



**Structure Fire at
17 Hall Street, Yarraville
12th October 2007**

*A review of events and issues, including the injuries to
Leading Firefighter Richard Zapart*

1. Executive Summary

The fire which occurred at Yarraville on 12th October 2007 had devastating effects for the firefighter involved, with the serious injury and near loss of an MFB firefighter. The realisation of how easily the same thing could have happened to any member of the brigade gives all firefighters pause to think. The repercussions of this fire have been felt throughout the organisation. There are several ongoing issues which have arisen from this incident, or which have existed for some time prior to being highlighted by this fire and the events surrounding it.

1.1 Cause of the Fire

The fire was extremely unusual in that the ignition did not occur until the Brigade had been in attendance for some time. Crews were initially called to investigate fumes which the occupant thought may have been smoke. Commander Hunter of the Fire Investigation and Analysis Unit has furnished a report on the means of ignition of the fire and has made comment on several other relevant issues. The cause is recorded as being spontaneous heating, caused by an exothermic chemical reaction of components in a nitrocellulose-based lacquer product.

Commander Hunter's hypothesis about the cause of the fire is considered valid and his conclusions as to the means of ignition are supported by evidence. Commander Hunter also discusses several recent fires which have occurred in similar trades and occupancies, involving similar means of ignition. In every case, the ignition has been exacerbated by factors involving the storage and handling of the materials concerned, or the cleaning and maintenance of spray painting equipment and the premises generally.

1.2 Use of Personal Protective Equipment

An issue of concern was the degree of protection which LFF Zapart was afforded by the structural Personal Protective Clothing ensemble that he wore at the fire. Commander Hunter considers that the evidence indicates LFF Zapart was wearing the appropriate apparel in the correct manner at the time. The current PPC ensemble has been tested by CSIRO for its flammability and resistance to heat. A report, which details and analyses the results of the tests, has been received and informed the findings in this report.

It is evident from Commander Hunter's report that the visor on the helmet worn by LFF Zapart melted and the molten material blocked the exhalation valve of his Self Contained Breathing Apparatus (SCBA) set. This caused LFF Zapart to experience breathing difficulties and there is strong evidence to suggest this was a significant factor in LFF Zapart suffering respiratory tract burns. The SCBA continued to provide breathable air after having suffered significant heat damage.

The issue of appropriate footwear for use in emergency response situations also arose. LFF Zapart chose to wear chemical resistant rubber boots. Given that he was responding to a situation where chemical fumes were evident and the cause was not known, this was an appropriate choice.

1.3 Other Equipment

The personal radio carried by LFF Zapart was extensively damaged by heat. However, testing of the radio after the fire proved that it was still functional. It would not have been anticipated that the radio would withstand the evident degree of applied heat.

1.4 Training

Training programs and materials are subject to a process of regular internal review. This will continue in the light of learnings from this particular event, as well as other fires and incidents which occur over time. Current training addresses the issues raised and provides a system of safe work practices.

Review of the firefighting operation suggests that such work practices, as well as appropriate procedures, were followed. However, in the spirit of promoting continuous improvement, the training curriculum should include nitrocellulose-based products as a specific risk, based on their apparent widespread use in numerous small-scale enterprises. This fire would make a valuable case study for recruits on several levels, relating to the unpredictability and inherent danger of firefighting, the importance of wearing appropriate PPE correctly and the life-saving value of following training and procedures.

1.5 Actions of Other Firefighters at the Fire

A positive feature of the operation was the skill, confidence and certainty of the firefighters in rescuing and reviving LFF Zapart. The courage and devotion of the firefighters in rescuing their workmate, is worthy of special mention and acknowledgement. Similarly, the efforts to revive LFF Zapart are worthy of note.

1.6 Concerns Regarding the Use of Applied Lacquers

Other major considerations for the Brigade – and also for the community and industry – surround the use of applied lacquers. It is an issue for industry in general, but specifically for the furniture manufacturing industry, where spray painting applications are generally used.

The Brigade commissioned the CSIRO to research the use of nitrocellulose based lacquers in the furniture industry and the known hazards associated with that use. The research indicated that, while nitrocellulose based lacquers were to be considered extremely hazardous, there has been a significant reduction in use in recent years. This view may not be supported by clear evidence, as nitrocellulose lacquers are still widely used.

CSIRO reports that the major hazard presented by lacquers of all types is the solvents which are components of the lacquer. The major component of most modern lacquers is the solvent Methyl Ethyl Ketone (MEK). The hazards which it provides are compounded by inappropriate storage and handling practice. The MFESB would not disagree with this view of the dangers which have always been presented by such solvents.

However, there is a broader issue in question. The continuing use of these products, combined with apparent changes in the furniture manufacturing industry, means that there is risk of a similar occurrence in the future.