

SOUTH



AUSTRALIA

FINDING OF INQUEST

An Inquest taken on behalf of our Sovereign Lady the Queen at Adelaide in the State of South Australia, on the 21st and 28th of August 2001, before Wayne Cromwell Chivell, a Coroner for the said State, concerning the death of Noel James Kerrison.

I, the said Coroner, find that, Noel James Kerrison aged 82 years, late of Unit 4, 14 Princes Street, Port Adelaide, South Australia, died at Port Adelaide on or about the 2nd day of June, 2000 as a result of carbon monoxide poisoning in a man with ischaemic heart disease due to coronary atherosclerosis. I find that the circumstances of the death were as follows:

1. Introduction

- 1.1. Noel James Kerrison was an 82 year-old man who died alone at Unit 4, 14 Princes Street, Port Adelaide. His nephew, Mr Warren Thomas, said that his uncle was in good health, apart from failing hearing and memory, and that he used to take him shopping once a fortnight (Exhibit C1a, p1). The last time Mr Thomas saw his uncle was on 31 May 2000.
- 1.2. At about 4.00pm on 8 June 2000, Mr Thomas received information via his mother that a man who lived next door to Mr Kerrison had not seen him for some time and that his letterbox was stacked up.
- 1.3. On driving to his uncle's flat, Mr Thomas used his set of keys to gain entrance and found his uncle's body on the bed. Clearly, he had been dead for some time.

1.4. Mr Darryl Williams, the man who lived next door, states that he last saw Mr Kerrison on Thursday, 1 June 2000 at about 9.30am.

1.5. An ambulance was called and Paramedic Julie Boysen formally pronounced Mr Kerrison's life extinct. Advance Life Support Officer, Natalie Zerk, who was with Ms Boysen, said that she noticed a strong smell of gas in the unit. She said:

'I went to the kitchen and found that the burners on the gas stove were all turned on full. There were four (4) burners on this stove. I am fairly certain that the gas was going although there was no flame alight. I turned off the gas on this stove. I do not think the oven gas was on though. The unit was closed up with no windows open in any of the rooms.'

(Exhibit C5a, p1)

1.6. Constable Mark Stewart Hilditch also noticed a 'very strong smell of gas' in the unit. The Metropolitan Fire Service was called, and used large fans to disperse the gas (Exhibit C6a, p1). There was no sign of forced entry, no evidence of suicide, and little of significant value in the unit.

1.7. Cause of Death

A post-mortem examination of the body of the deceased was performed by Dr J D Gilbert, Forensic Pathologist, at the Forensic Science Centre on 9 June 2000. Dr Gilbert's report is Exhibit C2a. Dr Gilbert diagnosed the cause of death as 'carbon monoxide poisoning, contributing factor: ischaemic heart disease due to coronary atherosclerosis. He commented:

'1. Death was due to carbon monoxide poisoning. Pre-existing ischaemic heart disease due to coronary atherosclerosis may have contributed to the death in the sense that it would predispose to death occurring at a lower level of carboxyhaemoglobin saturation that would prove fatal had it not been present. It is also the case that fatal carboxyhaemoglobin saturations tend to be lower in the elderly compared to younger, healthier individuals.

2. Analysis of a specimen of blood obtained at autopsy reportedly showed a carboxyhaemoglobin saturation of 66%. This is at first sight surprising because the police reported that the gas was running in the deceased's oven but the oven was unlit. Natural gas does not contain carbon monoxide unlike the coal gas that it has replaced. Carbon monoxide poisoning could therefore not occur unless the oven had been lit. It seems most likely that the oven was malfunctioning in some way (eg. a blocked flue and/or poor ventilation in the unit) causing incomplete combustion of the gas and thus production of carbon monoxide. Presumably at some point there was insufficient oxygen to sustain the flame and the oven went out.

A blood alcohol level of 0.66% was also noted. A blood alcohol level of this magnitude may simply have resulted from post mortem putrefaction but alcohol consumption prior to death cannot be excluded.

3. There were no injuries or other markings on the body to indicate the involvement of another person in the death.
4. The appearances of the body at autopsy were consistent with death occurring on or about 2/6/2000.⁷
(Exhibit C2a, p4)

2. **Safety Issues**

- 2.1 Mr Colin Tipper is a Professional Technical Officer who is employed in the Appliance Testing Laboratory at Origin Energy. He attended Mr Kerrison's flat with his Manager, Mr P McKay, and checked the stove, which was a Chef Consul upright gas cooker, manufacture in 1990. His report is Exhibit C7. He noted that the oven was fitted with a 'flame failure safety cut-out device', but that the four hotplate burners were not. The flue was not blocked, and the room was adequately ventilated.
- 2.2 Mr Tipper noted that the regulator outlet pressure for the stove was set to 0.7 kPa (this should have been 1.0 kPa), which dropped to 0.2 kPa when all four burners were on. This drop is a breach of Australian Standard 4551, which permits a maximum variation of +/- 20%, or +/- 0.2 kPa. The appliance outlet regulator should have been set at 1.0 kPa. To help avoid the large pressure drop, the main service regulator for the units should have been set at 1.2 – 1.15 kPa.
- 2.3 Mr Tipper explained that the smell of gas in the unit would only have occurred as the result of either the grillplate or one of the hotplate burners blowing out, since they were not protected by a flame failure safety cut-out device. As I have outlined, Ms Zerk found that all four burners were turned on full, but not alight.
- 2.4 He explained that the regulator outlet pressure dropped to 0.2 kPa when all four burners were on, which may have been insufficient to maintain a flame. He speculated that there may have been a 'flashback' to the gas injector tap, where a poor fuel/air mixture may have resulted in excessive production of carbon monoxide (Exhibit C7a, p5). He said that they were unable to reproduce this phenomenon on testing, but it seems the most likely explanation in the these circumstances. The explanation for the gas smell could possibly have been that once sufficient oxygen

was used up, the flame at the gas injection tap went out altogether, allowing natural gas into the flat.

2.5 Mr Tipper stated that the most important factor in producing this situation was the regulator, which, either because it was faulty or badly adjusted, allowed the pressure to drop so low when all the burners were turned on (Exhibit C7a, p11). He said that the best way to avoid this happening is to have a licensed gas fitter routinely check gas cookers every year or two to ensure that the regulator is operating correctly.

2.6 Another issue is that the hotplate burners on such cookers can be fitted with a 'flame failure safety cut-out' device as an optional extra. If this had been fitted to Mr Kerrison's cooker, this would have cut off the gas supply as soon as the 'flashback' occurred, thereby preventing excessive production of carbon monoxide. Mr Tipper told me that these devices are not expensive, costing in the region of \$150.00. In a subsequent letter, Mr Tipper explained that such devices are usually fitted to the more expensive 'upmarket' European upright cookers, and are 'only now being considered by domestic manufacturers'.

2.7 In summary, then:

- the appliance regulator was operating at only 0.7 kPa, when it should have been operating at 1.0 kPa. This was the result of either a faulty regulator and/or maladjustment;
- when four burners were turned on, there was an excessive drop to 0.2 kPa, again presumably due to a faulty regulator and/or a line blockage;
- the lack of gas velocity as a result of this low pressure probably allowed a flashback, which allowed excessive carbon monoxide emission to occur, which led to Mr Kerrison's death, and, incidentally, to the 'flame-out' at the cooker, thus allowing raw natural gas into the unit;
- Dr. Gilbert's comment that Mr Kerrison's ischaemic heart disease may have predisposed him to death occurring at lower than usual levels of carbon monoxide is also relevant;
- this death could have been prevented if the cooker had been inspected and tested regularly by a qualified gas fitter, who should have discovered the faulty regulator and inadequate pressure settings;
- alternatively, the fitting of a 'flame-failure safety cut-out' device to the stove might also have prevented Mr Kerrison's death.

3. Recommendations

3.1 The evidence in this case suggests that Mr Kerrison may have left the burners on his gas cooker on to keep warm, which is not an unusual occurrence in the winter months if other methods are unavailable or more expensive.

3.2 This case demonstrates, however, that this can lead to fatal consequences if the cooker is faulty and is not fitted with a flame-failure safety cut-out device.

3.3 Accordingly, I recommend that there be issued a public warning to users of gas cookers that:

- the cooker should be tested regularly by a qualified gas fitter;
- the fitting of a flame-failure safety cut-out device is recommended;
- using a gas cooker as a heating device is unsafe in that it not only constitutes a fire hazard, but can lead to death if the cooker is faulty.

Key Words: Carbon Monoxide Poisoning; Gas Cooker

In witness whereof the said Coroner has hereunto set and subscribed his hand and

Seal the 28th day of August, 2001.

.....
Coroner