



# MAGISTRATES COURT *of* TASMANIA

## CORONIAL DIVISION

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### **Record of Investigation into Explosion (Without Inquest)**

*Coroners Act 1995*  
*Coroners Rules 2006*  
*Rule 15*

I, Simon Cooper, Coroner, having investigated an explosion at Nagle Place, Glenorchy, Tasmania on 12 February 2022

**Find, pursuant to Section 45 of the Coroners Act 1995, that**

- a) The cause and origin of the explosion was the ignition and deflagration of an acetylene leak from a cylinder, due to its incorrect storage and transportation within a work vehicle;
- b) The circumstances in which the explosion occurred are set out further in this finding; and
- c) Luke Campbell Welding contributed to the explosion by failing to ensure the correct storage and transportation of acetylene gas cylinders in a vehicle supplied to Ryan Rayner.

In making the above findings I have had regard to the evidence gained in investigations into the circumstances of the explosion conducted by Tasmania Police, Tasmania Fire Service and WorkSafe Tasmania. That material includes:

- Fire Investigation Report – Vehicle Explosion, 22 March 2022;
- Cylinder Report – Paul Arthur, Production Manager, BOC Lutana;
- Safety Data Sheet – BOC; Dangerous Goods Manifest – BOC;
- Report – Connor Smith, Automotive Electrician, 8 March 2022;
- Statutory Declaration – Ryan Rayner, 27 February 2022;
- Statutory Declaration – Kellie Clifford, 13 February 2022;
- Statutory Declaration – Luke Campbell, 13 February 2022;
- Affidavit – Senior Sergeant Adam Archer, 18 May 2022 (and forensic mapping);
- Statement – Roman Seliga, Senior Inspector, WorkSafe Tasmania;

- Statutory Declaration – Constable Carly Medhurst, Crime Scene Examination, Forensic Services, Tasmania Police, 9 July 2022 (and scene photographs);
- Statutory Declaration – Nicholas Monk, Police Officer (rank not stated) Forensic Services, Tasmania Police, 4 July 2022 (and scene photographs);
- Report For Coroner – Senior Constable Tammy Nelson, Bomb Scene Examiner, 21 March 2023; and
- Investigation Report – WorkSafe Tasmania.

## **Circumstances**

At around 11.00pm on Saturday 12 February 2022 an explosion in Nagle Place, Glenorchy was reported to emergency services.

Ryan Rayner, who lived in Nagle Place was seriously injured in the explosion. He later told investigators that he had gone out to his work vehicle to obtain some brake cleaner to help clean up some spilt nail polish. He said he unlocked the vehicle using a remote central locking fob and took out a container of brake cleaner (in an aerosol can). He said he remembered smelling something like acetylene, and which in the context of this matter can only have been acetylene. The last thing he remembered was closing the toolbox. He had no memory of any explosion. Although a cigarette smoker, when he went out to the truck that night he was not smoking.

Mr Rayner was seriously injured in the explosion. He suffered significant facial and skull fractures along with multiple other injuries. He was hospitalised for several days, some of which he spent in an induced coma and underwent multiple surgeries.

Apart from Mr Rayner's work vehicle, two residences and another vehicle were also damaged.

## **Investigation**

Police secured the scene and bomb scene examiners, Forensic officers and Tasmania Fire Scene investigators all attended and made the area safe. It was quickly determined that the source of the explosion was a Hino flat tray truck, registered number LCW002, owned by Luke Campbell Welding. Amongst other things on that truck were BOC gas cylinders including one oxygen cylinder, two argon cylinders and two acetylene cylinders. One of those acetylene cylinders was found by investigators damaged under the vehicle.

The vehicle was supplied by Luke Campbell Welding to Mr Rayner who worked for that business as a welder.

The vehicle had a large aluminium work toolbox on one side and welding equipment on the other. The toolbox was large taking up approximately one third of the rear tray. Its dimensions were 1200 mm long, 1700 mm wide, and 1200 mm tall. It was essentially airtight with door openings sealed with rubber.

The vehicle had electronic central locking. It is operated by remote fob that locks and unlocks both the cabin of the truck and the large aluminium toolbox described immediately above.

The vehicle was fitted with fabricated external mounts for the storage of acetylene in the open air.

The fact of the explosion was reported pursuant to the *Coroners Act 1995*.

Investigations were carried out by crime scene examiners, bomb scene examiners, fire scene investigators, forensic officers and investigators from WorkSafe Tasmania.

The results of those comprehensive investigations satisfy me affirmatively that there are no suspicious circumstances associated with the explosion.

I am satisfied that electrical or mechanical defect did not play any role in the happening of the explosion.

What the investigation did reveal was that the explosion was the result of a leak of acetylene (an extremely flammable gas stored under pressure) from a cylinder that was lying on its side, unsecured, within a sealed toolbox compartment on the vehicle.

The leak was ignited by the arcing of the central locking mechanism within the left-hand door of the toolbox. The ignition of acetylene mixed with air within the confined toolbox caused a mechanical explosion as a result of the rapid expansion of gas and over pressurisation within the toolbox.

The damaged acetylene cylinder found underneath the truck showed evidence of sooting (a clear indication of it having been burnt) distortion and scrapes. It was empty.

## **Conclusion**

The evidence obtained as a result of the investigation satisfies me to the requisite legal standard that the explosion was a direct result of an acetylene cylinder leaking in a non-ventilated toolbox. The cylinder was only able to leak because it was inappropriately stored in the sense that it was lying on its side unsecured within the toolbox compartment. This allowed the cylinder's shut off valve to gradually work its way open and the contents to leak.

The vehicle which was the source of the explosion was supplied to Mr Rayner by Mr Campbell for use as a welder. Mr Campbell employed Mr Rayner. The cylinders were used as an ordinary part of carrying out welding.

The two men gave differing accounts to investigators as to the location of the oxygen, argon and acetylene cylinders. Mr Campbell said that the oxygen and acetylene cylinders were (or perhaps should have been) in the back of the truck in open air while the two argon cylinders should have been stored in the bottom of the enclosed toolbox.

In contrast, Mr Rayner said that one acetylene cylinder and two argon cylinders was stored in the enclosed toolbox, although as I have mentioned above the vehicle was fitted with external mounts where the acetylene cylinders should have been stored. The physical evidence located at the scene supports Mr Rayner's description of where the cylinders were actually stored on the truck.

In short, the storage of an acetylene cylinder, on its side, in an enclosed toolbox was, in my view, the direct and proximate cause of the explosion.

That should not have been allowed to occur. If the cylinder had been properly stored the explosion would not have occurred.

### **Comments and Recommendations**

All acetylene cylinders carry clear safety warnings which set out the precautions which need to be taken when transporting them. Those warnings – in the form of a “safety notice” – make it abundantly plain that ventilation is the key to reducing the risk of a fire or explosion when transporting flammable gas cylinders in any vehicle. They go on to recommend the use of an open vehicle for transportation and warn unambiguously against transportation or storage of flammable gas cylinders inside a vehicle unless it is specifically designed for that purpose.

Those warnings were on the cylinder which exploded.

None of the things suggested – ensuring ventilation and only transporting in an open vehicle – were done in this case.

I note that Luke Campbell Welding has conducted a review of storage and transport of all gases within the business, has reinforced proper procedures with its employees, and continues to reinforce proper procedures with its employees at weekly meetings.

The circumstances of the explosion are such as to require me to **comment**, pursuant to Section 45 of the *Coroners Act 1995*, that it is essential that acetylene gas cylinders are only stored and transported in accordance with supplier's recommendations.

I extend my appreciation to Tasmania Police, Tasmania Fire Service and WorkSafe Tasmania for their investigations and reports in relation to the explosion.

**Dated:** 5 February 2025 at Hobart, in the State of Tasmania.

**Simon Cooper**  
**Coroner**