



1 May 2003

Mr Gary Nairn MP  
Committee Secretary  
House Select Committee on the recent Australian bushfires  
Department of the House of Representatives  
Parliament House  
Canberra ACT 2600

Dear Mr Nairn

### **House Select Committee on the recent Australian bushfires**

This submission addresses the following Terms of Reference set for this Inquiry.

- (e) any alternative or developmental bushfire mitigation and prevention approaches, and the appropriate direction of research into bushfire mitigation;
- (f) the appropriateness of existing planning and building codes, particularly with respect to urban design and land use planning, in protecting life and property from bushfires;

#### **Water Additive Fire Retardants**

During bushfires, water resources are obviously crucial. Rural Fire Service tankers have a critical need to be able to maximise the use of their water capacity, as re-supply can be difficult and is often time-consuming.

Helicopters carrying 'bambi' buckets are similarly affected in that their relatively small loads require continual topping up. Water dropped from these buckets, whilst extremely effective, must be dropped precisely for maximum effect.

An answer to these problems is the opportunity to 'extend' the value of the water resource being used. Current 'extenders' under examination, such as foam, are usually environmentally unfriendly and in some cases leave toxic residues that could end up in catchment water courses, standing water and in the water table over time. For this reason, 'extenders' using foams can only be used where the helicopter supply point is using non-potable, contained water.

An Australian laboratory has developed a polymer-based, non-toxic, environmentally-friendly water 'extender' that is capable of improving the effectiveness of water in terms of its 'knockdown ability' on a fire by up to five times. At a mixture ratio of far less than 1%, it is able to soak up the fire much more effectively than water alone. This would act as a 'force extender', giving each appliance the fire attack capability of from 2 to 5 appliances using water alone.

This technology could significantly improve the effectiveness of helicopter-borne and rural tanker-supplied water in a fire situation. In the helicopter situation, the environmental-friendliness of this polymer product allows use of all types of water supply points. There are other applications of this technology over time in terms of overall fire mitigation, for example, in

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setting up control lines and in greater safety in backburns and control burns. This technology could also be adapted for use in external water sprinkler systems.

### **Residential External Water Sprinkler Systems**

External Water Sprinkler Systems have been described in various Rural Fire fighting publications and are generally installed by irrigators, plumbers and by householders themselves.

An EWSS should be (but is often not) designed to provide an envelope of water to the roof, external windows, openings and surrounding grounds ensure wet-down and a water barrier to ember attack. An ember attack is eight times more likely to ignite a house than either radiant heat or direct flame.

The Fire Protection Association of Australia in its Report entitled 'External Water Spray Systems to Aid Building Protection from Wildfire' (July 2000) highlighted the essential elements of an effective system. In summary, these are:

- metal (copper or galvanised) piping,
- sprinklers that ensure heavy droplets of water are sprayed directly onto the roof and other surfaces to minimise the effect of strong winds blowing these droplets away,
- sprinkler sprayers positioned to protect windows and openings,
- impact sprinklers (where the static water supply is sufficient) aimed at grounds of the property, and in some cases the walls of timber buildings, to ensure that embers and radiant heat do not get the opportunity to ignite a fire that results in the loss of the household,
- because of the likelihood that reticulated water supplies can be interrupted during a bushfire episode, an effective EWSS uses its own Static Water Supply (SWS). In urban areas, an SWS is either a swimming pool and/or metal water tank, and in rural areas can also be permanent dams and streams,
- because of the likelihood that electricity supplies can be interrupted, an EWSS requires its own dedicated, stand-alone water pump, and that
- the system be hydraulically designed to maximise the availability over time of an effective water envelope, bearing in mind the capacity of the SWS.

The installation and use of an EWSS has a strong positive influence within a local community in that attending fire services can concentrate resources on significant threats to unprotected properties and that as an SWS is being used, there is no drain on community water resources. These systems may continue to protect a property even if the householder is forced to evacuate.

External Water Sprinkler Systems do not have a current Australian Standard. Thus it is difficult for consent authorities to specify them as part of improved urban design standards. There are serious difficulties (but not overwhelming) in creating standards for this aspect of fire protection. The questions of set back, slope, vegetation, wind and weather, for instance, are hard to quantify. Aqua Fire Protection has placed our interest in the development of standards on the register being developed as part of the charter of the new Bush Fire Co-operative Research Centre (CRC), an initiative of the Federal government through the AFAC Council, where the Community Safety Section will have a Special Project Working Party looking at, amongst other things, home sprinklers.

We suggest that the House Select Committee incorporate some of the work of AFAC in this regard, as the development of standards will dramatically improve fire services and councils' ability to recommend installation of EWSS to a minimum performance standard, thus reducing householders' exposure to bushfires throughout the country.

Aqua Fire Protection Pty Ltd has designed and is marketing Aqua FireShield, a engineer-designed EWSS, the design of which takes into account community and consent authorities' concerns in this area. Uniquely, householders installing the Aqua FireShield system are provided with Proban-treated overalls, gloves and goggles, fire services-compliant fittings to the pump, a NSW RFS-compliant fire fighting hose for spot fires outside of immediate area of the envelope of water supplied by the EWSS and the provision of a street-visible, reflective EWSS sign to be placed next to the SWS sign currently being provided by the NSW Rural Fire Service and the NSW Fire Brigades. These signs alert the fire services to the availability of water for the tankers and the installation of an EWSS.

We look forward to your influence on the creation of standards in these areas, as part of your overall response to the mitigation of the effects of bushfire throughout Australia.

Yours faithfully



Phil Baker  
Chief Executive Officer

Attachments:

Aqua FireShield Brochure  
Aqua FireShield Detailed Guide  
Aqua FireShield Operations Illustration