

7 April 2005

Car explosion leads to prosecution against leading hydrocarbon promoter

The academic whose research work has been pivotal in the push for the use of hydrocarbon (flammable) refrigerants in vehicle air conditioning systems in Australia, Dr Ian MacLaine Cross, has been convicted in the Chief Industrial Magistrate's Court in Sydney as a result of a hydrocarbon demonstration that went wrong, injuring MacLaine Cross and several other observers from the hydrocarbon industry.

Workcover NSW had prosecuted Ian MacLaine Cross, of the University of New South Wales, on two breaches of the Dangerous Goods Act.

MacLaine Cross was charged that on 12 July 2001, in a University of New South Wales carpark at Kensington, he negligently and carelessly used a hydrocarbon gas, in such a manner and circumstance as to cause or to be likely to cause injury to himself.

On the second count, MacLaine Cross was charged with failing to take reasonable care for the health and safety of persons who were affected by his acts and omissions of work, in particular John Reynolds, Paul McGregor and Michael Belsted, who were all injured in the explosion which resulted from MacLaine Cross' demonstration.

MacLaine Cross pleaded guilty to both charges. On the first, Chief Magistrate Miller convicted MacLaine Cross and imposed a penalty whereby he entered into a bond to be of good behaviour for twelve months.

On the second charge, Chief Magistrate Miller exercised his discretion and did not record a conviction, on the defendant entering into a bond to be of good behaviour for twelve months.

He also allowed costs totalling \$5,720 against the defendant.

The court was told that, in his role as senior lecturer at the University School of Mechanical and Manufacturing Engineering, MacLaine Cross conducted an experiment involving the ignition, within a closed motor vehicle, of a hydrocarbon gas which was a mixture of propane, isobutane and air. The experiment was requested by Dr Michael Belsted, the managing director of a company described as Minus-Forty Pty Limited and was also part of the defendant's academic research activities with the University.

Workcover told the court that there were approximately 14 people associated with the relevant private sector industry who attended the demonstration as observers, at the invitation of the defendant and included among them were the injured persons.

While he was in the drivers seat of his own vehicle, with all doors and windows shut, MacLaine Cross discharged into the air two aerosol containers containing approximately 343 grams of the gas. The gas is an asphyxiant in a highly flammable gaseous substance and is classified as dangerous under the Dangerous goods Act.

MacLaine Cross then lit a match that ignited the gas and caused a burst of flame. The tops of the four passenger doors were bent outwards, part of the interior lining of the roof and doors were melted or softened and the passenger side front window fractured into hundreds of thousands of shards.

MacLaine Cross suffered first degree burns to his face and ears and second degree burns to the back of his hands. Belsted suffered first degree burns to his face, McGregor first degree burns to his face, cuts from the shards of glass and a graze to the cornea of one eye and Reynolds suffered first degree burns to his face and neck.

Another observer, Dieter Helf suffered a cut forehead and hand.

The court was told that Dr Michael Belsted, representing a company of professional refrigeration and air conditioning engineers, was preparing a presentation on refrigerants for his client's Chinese manufacturers and Greenpeace International. His clients were seeking information on a concentration of hydrocarbon refrigerant in the passenger cabin of a motor vehicle, which, if ignited, would cause no significant bodily injury or property damage.

Since 1994, MacLaine Cross has specialised in the area of the safe use of hydrocarbon refrigerants in cars.

He had conducted two similar experiments prior to 2001 and neither resulted in any personal injury or property damage.

The court was told that since the experiment in 2001, MacLaine Cross had not conducted any similar experiments and did not intend to do so in the future. He was planning to retire from the university and workforce in February 2005.

In his written judgement, Chief Industrial Magistrate G Miller said "There is the need for a general deterrence and to meet the community's concern at workplace incidents. This, in many respects, was described as probably a stupid incident when looking at the particular circumstances and hindsight, no doubt the defendant thought otherwise prior to the incident.

FOOTNOTE

The use of hydrocarbon refrigerant in vehicle air conditioning systems which are designed for the only OEM approved refrigerant R134a, is banned in several Australian states. Queensland had issued a Safety Alert on the use of hydrocarbons in this manner and sought a recall of vehicles which had been charged with hydrocarbon refrigerant.

The professional body of air conditioning service centres, wholesalers and OEMs in Australia and New Zealand, VASA (Vehicle Air Conditioning Specialists of Australasia) has been vocal in its opposition to the use of hydrocarbons in vehicles, based on safety issues. Other refrigerant authorities concerned with the use and disposal of refrigerant gas have also issued warnings against the use of hydrocarbons in mobile situations, or in systems not designed for hydrocarbons. Currently, no car manufacturer in the world will condone the use of hydrocarbon refrigerant in their vehicle air conditioning systems.