CORONER'S COURT OF THE AUSTRALIAN CAPITAL TERRITORY

Case Title:	**Inquest into the death of Shane Robert Senini**
Citation:	**[2019] ACTCD 8**
Decision Date:	27 June 2019
Before:	**Chief Coroner Walker**
Decision:	See [45]
Catchwords:	**CORONIAL LAW** – cause and manner of death – industrial accident – cause of explosion – storage of acetylene gas in motor vehicles
Legislation Cited:	*Coroners Act 1997* (ACT)
File Number:	CD 186 of 2018

CHIEF CORONER WALKER:

1. The death of Shane Robert Senini, a 51 year old man at the date of his death, was reported to the Coroner on 2 August 2018 on two bases:

   (a) in accordance with section 13(1)(a) of the *Coroners Act 1997*, as he was thought to have died unnaturally in unknown circumstances; and

   (b) in accordance with section 13(1)(f) of the *Coroners Act 1997*, as he was thought to have died after an accident where the cause of death appeared to be directly attributable to the accident.

2. Mr Senini died as the result of a large explosion at St Clare of Assisi Primary School, Heidelberg Street, Conder. Both ACT Policing and Worksafe ACT investigated the circumstances of Mr Senini's death. A brief of evidence was prepared for my consideration.

Background

3. Mr and Mrs Senini operated a refrigeration mechanical business, Argyle Air Pty Ltd. Mr Senini's work vehicle was a white Ford Falcon tray-back utility, which had large white metal storage boxes on each side of the tray.

4. Their son, Blake Senini, born in 2007, was enrolled at St Clare of Assisi Primary School in Conder.

5. From late 2017, Mr Senini suffered anxiety. He had a few sessions with a psychologist in December 2017 and January 2018 but he did not think it was helping. Around this time, Mr and Ms Senini began having marital problems.

6. In March 2018, Mr Senini left a suicide note for Mrs Senini and drove his work utility to bushland near Paddy's River, ACT, where he opened a refrigerant gas cylinder in the cabin of the vehicle, intending to asphyxiate himself. As he was approaching loss of consciousness, he thought about Ms Senini and Blake and changed his mind

about suicide, opening the vehicle's door allowing the gas to escape and fresh air to enter. Mr Senini returned home and told Mrs Senini about the suicide attempt. Mr and Mrs Senini discussed their issues and decided to stay together and work on their relationship.

7. From about June 2018, Mr Senini's anxiety manifested again. According to Mrs Senini, Mr Senini's business was busy and stressful, causing him to hate his job and be angry. Mr Senini began feeling sick in the stomach in late June, suffering from vomiting and nausea, which also contributed to his anxiety. In response, Mr Senini cut sugar, coffee and alcohol from his diet and went on a gluten-free diet.

8. Mr and Mrs Senini's relationship was however improving and repairing. They were planning to go on a holiday together for their 25th anniversary while Blake was on a school camp.

2 August 2018

9. In the morning, Mr Senini went to work. Mrs Senini went out to attend an appointment and she returned home after midday to find Mr Senini had returned home from work early and was asleep in bed. He awoke and told her he had come home from work because he was sick. Mrs Senini made Mr Senini a cup of tea and they spent some time together, attending to business paperwork and making some telephone calls.

10. Later that afternoon, Mrs Senini began to prepare dinner. Mr Senini went to collect Blake from after school care. He left the house about 4:45pm to travel the few hundred metres to the school.

11. About 15 minutes later Mrs Senini heard sirens and became worried about the length of time Mr Senini had been gone. She tried to call Mr Senini on his telephone, but he didn't answer. She then called the after school care and learned that Blake had not been picked up.

Explosion

12. At about 4:45pm, Kim Walsh attended the St Clare of Assisi Primary School to collect her children from after school care. She parked her vehicle, a white Holden station wagon, nose first into the car park opposite the school hall. She was parked next to a red car, which was parked next to Mr Senini's work utility.

13. Around this time Jeffrey Gear also drove into the St Clare of Assisi car park and reverse-parked on the side of the car park closest to the school buildings.

14. Carmen Myles, the Assistant Principal of St Clare of Assisi Primary School, was in the front office of the school with a colleague.

15. At 4:49pm, Ms Walsh heard a large noise and felt her vehicle shake or shudder. She thought someone had backed into her car and she heard or felt two thuds on her vehicle. She got out of her vehicle and walked to the rear of the car, where she saw Mr Senini laying on the ground. He had blood on his face and coming from his ears, mouth and nose, and also an injury or laceration to his left arm. Ms Walsh immediately checked for a pulse on Mr Senini's neck and left wrist. When she could not detect a pulse, she started chest compressions.

16. Mr Gear did not notice anything unusual as he parked and got out of his car. However, when walking away from his car, he 'heard and felt a loud, big explosion'.

For an instant after the explosion, it was quiet. He heard a strange whistling noise that made him look up. He saw a ladder flying through the air, which indicated to him the direction from which the explosion came. Mr Gear walked into the car park and looked in the direction he thought the ladder came from. He saw that a car had exploded. Mr Senini was lying on the ground. Mr Gear called 000.

17. Ms Myles heard 'a loud booming explosion, followed by a thud'. She ran to the carpark area directly in front of the office. She could see debris on the ground including a ladder and white metal. Ms Myles saw Ms Walsh kneeling over Mr Senini, who was lying on the ground in the car park. She directed that an ambulance be called and went inside with another parent to collect the school's defibrillator. She also directed the after school care coordinators to keep the children inside and to close the car park gates to prevent other parents from entering the school.

18. Ms Walsh removed Mr Senini's shirt and she and Ms Myles applied the defibrillator. No cardiac rhythm was detected by the defibrillator, so, in tandem, Ms Walsh and Ms Myles continued chest compressions until emergency services arrived and took over Mr Senini's care.

19. Joel Muir, another parent collecting children from after school care, came out from the building to see if he could help. He was moving debris from the explosion closer to Mr Senini's vehicle. As he got close, he heard gas leaking from gas bottles. He turned off three dials on oxy-acetylene bottles in the damaged toolbox.

20. Police and an ACT Fire and Rescue ('ACTF&R') truck arrived at the scene at 4:57pm. The firefighters took over performing CPR on Mr Senini.

21. Police Constables Nang Symon and Alexandra Grigg observed that Mr Senini's work utility had two large, white, metal storage boxes on each side of the tray. A ladder and a large storage pipe were attached to the storage boxes on the passenger side of the tray. In the middle of the tray, between the storage boxes, was an open area which contained gas cylinders, another ladder and other miscellaneous items. A storage box was significantly damaged. The lid, majority of the sidewall and the roof of this box appeared to have been sheared off. The bent, white, metal storage box lid was on the ground in the car park near another vehicle, approximately six metres from Mr Senini's utility. A large number of trade tools and parts were scattered on the ground around Mr Senini's utility and around Mr Senini. A damaged ladder was on the ground in the middle of the car park, approximately seven metres from Mr Senini's utility. Witnesses at the scene said that the damaged ladder had been on top of Mr Senini's utility and had been displaced, and damaged, by the explosion.

22. An ACTF&R officer, Station Officer Ben Hannan, examined the utility. He discovered a red acetylene cylinder in the damaged storage cabinet on the rear of the vehicle. The valve on the red acetylene cylinder had been slightly open, so he closed it completely. He called in ACTF&R Hazardous Material ('HAZMAT') inspectors to take over control of the scene as he deemed the scene unsafe. Station Officer Hannan moved the acetylene cylinder from the damaged vehicle and placed it in an open, safe area away from the incident scene, being the basketball courts of the school some distance away.

23. About 5:00pm, ACTAS paramedics arrived at the location and commenced treatment of Mr Senini. Mr Senini was transported to The Canberra Hospital ('TCH'), where resuscitation efforts continued. Mr Senini's heart was contracting weakly. He was

given oxygen and blood products. However, after 30 minutes of resuscitation attempts, the medical team determined the injuries suffered by Mr Senini were severe, there was insufficient cardiac output to sustain survivable blood pressure and no change to clinical status had occurred despite resuscitative measures. At 6:01pm, attempts at resuscitating Mr Senini were ceased and the time of death was noted.

Investigation

24. Worksafe ACT inspectors were called to the scene given that organisation's role in regulating the storage and transport of dangerous goods, including compressed flammable gases. BOC Limited technicians and the AFP Bomb Response Team also attended the scene to assist the HAZMAT inspectors in making the scene safe.

25. AFP Forensics investigators were called in to examine and document the scene. They discovered that all of the four metal storage compartments on the back of the utility, including the compartment which had been damaged in the explosion, were connected by wires to a central locking system. The damage to the destroyed compartment indicated that the blast originated inside the compartment, with all panels bent and forced outwards; further, that the storage compartment was closed and secure at the time of the explosion, with the damaged compartment panel bent outward in a U-shape around the middle of the panel, indicating the weak points were the bottom corners of panel and strong points were the bottom middle and along the top of the panel where the latch and hinge were located. The compartments were sealed with no ventilation.

26. The gas bottles and accessories in the back of Mr Senini's utility were examined and all were found to be in working order without fault. The cylinder of acetylene was empty, while the other gas bottles remained at least part way filled.

27. An AFP technical officer with qualifications as an automotive electrician subsequently undertook an examination of the destroyed storage compartment on Mr Senini's utility. That examination showed that an insulated wire in the compartment constituting part of the central locking system had rubbed over time against the painted tool box frame, causing both the wire and the tool box frame to become exposed to bare metal. Activation of the central locking system could cause a short to ground at that point. This could ignite flammable gas. Otherwise, the wiring of the central locking system was compliant with relevant standards, exceeding requirements in most respects, and was appropriate for this application.

Medical cause of death

28. The Coroner directed a post-mortem examination of Mr Senini, including toxicological testing of blood and urine samples. Professor Johan Duflou conducted the examination and concluded that Mr Senini died from multiple injuries. A CT scan showed that Mr Senini had suffered a severe chest injury with multiple bilateral rib fractures and bilateral pneumothoraces, a severe closed head injury with subarachnoid haemorrhage, and very severe facial fractures in a Le Fort 3 fracture pattern which is not usually survivable. Testing of a post-mortem blood sample was negative for drugs or intoxicating substances.

29. I am required by section 52(1) of the *Coroners Act 1997* to make findings as to the identity of the deceased person, when and where they died, and the manner and

cause of their death. On the basis of the information above, I make the required statutory findings as to the cause of Mr Senini's death.

Manner of death

30. Mr Senini's recent poor mental health caused me to consider whether his death was the result of intentional self-harm. I am satisfied that it was not.

31. Whilst there is evidence of previous self-harm attempts and thoughts by Mr Senini, the evidence from Mrs Senini suggests that Mr Senini was in a good mental state on the day he died. In particular, I consider it unlikely that, if intending self-harm, he would have carried it out at his son's school and without leaving any indication of his intent.

32. I find that Mr Senini inadvertently neglected to fully close the valve on an acetylene cylinder when packing his trade equipment into a sealed storage compartment on his work vehicle.

33. During the afternoon, the acetylene cylinder continued to leak acetylene gas, causing a build-up of acetylene gas in the sealed storage compartment which formed an explosive mixture with air.

34. I note that acetylene gas is flammable in air in concentrations ranging from 2.4% to 83% and has a very low ignition energy, so even low energy sparks such as static electricity can cause ignition and explosion.

35. About 4:45pm, Mr Senini drove his work vehicle to St Clare of Assisi Primary School to collect his son from after school care, unaware of the explosive mixture of acetylene gas and air in the storage compartment.

36. Mr Senini got out of his car and activated the electronic central locking system with a keyless remote control.

37. A short circuit between an exposed wire and bare metal created a spark in the storage compartment, igniting the acetylene gas mixture causing an explosion.

38. Mr Senini was standing adjacent to the storage compartment when the explosion occurred and was impacted by the full force of the explosion, suffering extensive injuries to his face, head, chest, abdomen and both arms, which were the direct cause of his death.

39. I find that Mr Senini died as the result of a tragic accident.

Matter of public safety

40. I am also required by section 52(4)(a) of the *Coroners Act 1997* to state whether a matter of public safety is found to arise in connection with the inquest and, if I find such a matter, to comment upon it.

41. The Australian Standards, Code of Practice and safety information sheets applicable to the storage and transport of acetylene gas cylinders all require the cylinders to be stored and transported in well-ventilated compartments. These documents also identify the hazard of leaking acetylene forming an explosive mixture with air in an inadequately ventilated space, which can be ignited by a spark from sources including a vehicle's electrical central locking system.

42. Mr Senini's storage of an incompletely closed acetylene cylinder in the sealed storage compartment on the back of his utility did not comply with the relevant Australian Standards, Code of Practice and safety information sheets.

43. I note that on 6 August 2018 WorkSafe ACT released a Safety Alert titled 'WorkSafe ACT reminds industry about gas cylinder safety', which referenced the explosion that caused Mr Senini's death and reminded users of flammable gases of the dangers of transporting gas cylinders and the safety requirements when doing so.

44. I find that no issue of public safety arises. There is no benefit in recommendations.

Conclusion

45. Pursuant to s 52(1) of the *Coroners Act 1997*, I make the following formal findings:

    (a) Shane Robert Senini died on 2 August 2018 at The Canberra Hospital, Dann Close, Garran in the Australian Capital Territory;

    (b) The manner and cause of death of Mr Senini are sufficiently disclosed and a hearing is unnecessary;

    (c) The cause of Mr Senini's death is multiple injuries caused by the accidental explosion of acetylene gas in a sealed vehicle storage compartment; and

    (d) Pursuant to section 52(4)(a)(i) of the *Coroners Act 1997*, a matter of public safety is not found to arise in connection with this inquest.

46. I also wish to commend the efforts of Kim Walsh, Jeffrey Gear, Carmen Myles, Joel Muir and the other bystanders and staff who provided immediate care and support to Mr Senini, as well as taking steps to protect the safety of others in the vicinity, including, but not limited to, those children in after-school care at the premises. I also commend the efforts of the first responders from ACT Policing, ACTF&R and ACTAS at the scene.

47. I direct that these findings be published in due course on the Coroner's Court website.

48. I extend my condolences to Mr Senini's family and friends as well as to the St Clare of Assisi school community.

I certify that the preceding 48 numbered paragraphs are a true copy of the findings of Chief Coroner Walker.

Associate: R. Boughton

Date: 27 June 2019