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bushfire CRC

FIRE UPDATE

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A PRACTICAL GUIDE FOR SMOKE TOXICS ASSESSMENT

During bushfires and prescribed burns fire fighters are potentially exposed to toxic air contaminants emitted from the combustion of natural forest fuels. This places a significant Occupational Health & Safety (OHS) responsibility on fire agencies on how to manage their operations to comply with OHS regulations. Currently, in Australia the risks associated with exposure to bushfire smoke are not well quantified.

A practical guide documenting exposure levels and the major factors influencing exposure risks would greatly assist fire agencies in managing smoke exposure on the fire ground. Recognising situations of high exposure risks will help to improve fire fighter health and safety and increase their protection against adverse health effects.

The Bushfire CRC project D2.2 on 'Air Toxics Exposure and Management' is developing a practical guide that will assist agencies to address the OHS issue for the bushfire fire fighting work environment, the likely exposure risks and suggest a range of practical strategies to reduce these risks.

▲ **ABOVE:** HIGH, MEDIUM AND LOW SMOKE EXPOSURE ON THE FIRE GROUND.

THE PROPOSED CONTENTS OF THE TOOLKIT

1. Background relevance of OHS Guidelines and Standards

Workplace exposure standards are covered by the Australian Safety and Compensation Council (ASCC) and are considered important to help assess whether exposures are potentially causing a health risk and whether controls need to be implemented to mitigate that risk. The toolkit will refer to the standards to enable the establishing of a work code relevant to the bushfire fighting environment in Australia.

2. Health effects

This section will provide a review on the current knowledge on the health effects for major air toxics emitted from bushfires and discuss the vulnerability of populations to air toxics.

3. Exposure assessment

This section will provide a brief overview of the major findings from the field monitoring program including discussion of major emission drivers (fuel characteristics, burn conditions) and exposure determinants (work tasks, proximity to urban interface). This will provide end users with the basis for assessing exposure risks.

The toolkit will show how to use the information to assess smoke exposure risks on the fire ground and how to identify high exposure situations without monitoring devices. An example would be the use of visual aids to assess smoke exposure risks.

4. Control Strategies

Smoke exposure on the fire ground may be managed by administrative controls such as frequent rotations among crews, smoke hazard awareness training and minimizing time in dense smoke. Devices to assist, monitor or reduce risk will be included; briefly referring the reader to the relevant research.

MORE ABOUT THE PROJECT

End-user involvement

The development of the toolkit needs a strong end-user involvement to ensure that the guide is valuable to fire and land management agencies. An advisory group has been set up to help in the product development.

Target audience

The toolkit is targeted towards personnel involved in fire management on and off the fire ground, including fire fighters, incident managers and OHS staff. In addition a shorter document will be provided for use on the fire ground. It will showcase specific examples of high exposure risk situations, including pictures, exposure levels and potential control strategies.

Time frame for toolkit development

December 2008	1st draft of toolkit
June 2009	2nd draft
December 2009	3rd and final version

Further information

If you are interested in the development of the toolkit and would like further information, please contact Fabienne Reisen (Fabienne.Reisen@csiro.au) or Mick Meyer (Mick.Meyer@csiro.au).

Refer to http://www.bushfirecrc.com/research/d22/d222.html for more information.

Further reading

Reisen, F. and Meyer, C.P. (2008) Practical guide to assist in the management of smoke exposure on the fire ground. The International Bushfire Research Conference incorporating the 15th AFAC Conference 2008, Adelaide, South Australia, September 2008.

Reisen, F., Hansen, D., Meyer, C.P. (2007) Assessing firefighters' exposure to air toxics in bushfire smoke. AFAC/Bushfire CRC Annual Conference 2007, Hobart, Tasmania, September 2007.

Reisen, F. and Brown, S.K. (in press). Australian firefighters' exposure to air toxics during bushfire burns of autumn 2005 and 2006. Environment International, doi: 10.1016/j.envint.2008.08.011