bushfire CRC

M E D I A R E L E A S E

17 MAY 2007

Managing exposure to bushfire smoke

As bushfires burn throughout Australia virtually all year round, the role of the firefighter remains a difficult one. With an ever expanding rural-urban interface, firefighters are often involved in protecting property and apart from the intense heat and physical demands, firefighters may also be exposed to bushfire smoke that contains a cocktail of volatile compounds.

Research by Annemarie De Vos from the Bushfire Cooperative Research Centre has found that the types of face masks available for those at the fire-front vary greatly in their ability to shield the firefighter from particulate matter and the gases present in bushfire smoke.

The research, conducted with the Fire and Emergency Services Authority (FESA) of Western Australia, assessed the effectiveness of a range of protective respiratory filters worn by firefighters who are required to remain in smoke logged conditions while protecting properties from fire. This study has resulted in FESA endorsing the use of a type of filter (a particulate/organic vapour/formaldehyde filter) for its career firefighters.

There is evidence that the presence of toxic compounds in bushfire smoke may pose occupational risks for firefighters. In particular, acute and chronic lung function impairment after exposure to bushfire smoke has been documented in the United States and Europe.

This study involved controlled exposure trials in a smoke chamber for up to 15 minutes, followed by trials in the field during fuel reduction burns for up to two hours. A total of 131 FESA career firefighters participated in the trials – 37 wore particulate filters (P2), 50 particulate/organic vapour filters and 44 particulate/organic vapour/formaldehyde filters. Lung function and respiratory health symptoms were assessed by a questionnaire, lung function test and oxygen measurements. Personal air sampling was also conducted inside the masks.

Withdrawing from smoke conditions is always the best action but when firefighters cannot withdraw and need to remain in bushfire smoke to protect structures Annmarie's research showed that the particulate/organic vapour/formaldehyde filter was found to allow firefighters to work with a higher degree of comfort in smoke logged conditions.

Further research is now needed to determine the effectiveness of the filters over longer periods, such as a longer working shift or even for a full bushfire season. Annemarie's study is part of a group of Bushfire CRC projects looking at the overall health and safety aspects of fighting bushfires.

Annemarie is conducting her Bushfire CRC research at the School of Population Health at the University of Western Australia.

The Bushfire CRC was established in 2003 to improve understanding of the complex social, economic and environmental aspects of bushfires. Its partners include fire and land management agencies across Australia and New Zealand, universities, and government agencies including the CSIRO, Emergency Management Australia and the Australian Bureau of Meteorology.

Annemarie De Vos will present her research at the Cooperative Research Centres Association Annual Conference at the Perth Convention Centre, 16-18 May.

For further information contact David Bruce, Communications Manager, Bushfire CRC, 03 9412 9606 or 0414 223 281.

Bushfire Cooperative Research Centre
Level 5 / 340 Albert Street, East Melbourne, Victoria 3003
Phone: 03 9412 9600 www.bushfirecrc.com