed that the taps had sunken into the tank, which meant they were 50 millimetres into the tank and had prevented fuel from fully draining from the tank. He also noted that after smelling the drum of fuel that had drained from the tank, he could smell both petrol and diesel.

28. In his summary in the coronial brief, Detective Senior Constable Gebbie set out the Victoria Police Forensic Services Department's investigation and noted the flashpoint of automotive diesel fuel at which the vapour can ignite is about 60 degrees Celsius. The Forensic Services Department had calculated that only 425 millimetres of diesel would be sufficient to bring all of the volume into an explosive range.

29. Forensic Officer J D Kellheher noted that while diesel fuel is not particularly volatile, petrol is, and heating from exposure of the tank to sunlight would have increased the amount of evaporation into the vapour state, forming an explosive fuel vapour. Cutting into the tank with an angle grinder would have resulted in hot metal spraying into the tank, which was sufficient to ignite the fuel vapour mixture.

30. Detective Senior Constable Gebbie concluded that it appeared that the combination direct sunlight on the tank, the outside temperature, and the action of the angle grinder heating the tank end and spraying hot steel sparks into the tank caused an explosion that has blown the entire end of the tank, which subsequently hit VPZ, killing him instantly. I accept this conclusion.

FINDINGS AND CONCLUSION

31. Pursuant to section 67(1) of the Act I make the following findings:

    (a) the identity of the deceased was VPZ, born 20 August 1985;

(b) the death occurred on 15 February 2021 at Mount Cottrell, Victoria, from head injuries sustained in an explosion; and

(c) the death occurred in the circumstances described above.

COMMENTS

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

1. As part of the coronial brief, Detective Senior Constable Gebbie provided me with guidelines from Health and Safety Executive (a United Kingdom government regulator) and the New Zealand Occupational Safety and Health Service, which set about how to safely carry out work on metal tanks and drums. The guidelines warn of the risks of fire and explosion and provide advice about how to prepare the tank or drum for hot work, including the use of specialist cleaning companies. Cold cutting is recommended as an alternative.

2. I note that following VPZ's death, WorkSafe Victoria issued a safety alert about the hazards associated with cutting used fuel tanks and metal drums.[3] This alert similarly warns of the risks of ignition of residue and vapours and recommends the use of a specialist cleaning company before cutting into or applying heat to tanks and drums that once contained flammable or combustible liquids.

3. I endorse these warnings. Given WorkSafe Victoria has already issued a safety alert, I will not make a recommendation in this case.

Pursuant to section 73(1A) of the Coroners Act it, to contribute to the reduction of preventable deaths and highlight the risks and dangers of cutting fuel tanks and metal drums, particularly in the home environment, I intend to publish this Finding on the Internet.

I convey my sincere condolences to VPZ's family for their loss.

[3] WorkSafe Victoria, Safety Alert, Explosions when cutting used fuel tanks and metal drums, 22 February 2021, https://www.worksafe.vic.gov.au/safety-alerts/explosions-when-cutting-used-fuel-tanks-and-metal-drums.

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

Senior next of kin (copy to Brave Legal)

WorkSafe Victoria (care of Thomson Geer)

Detective Senior Constable Jayden Gebbie, Victoria Police, Coroner's Investigator

Signature:

Caitlin English, Deputy State Coroner

Date: 14 January 2022

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.