

From:
To:
Subject: perth hills bushfire review
Date: Sunday, 10 April 2011 6:26:39 PM

Some thoughts regarding the recent fire in Roleystone/Kelmscott:

a. Total Fire Ban days:

i) How do we know when a total fire ban is in place?

Could it perhaps be added to the TV weather reports. I know they announce High Fire Danger, but is this the same thing?

ii) I think we could do with an advertising/education campaign about what Total Fire Bans encompass.

People don't seem to be aware that it includes such things as welding and 2-stroke motorbikes any more.

Just a clear and simple reminder would be effective.

b. Verge and Garden clearing:

i) Can the Armadale council make more of an effort to trim verges? It would be helpful just for walking in some streets in Roley.

ii) Can the Armadale council be a bit less touchy about people clearing growth on their own properties? We do love our trees, but we are primarily a place for human habitation!

iii) Home-owners should also make more effort to reduce the fire dangers on their properties.

Making Greenwaste Disposal free would go a long way towards getting people 'to do the right thing'. Darwin/Palmerston has free access to tips, and people really make the most of it so that they are prepared for the cyclone season.

Even just more Tip Passes with the rates would help. The tip staff are working anyway, so what difference does more tipping make?

c. Prescribed Burning:

i) I think there should be a lot more controlled burn-offs during the year. They can be relatively small but make a gradual 'patchwork' of fuel reduced areas.

I can't believe that a few smoky days in Perth is too much for people to handle, for the sake of safety in general.

Thanks,
Mel Thomas

Submission From: Tom Heath

Date: 11 April 2011

Background

I own a property in Kelmscott which was within the area affected by the bushfires. The following is a summary of some of my observations.

I attended a Kelmscott Bushfire Action Group meeting, which was locally organised to provide information to residents living in the hills and had listened to some presentations and videos on bushfires from the various government departments, stay and go policy and what to do in the event of a bushfire. At this meeting contact lists were established, with the idea that if there was a fire, the people on the list could be contacted so they could implement their action plan.

On the day of the fire, I was notified of its existence by relatives (no. 11 Bromfield Drive) who saw smoke and heard explosions (presumably from the gas bottles). I drove down to their house to investigate (1km / 2 minutes away), and by the time I had arrived the fire was approaching up the windward side of the hill, with large plume of smoke developing. At this point my wife, pets and children evacuated the area, this took about 10 minutes. I then went back to house at No. 11 Bromfield to help with the fire fighting as house was under immediate threat.

General Observations

The afternoon and well into the evening was spent fighting the fire. At no point did I feel at risk by the approaching fire and it is interesting to note that the points raised in the promotional material, viewed over the preceding years (what to do in a bushfire videos) were readily apparent.

- 1) The water pressure can be expected to drop significantly or water supply stop altogether. - This is exactly what happened, and was not unexpected, the pressure dropped to a dribble then after a few hours stopped all together. It was not until much later that evening, close to midnight that water came back on. While we still had pressure we filled some rubbish bins which was one recommendation from the video.
- 2) It is good idea to have own water supply. - Fortunately my father in law had a pool, unfortunately it was empty.
- 3) There will not be a fire appliance available to protect every property. – This was the case here for this fire, the resources were stretched, the fire out of control.
- 4) Power supply may be interrupted. – This was the case, the power failed and did not come back on for several days.
- 5) You may get little or no warning. – Not until some hours later did the SMS arrive, but it was already obvious that the suburb was on fire.
- 6) Spot fires will occur around your house and you go around and put them out with buckets of water. - This was what happened, and if we were not there to prevent the spread of spot fires, they would have surely progressed and inundated the house.

Some observations:-

- 1) While there were some people at the house across the road assisting with the fire fighting with buckets, trying to put out the fire. There were very many people standing around watching, it appeared that they did not know what to do (ie: put out the fire). Soon after many more people left, evacuated and the police blocked the road.
- 2) There were people that just left straight away, even though it appeared their house would be easy to save (no trees surrounding property etc), they appeared uncomfortable with the situation. Some of them afterwards said they should have stayed. So there was plenty of indecision.
- 3) Some people left initially then returned once the fire front had passed, the fire still burning but clearly under control or easy to manage, and they left again, why? They did not stay to damp everything down make sure that the fire didn't slowly creep up to their house, burn their house down.
- 4) There had been a yellow pages delivery some days earlier, at one point burning yellow pages came up Nookawarra PI at ~30km/hr, clearly a fire hazard. Recommend that yellow pages are not delivered to street verges during fire season, people leave them there, they burn and pages separate from the spine cause a problem.

Conclusion

There is a single point that I would like to make as a conclusion of my observations during the fighting of this fire and that is that passive fire protection is the most important factor to minimise risk house fire. The reason is partly due to the points raised above, no fire appliance, no water, no power, no warning, lack of preparation, fires will start (it happens every year) – all these things are to be expected. There is also a greater than 50% chance of not being home when there is a fire, so if your house does not have a sufficient level of passive protection, there is a good chance it will be lost in a fire event.

There are some barriers to being able to implement good passive protection measures. Bordering my house at (and about a dozen other houses up the hill) there is a dense forest of pine trees (20 to 30 years old - 30m high, ~60m wide), up against the boundary of the residential properties. The forest renders my property impossible to save in the event of a fire. It has been confirmed by the council that under the bushfires act, there is no requirement for the rural landowner to clear this forest for fire protection purposes or provide a barrier between the trees and the residential properties. Why is it the case that other matters (marginal commercial value of some trees) take precedence over fire protection measures (life and property)?

General information on passive fire protection methods are available (brochures from fire dept.). Why is the newly developed Australian Standard not freely available? Detailed information and specifications for fire protection methods, specifications, procedures should be available to home owners.

In terms of the asbestos in most of the houses that have burnt down. What measures are in place to minimise the risk to residents? The dust from the houses has been blowing across the suburb for weeks.

SUBMISSION TO STATE GOVERNMENT PERTH HILLS BUSHFIRE 2011
REVIEW BY MICHAEL ROY SMITH

Introduction

I will briefly outline my experience and qualifications. They are:

1. 20 years service with the Australian Army. Most of which was spent in Special Forces units.
2. Qualified and current fixed wing pilot.
3. I have operated with many fixed and rotary wing aircraft by day and night, both civil and military in Australia and overseas (USA, Malaysia and Iraq).
4. Captain of a Volunteer Fire and Rescue Brigade.

Main Body

My brigade and I were tasked to go to the Red Hill fire. The points I would like to bring out are:

Handheld Radio Batteries

There are currently no facilities to charge handheld VHF/UHF radio batteries. We were losing radio comms due to flat batteries. Handheld radios are used a lot when OIC'S dismount to carry out building/fire assessments and direct their appliances. No in vehicle chargers are fitted.

Command and Control

Other Agencies

My brigade appliances were prevented a fire reaching a house on Campersic Rd, when DEC firefighters came up to me and asked what they could do I gave them instructions to attack the fire from the flank. They then drove to Campersic Rd and stopped on the roadside and took no action, they watched the fire go past their position and jump the road.

We need to have protocols in place for inter agency command and control.

Sector Size

This was a 1200ha fire and the sectors were too large for effective command and control. What helped the situation was everyone was listening to the radio for situational awareness and helping out when the situation called for it.

Aviation

The support was good during the day. We were at a house on Range Rd that was under direct attack and I called a Heli Tac in and it suppressed the fire enough so we could save the premises. It was a good effort by the pilots in trying flying conditions (fixed wing were unable to get airborne due to the high winds).

ADF Aviation Support

There was none. As I wrote in my submission to the 2009 Victorian Bushfire Royal Commission “ It has been my observation over the years that State Governments ask for ADF assistance too late and in insufficient amounts of resources.

ADF Aircraft. I would like to see "quick fit" fire bombing retardant kits for C130 Hercules, P3 Orion, CH47 Chinook and S70 Blackhawk (and it's replacement). Some of these aircraft are fitted with a verity of night vision equipment and can undertake operations at night and in smoke. All these aircraft have good load carrying capabilities. These aircraft should be prepositioned in times of serious threat.”

The 2009 VBRC has listed this issue as Recommendation 21. It states ” The State, in conjunction with Emergency Management Australia and the Department of Defence, develop an agreement that allows Commonwealth aerial resources that are suitable for fire fighting and support activities to be incorporated in preparedness plans and used on days of high fire risk.”

I do not know the current status of this recommendation.

Civil registered aircraft have been given approval to operate at night with night vision equipment in fire fighting operations. In Australia they are only used for intelligence gathering, rather than offensive fire fighting operations. I know in the USA they are using aircraft in retardant bombing. I know there are additional risk management and cost issues with this, but during a serious fire situation you need all the resources night and day.

Summary

I would like to thank all the Career and Volunteer Staff for their efforts, this prevented a potential catastrophe, and that the recommendations from this review and the 2009 VBRC be implemented in a full and timely manner.

For Your Consideration

Mike Smith
Captain

Dianne Bateman

Perth Hills Bushfire Review
197 St Georges Tce.
Perth WA 6000



Re Review

The local member, Dr Toni Buti MLA, has indicated that local residents with concerns may express them by making a submission for this review.

There are currently three adults and one dog living in this residence and all of us were affected in different ways by the fire. Two of us have lived here for 25 years and have therefore seen a couple of fires burn the hills. On one previous occasion, having been in Rockingham when the fire started, I was returning to my house via the Brookton highway. A very aggressive Police Officer told me that I could not turn onto Buckingham Road - and he threatened to arrest me if I tried. I turned my vehicle around and went back to the Albany highway and entered from that end of the street. That fire was not as fast or dangerous as the most recent one, but this serves to high light a situation which simply adds to the stress and distress associated with such events.

On the day of the most recent fire I was on the computer talking to my daughter in Canada. My son was here as well and Steve was visiting his son in Mandurah. We were not notified of the danger but knew that there was a problem as I recognised the noise of the beams of a house exploding. The water bombers flying over the house also gave it away. My son went out the front to check what was happening and a police car drove down the street and the officer said to leave the house as the fire was advancing.

We packed the essentials and the dog and took two cars to Rushton park – then the officers who were at the round about refused to let either of us back to the house to collect the third car. We received a message some hours after we had left. The FESA site was not broadcasting any up to date information. At one stage in the evening we were told to leave the oval – and most vehicles went to the local shopping centre. IGA and other businesses and locals put on BBQ's and gave away water but there was a complete lack of information.

We at least had the dog, but that restricted where we could stay. I do not have any family here and my closest friend already has pets. The officers who were limiting access were generally very nice but lacked any information about the fire. I also believe that being prevented from returning for 48 hours was excessive. Our property was structurally fine and at least if we had been there (or been allowed to return the next day) we could have showered. Having gone through Cyclone Tracy in 1974 and Cyclone John in 86 and Max in the North of the state in 2004, I do know that we are quite resilient and the loss of electricity can be born for a considerable period.

On the positive side the power was restored very quickly – given the extent of the damage. The local services were brilliant as were the emergency services in containing the blaze.

There were people who had moved into Kelmscott since the last fire and I believe that it would be easy for the council to send out a 'be prepared for fires' notice at the time that they send out the rates notices each year. Alternatively they could do a letterbox drop at that time as that would capture all homes in the area rather than just the ones that are owner occupied. There should also be information on the fact that you can choose to stay, and what you need in the way of batteries, leaving evaporative air conditioners off and so on, or if you are leaving and taking pets – take food for them and a bowl etc. The practicalities of moving quickly.

I would also suggest that there are regular say ½ hourly updates to Police or emergency services who are tasked with maintaining order as they are the people that we all went to for information. There are not computers readily available but the radio stations gave lots of good useful information. Most of us have a car radio, so this is the best method of reaching the most people.

In this fire as well the meeting point was not well thought out as people without vehicles found it very difficult to get there as did those who lived in Roleystone. Those of us who did not make it to the briefings for one reason or another, were not given any additional information by phone.

I further believe that if people wish to return to their homes they should be allowed to – even if they have to sign an indemnity form or something similar to say that they were aware of the dangers.

Martial law was not declared so I do not believe that anyone has the right to refuse us entry to our homes – particularly if we knew that it was still standing.

I regularly walked around the Brookton highway and the loss of the bridge has prevented that. Again our council has not kept us informed of what is happening in relation to the rebuilding and I am sure that local businesses and those that travel this road regularly would like an update.

That is all that I wish to say at this time

Yours sincerely



Dianne

From:
To:
Cc:
Subject: Perth Hills Bushfires Review - Submission
Date: Tuesday, 12 April 2011 12:41:22 PM
Attachments: [Perth Hills Bushfires 2011 Review - Submission v1.pdf](#)

For the Attention of Mr. Mick Keelty APM

Dear Mr. Keelty,

My name is Sean Groombridge and I am the CEO of Sentinel Alert Pty Ltd.

Please see attached a submission to your Review.

I would appreciate your acknowledgement of its receipt.

Should you require further information or clarification please do not hesitate to contact me.

Kind regards

Sean Groombridge
Director and CEO

SENTINEL ALERT Pty Ltd



*Mr Mick Keelty APM
Perth Hills Bushfire Review*

12th April 2011

By e-mail to

Sentinel Alert – An Intelligent Public Warning System

Dear Mr Keelty,

Please accept this document as a submission to your review.

The focus of this submission is the provision of warnings to those in harm's way and in particular to add to your collection of knowledge concerning the criteria appertaining to the terms of reference of your review in particular:

- The adequacy and effectiveness of information and communication campaigns and mechanisms, including systems for alerting residents in relation to the fire or potential fires.

The company making this submission, Sentinel Alert Pty Ltd was specifically formed to advocate an intelligent public warning system that it has developed and patented to promote the notion that with its use, more lives could be saved in times of local, state or national danger.

The Sentinel Alert system has been presented and demonstrated to FESA at both a regional and headquarters level. It has received in principle support from the chief executive.

In the context of the Perth Hills fires, had the Sentinel Alert system been available, local on-scene incident controllers could have immediately issued an initial alert to every household they thought potentially to be at risk.

Key attributes that Sentinel Alert would have provided are:

- Every household with a Sentinel Alert unit in a zone or zones determined by the on-scene incident controller would have received the initial alert within a couple of minutes of it being initiated by the incident controller. No privacy issues or access to user databases are prerequisites to use Sentinel Alert;
- The level of alert issued and associated information could have been continuously updated and passed to householders as the situation developed and more information became available;
- Different levels of alert, based on geographical co-ordinates could have simultaneously existed and have been concurrently issued / updated throughout the incident;

- FESA head office, local command centres, police and other first responders would have all been automatically and continuously updated with the messages being sent by the on-scene command. More centralised control of warnings being issued could have been implemented at any stage during the incident.

Sentinel Alert Pty Ltd consists of a team of highly experienced Australian communication and electronics engineers who have examined the adequacy of existing warning systems and have built what we believe to be a viable, dynamic, flexible and affordable tool to assist authorities to provide warnings of varying degrees of severity that are fast, accurate and easily updated.

As an indication of the expertise within the Sentinel partner companies, I mention here that Fastwave Communications Pty Ltd who provided the design and equipment for the satellite backbone of the Sentinel system, was recently announced as the winner of the West Australian Information Technology and Telecommunications Industry infrastructure award. (see www.waitta.asn.au) for its Ocean Star system.

A Proof of Concept site for Sentinel Alert has been established in Dunsborough in the south west of Western Australia. A second site in Jalbarragup also in the south west of WA will commence operation in April 2011 thanks to funding from the South West Development Commission. These sites are available for demonstration.

Our purpose here is to bring to the attention of your review our view that a superior public warning system could be made available to authorities and the community across the state and indeed across the country at a modest cost and within a short time frame.

Genesis

The idea for Sentinel Alert was born when one of our team, Ray Datodi, who lives in the fire-prone area of Yallingup in WA was alerted to a fire in his neighbourhood, not by a designated warning system but by the sound of water bombing aircraft flying low over his property and attacking a bushfire only a few hundred metres from his property.

Community meetings held after that fire quickly showed Mr Datodi that his experience was not an isolated one and clearly there was a significant gap in the tools available to authorities to accurately warn residents in a timely manner.

A member of the Sentinel design team is also a current active volunteer in the fire and rescue service and his experience together with contributions from other local volunteers, professional fire fighters and shire fire management officers has been instrumental in the development of a functional system

A key criterion in the Sentinel Alert approach to warning systems is that the design commenced with essentially a blank piece of paper. This is in sharp contrast to many existing warning systems where the design criteria has been more "How can we use "X" existing system to provide "Y" functionality" almost always then giving a sub-optimal result because of inherent limiting factors in adapting existing systems to a function that they were never designed for.

For example in the 2009 Black Saturday fires in Victoria over 2 million SMS messages were sent by authorities but these took several hours to actually send (2009 Victorian Bushfires Royal Commission, Interim Report, Page 153 Ref 4.251).

This for a single message – how on earth do authorities then update that warning so it is received in a timely manner ?
SMS is an efficient social and business networking tool – it was never conceived as a mass warning system.

Sentinel Alert design criteria

- Capable of delivering warnings to large or small communities
- Capable of accurately targeting houses and properties that are under threat
- Capable of delivering messages to large or small number of properties simultaneously and within minutes of initiation by a responsible officer
- Capable of being activated and controlled at a local level and at the same time able to be layered so state or even national warnings can be broadcast
- Able to cover every property, anywhere without “dead spots”
- Able to act as an “Early Warning” system not just a “Warning of Last Resort”
- Free of conventional ground based communications infrastructure
- Not subject to congestion at times of crisis or high demand
- Not Network or Carrier specific
- Able to offer high levels of system redundancy
- Able to provide different levels of alert or alarm simultaneously to different areas
- Able to warn users who may be away from their property – eg in vehicles / tractors
- Able to cater for tourists staying in or touring a region
- Able to provide specific text information relevant to the particular threat to each property
- Able to provide easily updated information as a situation develops
- National coverage
- Simple to deploy
- Suitable to warn disabled people
- Simple to administer
- Simple to operate
- Able to co-exist with other warning systems
- Able to accept inputs from Fire detection systems – eg Landgate imaging and prediction models
- Secure - with trusted, credible advice from an authoritative source
- Economical for end users and for Authorities

How Sentinel Alert Compares

CRITERIA	Sentinel Alert	State Alert	Fixed Line
Capable of delivering warnings to large or small communities			
Capable of accurately targeting houses and properties that are under threat			
Capable of delivering messages to large or small number of properties simultaneously and within minutes of initiation by a responsible officer			
Capable of being activated and controlled at a local level and at the same time able to be layered so state or even national warnings can be broadcast			
Able to cover every property, anywhere without "dead spots"			
Able to act as an "Early Warning" system not just a "Warning of Last Resort"			
Free of conventional ground based communications infrastructure			
Not subject to congestion at times of crisis or high demand			
Not network or carrier specific			
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National coverage			
Simple to deploy			
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Able to accept inputs from Fire detection systems – eg Landgate imaging and prediction models			
Secure - with trusted, credible advice from an authoritative source			
Economical for end users and For Authorities			

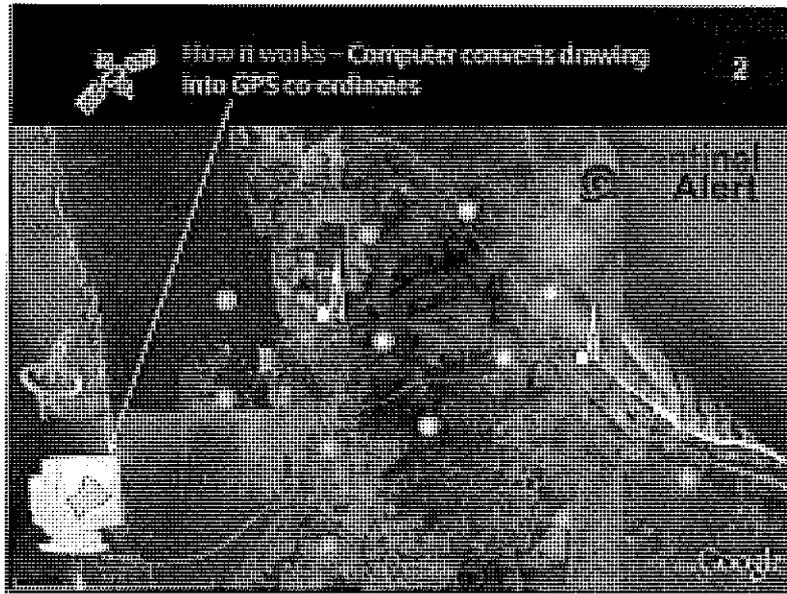
LEGEND *COMPLIES* *DOES NOT COMPLY*

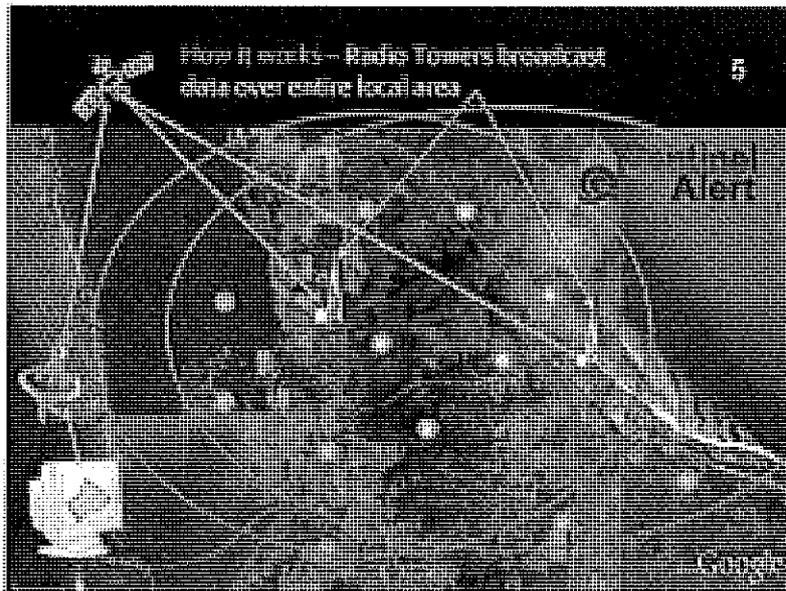
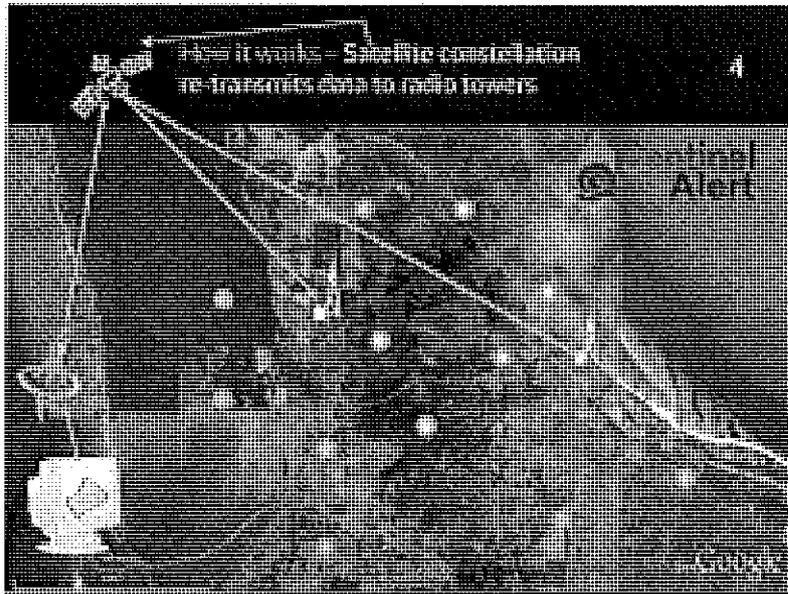


How Sentinel Alert Works

In understanding this sequence, it is important to note that satellite transmissions to the radio towers are made using a short burst of data. This message is sent only once (providing the tower acknowledges its receipt) to each tower. The tower then continuously rebroadcasts that message (free to air) until it is updated. One tower can cover up to 8000 square kilometres and hundreds or even thousands of properties. A single satellite message sent to a tower initiates continuous warning messages. The cost and time to send the single satellite message required to simultaneously cover all the properties within range are in the same order of magnitude as sending a single SMS on a cellular phone.









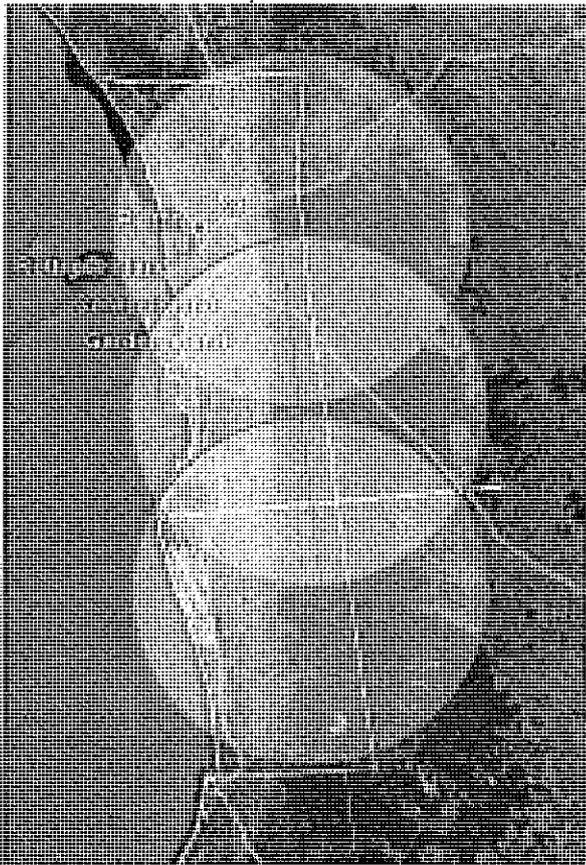
Coverage

At the current level of radio transmission power and the licensed frequency that Sentinel Alert is using, each radio tower has a range of approximately 50 kilometres or, put another way, can cover an area of about 8,000 square kilometres.

To give these figures some context relevant to your enquiry, the illustrations below notionally show the coverage that could have been available with 3 Sentinel transmitters and alternatively 10 Sentinel transmitters.

These illustrations are for context only and do not take into account topography, propagation, tower availability, redundancy or other issues that would need to be considered under an actual deployment plan

**Notional Coverage with 3 Sentinel Alert Radio Transmitters
along the escarpment east of Perth**

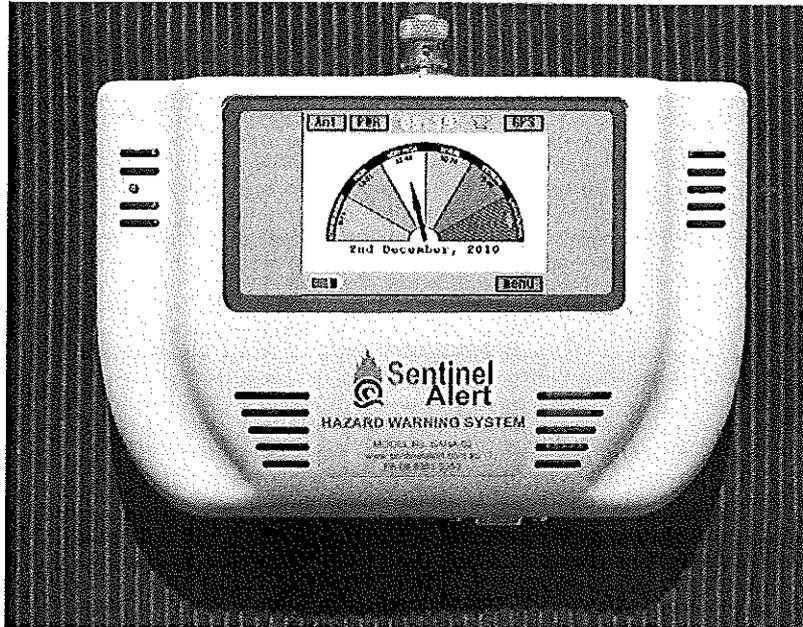


**Notional Coverage with 10 Sentinel Alert Radio Transmitters
Covering Perth Hills and the Southwest**

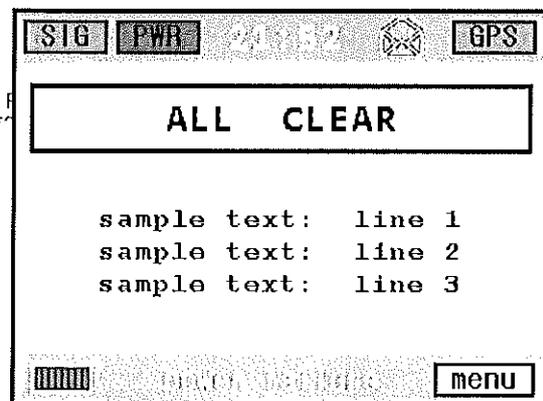
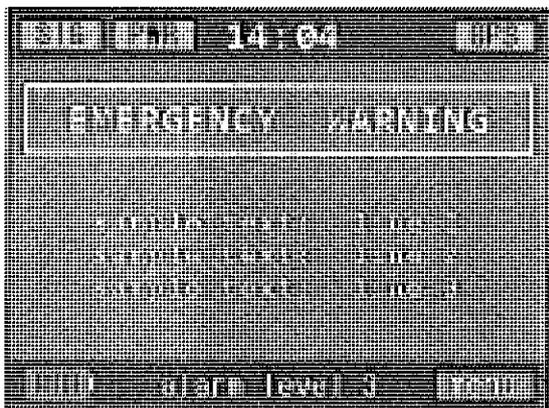
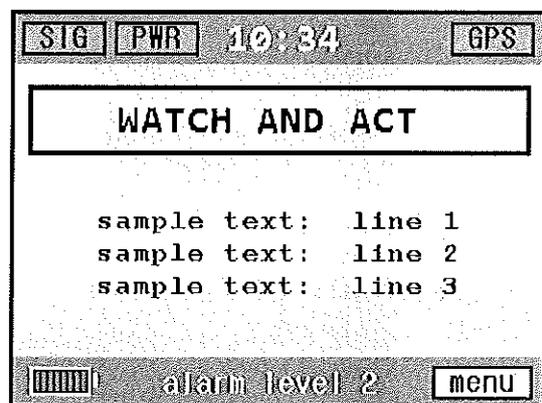
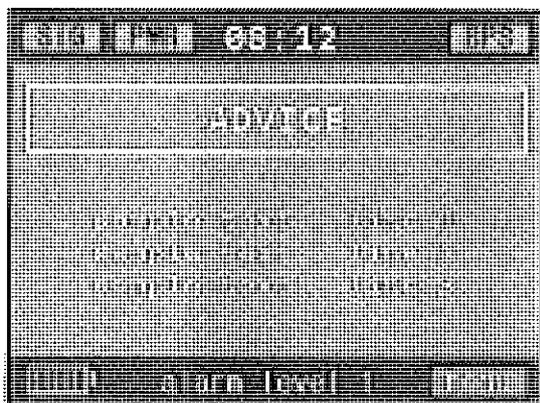


The Sentinel Alert Home Receiver

Showing the Fire Danger Rating for its location which is updated automatically as authorities issue new levels.



Screen Shots – showing various levels of alert / alarm and performance indicators



Control of the system

It is not within our purpose to attempt to describe how authorities might organise themselves to delegate responsibility to issue warnings. However it is important to indicate that within the Sentinel Alert system it is possible to have layers of authority and control that can simultaneously co-exist.

Local Control

A local Fire Control Officer for example may be designated with the authority to issue alerts and alarms to his or her defined local area. This means that he or she could issue an alert or alarm immediately on receipt of local advice that a fire danger exists.

The local Fire Control Officer could decide, on the basis of the information available, the levels of risk and the area under threat. Without having to wait to advise a central system to issue warnings He or she can draw the danger zone on the local control station, select the appropriate alert level, insert a text advice to go with the warning and initiate the transmission. Within minutes every property within the selected zone could receive that warning. Regardless of whether that is a single property or 10,000 properties, all receive the warning simultaneously – But because of the built in intelligence in the Sentinel Alert receiver, only those in the affected area will change to alert/alarm status.

As the situation changes and further information becomes available the Fire Control Officer can upgrade the level of warning to those already alerted, and or issue additional warnings with selectable and varied level of alert to other areas. The text advice can similarly be updated. Again this information is delivered to all affected properties within minutes of initiation but only those targeted change their status.

Importantly because those properties not targeted for the alert do not change to alert or alarm status – the issue of “cry wolf” false alarms that can degrade the perceived value of warning systems is avoided.

Illustration of Sentinel Alert Computer Map with 3 simultaneous but different levels of warning for 3 separate areas

Immediate
Fire Zone

High Level
Alarm



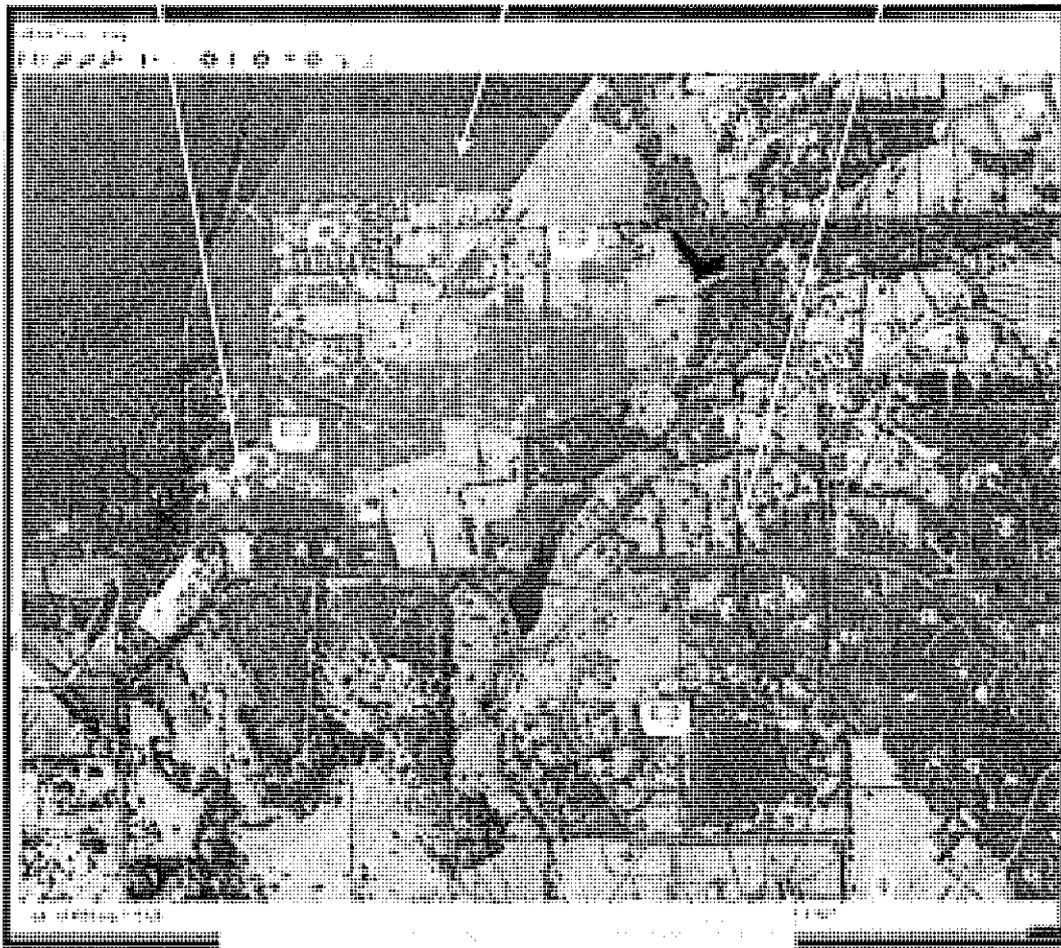
Medium
Risk Zone

Mid Level
Alarm



Low Risk
Zone

Low Level
Alert



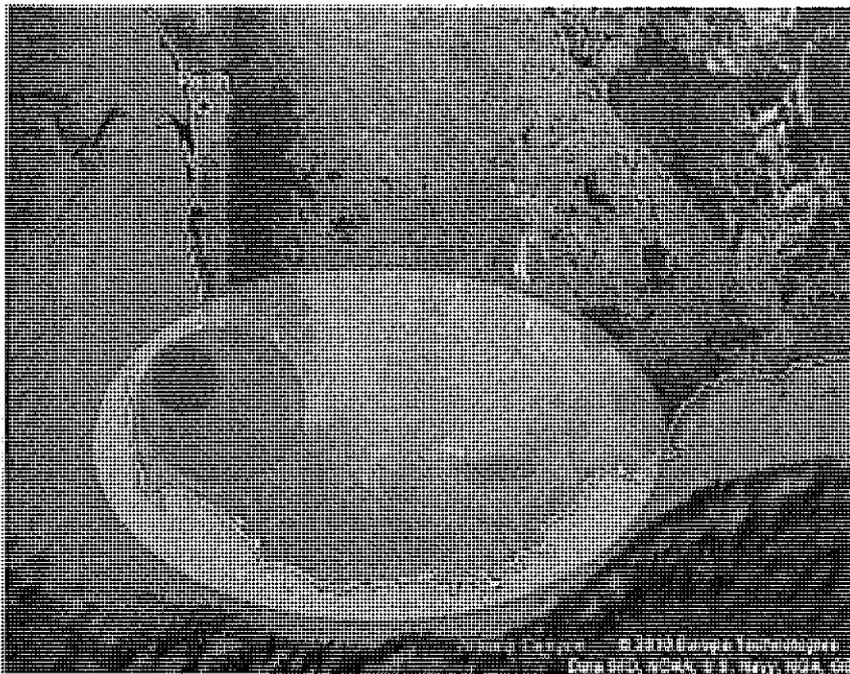
Wider Area Control

Where an incident might grow to encompass larger areas of responsibility, a more centralised control over the issue and distribution of warnings can be triggered. This could be arranged such that local officers feed their advice back to a central command post where that information can be incorporated into a more holistic warning issued from that command post. Without labouring the technical details in this document, the satellite backbone to the Sentinel Alert system allows for 2 key features:

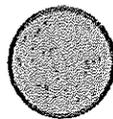
- All warnings and alerts issued by local fire officers can be displayed (and advised by SMS and/or email) to central control officers. This gives a constant oversight of the status of any warnings issued and subsequent updates.
- Central command could implement an overriding system command such that alerts / alarms could not be transmitted locally without specific authority. This feature can be used to ensure consistency of advice and alert levels in the case of a large incident with significant geographical spread.

Diagram of overlaying areas of Authority

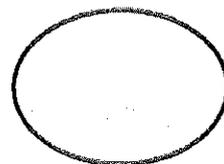
Areas of Authority can co-exist



Level 1



Level 2



Level 3

Situational Overview

A further feature of the Sentinel Alert proposed system is that regardless of where control is being exercised for any particular incident, the information being authorised for transmission to the public, (the level of alert / alarm and the specific text messages being transmitted) can be fed back into a network allowing a wide range of authorised personnel to have a situational overview in real time. They could see what the incident controllers (be it local, shire, district or state) are actually promulgating to the public. This information will also contain and display on mapping (GIS) displays the geographical areas selected by controllers for various levels of alert.

The situational overview can be distributed by the Internet and therefore has a virtually unlimited range and reach to appropriate personnel from a local level through to a national level.

The use of “smart phones” and/or satellite equipment also allows this information to be observed by personnel on the move.

Integration of other data sources

The combination of the satellite backbone and Internet also allows for other data sources to be integrated into the decision making tool set. For example, one of Sentinel Alert’s partner companies (Fastwave Communications) who provides the satellite expertise and systems for Sentinel Alert is also a provider of mobile weather stations. These are used extensively by CFAs in Victoria and in South Australia as rapidly deployed units able to be sited around the area of a bushfire. Local weather conditions are then transmitted from these units by satellite to the Bureau of Meteorology and to fire authorities. This type of data feed into the decision making tool set can be easily incorporated in the Sentinel Alert system.

A further example of the potential for use of the satellite backbone and Internet distribution is evidenced by the offer by Landgate (a WA Government agency developing predictive fire behaviour models from satellite imaging) to work with Sentinel Alert to provide predictive information via the Sentinel Alert system to decision makers dealing with a bushfire.

Current status of the Sentinel Alert project

In 2010 Sentinel established a small scale proof of concept trial site in Yallingup, Western Australia. A transmission tower was commissioned and a small number of units deployed through the community. Initial operating data and user feedback has enabled useful improvements to be made to the hardware and operating system.

The trial is due to be expanded during April 2011 to some 50 receiver sites with some operational changes such as relocating the main Yallingup transmitter to a more suitable site currently taking place.

A second trial site will become operational also in April 2011 in Jalbarragup again in South West WA.

Jalbarragup, in the shire of Nannup, is a small community where fire danger is very high, the area is densely wooded with difficult terrain and poor conventional communications. All the challenges that Sentinel is designed to overcome.

Because the Jalbarragup community is small, the trial is going to be able to cover every property (approximately 80) and with the co-operation of the Shire and their Fire Control Officer, Sentinel Alert will have, for the first time, a complete system serving a community.

The knowledge gained from the experience at Yallingup has been incorporated into the design and build of 100 units which are due to be deployed both in Yallingup and at the new trial site with installation due to commence during the week of 28th March 2011.

The Jalbarragup trial is particularly satisfying for Sentinel as it received funding for the trial from the SW Development Commission as a part of the Royalties for Regions programme. This is the first external funding that the project has received; all previous development and trials having been self-funded by the shareholders.

The Jalbarragup site will not only serve the community, provide valuable operating experience and feedback to Sentinel but it will also serve as a visible and working demonstration of how Sentinel Alert operates in the real world. Sentinel Alert is looking forward to welcoming authorities and communities who visit the sites to see how the system could work for them.

Next steps for Sentinel Alert

Sentinel Alert was conceived as a humanitarian project. From the initial idea of a life and property saving process for a local community in south western WA the concept has grown to the point whereby potentially the whole Australian community can benefit. However to grow the project to that size requires the support of Government at every level Local, State and Federal. Sentinel Alert would like to encourage the development of a measured process whereby the Sentinel Alert system can be refined further and trialled on a wider basis to prove up and demonstrate to government, authorities and to the community that a valuable life saving warning system can be made available to every Australian.

An outline plan to develop the Sentinel Alert system to the next level follows. The implementation of this plan is subject to the availability of appropriate support and funding.

Development Plan

Broad objectives

- *Continue the development of and have available for demonstration, the new Jalbarragup site as well as the existing Dunsborough Yallingup Proof of Concept site.*
- *Engage local government and community support to fully test and develop the system such that specific community issues and needs are understood and met.*
- *Build rapport with Emergency Authorities such that operational needs are understood across a wide range of different situations and potential public dangers. Develop control procedures and message protocols to match needs.*
- *Develop the "mobile" Sentinel Alert unit for warnings to those away from their properties*
- *Examine the potential for Sentinel Alert to act as a paging system to provide other forms of advice and alerts to particular recipients - eg first responders.*
- *Establish trial sites in every State and Territory*
- *Examine the potential for Sentinel Alert "home units" to also incorporate SMS and AM radio thus providing a single unit with access to multiple warning systems.*

Outline Plan

Continue the Development of the Jalbarragup and Dunsborough PoC sites

We believe it is important in building wide ranging support for the Sentinel Alert system that as many people as possible have access to our 2 trial sites. This will enable demonstrations to be held in locations that face many of the challenges faced by other communities across Australia. Whilst some of the specifics may be different, the primary need for well timed, credible community advice of potential danger is common to all. Having real scale demonstration sites will enable those who remain to be convinced to come and see for themselves. Access to full scale trial sites also allows our ongoing development of the system to continue.

Government and Community Support

Local support is crucial for the success of a warning system. Within trial sites community education as to what the system can achieve, how it works, what to expect, will be a prerequisite. Local government (with Sentinel Alert support) is seen as a key to disseminating this information and advice.

Local dangers will be alerted initially by local first responders. With their support and their perception that Sentinel Alert is a useful tool to them, then the community will understand that messages on the Sentinel Alert system are credible and relevant to them.

Importantly during the trials community feedback will enable the system to be refined to take account of real experience from community members faced with potential dangers.

Rapport with Emergency Authorities

In a similar vein to the need to achieve community support – Emergency Authorities are a community in themselves. From first responders and volunteers through to senior personnel, the trials will provide the opportunity for close dialogue with Authorities so that they are on the one hand able to appreciate the value and simplicity of the system and on the other hand able to work out how their command structures might make the best use of the features incorporated within the system. Close dialogue and feedback from Authorities will enable the control and command features and the format of messages to be tailored to consistently fit with the needs of responding Authorities and conformity with other existing warning systems.

Development of the Mobile unit

Clearly for the Sentinel Alert system to cover as many hazardous situations as possible there is a need to be able to warn people who may be working away from their properties. To that end Sentinel Alert intends to develop a mobile unit with the capability of displaying data about 2 different warning locations – the current location of the unit and the “home” location of the unit. This will enable advice and alerts to be received with respect to where the unit is at the time as well as in respect of the owner’s home or business property.

Potential for use as a selective paging system

The Sentinel Alert transmission and receiver can be considered as and could (in addition to its warning functions) act as, a pager system. The case for a Selective Paging System would be based on being able to make more efficient use

and deployment of resources, enabling Controllers both on the front line or within an Incident Control environment to contact personnel by pager. We intend to examine the potential use of the Sentinel Alert radio transmission capability and the feasibility of a suitably modified "mobile" Sentinel Alert units to act as pagers and to notify relevant personnel such as volunteers or off duty police or fire crews of an incident and / or of the developing situation of an incident

The ability to be quickly updated in the field, ensures individuals are informed of the changing status and situation and provides the Incident Controller a means to manage them as needs change through timely advice messages delivered in near real time.

Trial Sites

The objective of establishing trial sites in every state and territory is to encompass and be able to deal successfully with the full range of dangers that various communities might face, be it from bushfires, floods, cyclones, tsunamis or any other form of public danger. Sites should be chosen to encompass the full range of different terrains and topographies that the system must work across.

A further objective is to trial the Sentinel Alert system on a scale that is on the one hand meaningful and representative yet is constrained to a manageable and responsible cost.

Potential for incorporating other warning systems

Sentinel Alert system is seen as complementing not supplanting other warning systems such as State Alert and Public Radio broadcasts (ABC). As such we have briefly examined the technical feasibility of incorporating 2 further features within the home and mobile modules:

- Incorporation of a GSM/GPRS/Next G module – this to allow the receipt of State Alert or other SMS warning messages;
- Incorporation of an AM radio receiver to receive public broadcasters warning messages (ABC Radio).

Technically both of these appear to be feasible although the financial implications have not yet been examined. Additionally the desirability of having an "all in one" unit has also to be canvassed.

Conclusion

Sentinel Alert Pty Ltd is a company specifically established to develop and promote what it believes to be the most competent Intelligent Public Warning System. It was born in a local community and from a perceived community need. It has no current source of income and has been funded to date by its shareholders and more recently by the South West Development Commission. To progress with the proposed Development Plan will require further support and funding.

Sentinel Alert as a system with its genesis in community needs has the potential to remain in local control with its immediate relevance and reaction time; yet it is able to reach beyond local boundaries to encompass wider public needs.

It is designed specifically for intelligent public warnings and to overcome some of the inherent shortcomings of existing systems.

It can offer timely, immediate and continuously updated information. Unlike other systems it easily and continuously provides graded information from early warning through to last resort and after the danger has passed an "all clear".

In terms of technical performance, specification, potential cost to the public or individual purse or any other aspects of the Sentinel Alert system that your review may wish to examine we are available to discuss these as you may see fit.

Thank you for your attention to our submission.

Sincerely

A handwritten signature in black ink, appearing to read 'Sean Groombridge', with a stylized flourish at the end.

Sean Groombridge

Director and CEO

APPENDIX 3

EXTRACT FROM 2009 VICTORIAN BUSHFIRES ROYAL COMMISSION INTERIM REPORT

WHAT MAKES A GOOD BUSHFIRE WARNING?

4.37 The Commission received expert advice on what constitutes an effective warning in written submissions and in oral evidence.²⁹ Other key documents on this topic include:

- 2005 and 2009 Australasian Fire and Emergency Service Authorities Council (AFAC) position papers³⁰
- 2008 Australian Government advice Emergency Warnings — Choosing your Words³¹
- Material relating to the Common Alerting Protocol (CAP).³²

4.38 There is a high level of consistency between these key documents and the expert advice received by the Commission. The State has committed to implementing improvements in bushfire warnings for the forthcoming fire season.³³ This guidance highlights that the content of a warning should be driven by its aim. In this context, Professor Handmer, Innovation Professor in Risk and Sustainability and Director of the Centre for Risk and Community Safety at RMIT University, set out the features of a good warning.³⁴ In particular, it should let people know what they should or should not do to protect themselves, empower them to respond appropriately, be 'people centred' and be based on local needs and expectations.³⁵

4.39 In oral evidence, Professor Handmer added that the purpose of a warning is to 'provide a signal for some action'.³⁶ He noted that it is important to ensure that people realise that the warning relates to their personal situation.³⁷

4.40 Professor Handmer also suggested that messages should set out the expected timing and severity of the event, say what is likely to happen and when it will occur, indicate how people should act and identify the source of the message (which should be one that is trusted as credible by those at risk).³⁸ He noted the phenomenon of people seeking to confirm and discuss warnings in their personal networks.³⁹ He said that language should be vivid, rather than vague or abstract; messages should be positive, rather than negative (that is, they should advocate what to do); and they should invite sociability (for example, by recommending that people check on their neighbours) because people like to 'do something'.⁴⁰

4.41 Urgent messages should contain locally specific information.⁴¹ Professor Handmer recommended that messages should include information about the degree of severity of the fire, or the predicted event.

... the severity message is to help people gain an appreciation of what is coming and to help them make an appropriate decision⁴²

4.42 He made the following further suggestions for improvements to existing materials:

- consideration should be given to having another level of fire danger for particularly extreme conditions⁴³
- high-risk areas and vulnerable groups should be targeted for more personalised messages and bushfire-related education⁴⁴
- commercial media needs to become part of the fire and emergency management system⁴⁵
- informal networks could be used more to disseminate warnings, and to add locally specific information to the message⁴⁶
- to be useful, warnings need to provide those at risk with enough time to take protective action.⁴⁷

4.43 Mr Alan Rhodes, Manager Community Safety Research and Evaluation for the CFA, referred to the research of two American experts, well known in the field, Mr Dennis Mileti and Mr John Sorensen. He set out their view that for a warning to be effective, it must:

- describe the precise nature of the threat and how it poses a danger to the public
- communicate the exact location of the threat
- provide guidance as to the specific actions the public should undertake

- specify the time when the hazard is likely to impact
- state the agency which is giving the warning (multiple sources are preferable).⁴³

These statements provide sound guidance as to what constitutes a good warning.

4.44 Many of the matters explored in the evidence of Professor Handmer are strikingly similar to the views of the Emergency Services Commissioner, Mr Bruce Esplin. The OESC has produced a number of significant reports in relation to warning systems, emergency management and emergency events in Victoria.⁴⁹ The Commission commends the work of Mr Esplin's office and its contribution to the development of the learning and research in the area, in particular its work on the Community Information and Warning System: The Report of Trial and Evaluation (2006).⁵⁰

4.45 In evidence, when asked what constitutes a 'good warning', Mr Esplin said the following:

I have formed a view in that regard and the first thing is that the warning has to be delivered to a community that has been prepared to receive the warning and to know (a), hopefully where to access information and what to do when they get that information. A good warning is simple; it is probably locally relevant information delivered by locally credible sources.⁵¹

4.46 It is also useful to consider the work of the American expert, Mr Sorensen. In his article, Hazard Warning Systems: Review of 20 Years of Progress, Mr Sorensen referred to six warning myths that 'all too often constrain the effectiveness of warning systems when implemented'.⁵² He describes the six myths:

(1) the myth of 'public panic': Mr Sorensen says that social scientists have shown this is not the case, except in situations affected by closed physical space and an immediate and clear source of death where escape routes are not available to everyone affected.

(2) the second myth Mr Sorensen cites is that 'officials are usually worried about overwhelming people with too much information': in his opinion, the public 'rarely, if ever' receives too much information during an emergency.

(3) Mr Sorensen refers to the concern about raising 'false alarms': he notes that the likelihood of people responding to warnings is not diminished by what has been labelled the 'cry wolf' syndrome — so long as the basis of the false alarm is understood.

(4) the belief on the part of authorities that a single spokesperson is good practice when disseminating emergency information: indeed, to the contrary, says Mr Sorensen, the public needs information from a variety of sources.

(5) it is a common belief that people will take action immediately on receipt of a warning: however, most people 'simply do not' do so, says Mr Sorensen.

(6) the sixth myth is that officials often think people will follow all recommendations made in a warning, but research shows people will not blindly follow instructions, unless the basis for the instruction is clear and that basis makes 'common sense'.⁵³

4.47 The myths described by Mr Sorensen appear to have underpinned some of the development of our current bushfire warning systems. The challenging of these myths assists in assessing the system with fresh eyes. An improved understanding of the way in which people react to warnings assists in crafting better warnings.

THE WARNING POSITION ADOPTED BY AFAC

4.48 In 2005, AFAC prepared a draft position paper on bushfire information and warnings.⁵⁴ The paper was last modified on 24 April 2007, but remained in draft form.⁵⁵ The AFAC paper is described as being 'In Response to Recommendation 8.5 from the COAG Report on Bushfire Mitigation and Management'.⁵⁶

4.49 The 2005 AFAC paper emphasised the importance that messages should use plain language and should address the following questions:

- *What is the risk?*
 - *Where is the threat now?*
 - *Where is the threat expected to move to next?*
 - *What are the immediate risks faced by people in the threat area?*
 - *What are the public advised to do about those risks?*

• *What are the response agencies doing about the situation?*⁵⁷

4.50 It indicates that bushfire information and warning messages should also include:

- clear information about the area of risk
- where a specific location is provided, information about the general location — local place names should not be used unless supplemented with general location details
- the time and date that the message was issued, including the length of time that the message is current.⁵⁸

4.51 Though this 2005 paper has been superseded, it expressed a number of sound principles, drawing on the work of COAG in 2004, and it constitutes a useful guide to a clear approach to the construction of bushfire warnings.

4.52 The call for clearer content in warnings was reiterated in a subsequent AFAC draft paper titled *A National Systems Approach to Community Warnings: Discussion Paper Draft Version 2.0 (May 2009)*.⁵⁹ This paper proposes a systems approach to warnings incorporating four elements:

- preparing the community
- situational awareness
- message construction and dissemination
- appropriate action taken.

4.53 This 2009 AFAC paper advocates a consistent national approach given the transient nature of the population and the fact that 'emergencies have no regard for jurisdictional boundaries'.⁶⁰ The paper observes that the 'most crucial aspect of the warnings system is the continued development of community survivability strategies that are in place well before any emergency event occurs'.⁶¹

4.54 The second element, 'situational awareness', refers to the information and awareness that resides in individuals, communities, industry and the emergency services. The paper notes that individuals and emergency service organisations all receive information from a range of sources, formal and informal. Based on that information, organisations decide to warn, and individuals to act — but these actions may not align (for example, people may act prior to the warning). This is not necessarily a problem, as:

*No matter how the information gets to someone, the challenge is to make sure the information is able to be corroborated through the authoritative source, is meaningful and people are confident they know what to do when they receive it.*⁶²

4.55 The evidence before the Commission tends to confirm that while emergency services are monitoring natural disasters, gathering intelligence and considering issuing official warnings, many (but not all) in the community are likely to be responding to the environmental cues and informal sources of information available to them. On receipt of an official warning, people commonly seek corroboration from other sources, and further information about the appropriate response.

4.56 The 2009 AFAC paper also notes that there is no consistent Australian standard for message construction, or protocol for triggering a warning and calls on COAG to adopt the use of the CAP as the basis for messaging in Australia and to set a timeframe for its implementation by emergency agencies.⁶³

4.57 Finally, the AFAC paper notes studies that demonstrated the significant association between community education and higher levels of household preparedness and the taking of appropriate protective action.⁶⁴ This is certainly consistent with the evidence before this Commission.

BEST PRACTICE IN BUSHFIRE WARNINGS: CHOOSING YOUR WORDS

4.58 In 2008, the Commonwealth Attorney-General's Department released *Emergency Warnings — Choosing Your Words*.⁶⁵ This document is a valuable guide to best practice in drafting warnings. Its content is practical and clear. The paper set out a number

of guiding principles. It counselled against making assumptions about the audience, noting that warnings will need to reach a broad audience and that any message needs to be appropriate for those at home, at work, in the car or visiting the area.⁶⁵

- 4.59 The paper noted that an emergency warning is a 'dialogue with the community, not a command situation'. It promoted seeking cooperation with a suggested action, not compliance with an order: 'This is best achieved by giving people information that convinces them that a particular course of action is the best one to take'.⁶⁷
- 4.60 In describing the way in which people generally respond to warnings, the paper suggested that this is a process and not a single step. People generally follow a certain thought process before deciding to respond, starting with receiving a message, believing its credibility, confirming it, personalising it, determining what action is required and ending with determining whether the action is feasible.⁶⁸
- 4.61 Professor Handmer agreed that the advice in *Choosing Your Words* is sound.⁶⁹ Ms Jillian Edwards, Manager Strategy and Knowledge, AFAC, said that it was 'a very good piece of work that provides a lot of insight into some of the language that could be used to elicit certain reactions from people'.⁷⁰ Mr Pearce, now Director General of Emergency Management Australia, agreed it was provided to agencies to guide them in best practice.⁷¹ Mr Rhodes accepted that CFA messages could benefit from some of the paper's suggestions.⁷²
- 4.62 *Choosing Your Words* provides excellent practical guidance as to the best method of drafting and constructing a clear and useful bushfire warning. There is general support among the parties for the proposition that the content of bushfire warnings should be based on the principles set out in *Choosing Your Words*.⁷³ The State indicated in its submissions that it would, before the next fire season, refine fire messages based upon the *Choosing Your Words* publication.⁷⁴

THE COMMON ALERTING PROTOCOL IN BUSHFIRE WARNINGS

- 4.63 There is evidence before the Commission concerning the development of a protocol and standard digital format for expressing the content of warnings, known as CAP.
- 4.64 CAP was designed in the United States by emergency managers and technology experts and ultimately adopted there in April 2004 by the Organisation for the Advancement of Structured Information Standards (OASIS). Use of CAP is mandated in the United States.⁷⁵ It is now being introduced in other countries including Italy, Canada, Indonesia and Japan.⁷⁶
- 4.65 The use of CAP permits a consistent warning message to be disseminated simultaneously over different media (for example, internet, SMS, landlines, email).⁷⁷ Once adopted, CAP can be incorporated into any number of technology applications.⁷⁸ It has been described as a 'write it once' tool.
- 4.66 As Ms Edwards explained, CAP is two things:

It is a simple but general template for the consistent construction of messages, using standard classifications and terminology.

It stipulates a digital format for making the constructed message readable by any machine.⁷⁹

- 4.67 The benefits of the adoption of CAP have been described as including:
- efficiency and minimisation of confusion during emergencies
 - reduction of costs and operational complexity by eliminating the need for multiple custom software interfaces to the many warning sources and dissemination systems involved in all hazards warning
 - facilitation of movement towards coordinated warning messages over multiple delivery systems
 - distribution of authoritative alert messages to those who need them in a timely and effective way, ultimately reducing damage and loss of life
 - capability of conversion to and from the 'native' formats to all kinds of sensor and alerting technologies, forming a basis for technology independent of national and international alerts and warnings.⁸⁰

- 4.68 In April 2008, AFAC formally adopted the position that its member agencies will use the OASIS Common Alerting Protocol, V1.1, or its derivative, as the standard alerting protocol for handling the essential content of alert warning messages.⁶¹
- 4.69 In its 2009 draft paper A National Systems Approach to Community Warnings, AFAC suggested that a 'standards based, all media, all hazards public warning strategic framework makes for a more effective solution and more efficient use of resources'.⁶² The paper went on to note that the OASIS CAP provides a suitable basis for messaging format, with some adjustments for Australian content and terminology.⁶³
- 4.70 The introduction of CAP would assist in simplifying bushfire warnings in Victoria, and would contribute to what should ultimately be a nationally uniform approach. The written submissions of AFAC endorsed the adoption of CAP.⁶⁴ The State undertook in its written submissions to adopt CAP in the next fire season.⁶⁵

RECOMMENDATION 4.1

The State ensure that bushfire warnings issued in Victoria:

- are founded on the principle of maximising the potential to save human lives;
- embody the principles encapsulated in Recommendation 8.5 of the Council of Australian Governments report the National Inquiry on Bushfire Mitigation and Management (2004);

Recommendation 8.5

The Inquiry endorses the recommendations on warning systems in the report Natural Disasters in Australia. In addition, it recommends as follows:

- *that all fire ban advice and subsequent 'bushfire threat warnings' related to specific fires be conveyed consistently in all states and territories, including the use of the Standard Emergency Warning Signal when lives or property are threatened*
- *that the final structure of the warnings be based on the findings of the Bushfire Cooperative Research Centre's project Communicating Risk to Communities and Others .*

Effective warnings are essential in mitigating and managing bushfires and other natural disasters. The *Natural Disasters in Australia Report*, prepared for COAG in 2002, placed considerable emphasis on warning systems in its recommendations and these have been accepted in principle by COAG.

COAG supports recommendation 8.5 concerning the adoption of nationally consistent procedures for conveying fire ban advices and bushfire threat warnings. Action will be coordinated through the Australasian Fire Authorities' Council, in collaboration with the Bureau of Meteorology, towards achieving standardisation of fire ban advices.

COAG notes the ongoing work of the Bushfire Cooperative Research Centre on communicating risk which will inform the Australian Emergency Management Committee and the Augmented Australasian Police Ministers' Council.

COAG also notes the work currently being carried out under the auspices of the Australian Emergency Management Committee to develop draft guidelines for the use of the Standard Emergency Warning Signal when lives and/or property are threatened.

COAG will request a progress report on these areas from the Augmented Australasian Police Ministers' Council within twelve months.

- embody the principles endorsed in the Australasian Fire and Emergency Service Authorities Council Draft Discussion Paper, A National Systems Approach to Community Warning (May 2009);

and

- incorporate the use of the Common Alerting Protocol, as adapted for the Australian context.

**Submission to the
Perth Hills Bushfire February 2011 Review**

Submissions should be submitted electronically (preferred) to:

or posted to:

Perth Hills Bushfire February 2011 Review
Locked Bag 10, Cloisters Square
PERTH WA 6850

Note: All submissions received will be made available on the Inquiry's website. People wishing to make a confidential submission should make this clear at the time of lodgement and the Inquiry will not publish those submissions. However, people should be aware that whilst every endeavour will be made to ensure confidentiality, there is a possibility that such submissions might be released in accordance with the *Freedom of Information Act 1992*.

Contact Details

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Organisation Details (Where Applicable)

Is this submission presented on behalf of an organisation:	<u>No</u>
If yes, name of organisation:	_____
Position in organisation:	_____

Response to Terms of Reference

The adequacy and effectiveness of information and communication campaigns and mechanisms, including systems for alerting residents in relation to the fire or potential fires.

Background

Bushfire has presented a major risk in Australia through most of the country's history. This situation is unlikely to change for the better – indeed this risk is likely to worsen. The Commonwealth Government's position paper, *Adapting to Climate Change in Australia* (published in 2010), in the section entitled *Preparation for and management of natural disasters*, states that:

“There is some evidence climate change is already impacting on the frequency and intensity of extreme events. **Action is required to ensure we have the capacity to respond to a likely increase in natural disasters.**”

As the population increases and communities are built in potentially vulnerable areas, the potential for loss of life and damage to property increases. For example, the catastrophic Victorian Bushfires of 2009 resulted in loss of 173 lives. The final report of the *Royal Commission into the Victorian Bushfires 2009* revealed some important information about those who died. In particular, some **30% of deaths were in people 'caught by surprise' by the fires**, and **44% of all deaths were 'vulnerable' individuals (that is, children and older people)**. That report states:

“People went to differing degrees of effort to ensure that they were informed and took timely action on 7 February. The information they gained often took the form of a ‘trigger’ for action. The trigger could have been seeing or smelling smoke, being told of the approach of the fire by neighbours, friends or family, or a warning by authorities or the media that a fire was burning in or approaching an area. Professor Handmer found:

No matter how thorough preparedness and fire plans, they need to be activated. This requires some sort of trigger, which may be a specific warning, a high level of perceived threat or something else.’

“A number of people who were waiting for a trigger or warning to prompt them to act were caught by surprise. Many were taken by surprise by the very existence of the fire or by the fire arriving much sooner than expected. It is also likely that a large proportion were surprised by the fire's intensity and rate of spread and the amount of time it took for the front to pass. Some did not know of the fire until it was too close to take action, despite having made plans and being well prepared.”

Thus, an important consideration in reducing loss of life in bushfire disasters is warning individuals who may not perceive themselves to be at risk, ensuring that the 'vulnerable' receive warning.

The recent series of large scale natural disasters affecting Queensland, and indeed the disasters elsewhere across Australia and New Zealand, have clearly demonstrated the requirement for robust and reliable communication systems. **There is a need for**

emergency warning not only in the lead up to such disasters, but also for both warnings and community information during disasters, and in the recovery phase.

Emergency warning in Australia

The *National Framework for Scaled Advice and Warnings to the Community*, under the banner of '*Prepare. Act. Survive*' emphasises the value of preparedness, and the use of **multiple methods** of warning dissemination to communities.

During the lead up, emergency service agencies will specifically construct messages (using the OASIS common alerting protocol [CAP] standard) and disseminate these through radio as part of a multi-channel approach, including television and print media.

The importance of layered community warning strategies is recognised in the Commonwealth response to the report of the Victorian Bushfires Royal Commission:

“The *Broadcast of Emergency Warnings Project* will continue to consult with key online media, and with peak media broadcast bodies (including community broadcasters, and culturally and linguistically diverse community broadcasters) to identify how emergency warning broadcasts can be improved within their sector. The Commonwealth will also continue to work closely with state and territory governments to further strengthen national arrangements in relation to the broadcast of warnings to the community in times of emergency.”

Problems with communications during and in the aftermath of major disasters are well recognised. For example, the Recovery Task Force for *Cyclone Larry* encountered massive yet predictable problems with communications. In *The final report of the Operational Recovery Task Force: Severe Tropical Cyclone Larry*. (Cosgrove P, et al. State of Queensland [Department of the Premier and Cabinet], Brisbane, 2007), the following observations were made:

“Disruption of the normal communications channels and sources of information for people is one of the first impacts in most natural disasters ...

“The immediate (and it might be said in many disasters, inevitable) loss of mains power means that the instant, pervasive reach of the mass media falls away sharply – not even the ubiquitous World Wide Web will work.

“In this regard, contingency plans for post-disaster communications have to focus even more clearly on redundant means of transmitting and receiving vital information. This is important from several points of view – the safety of life and limb, directing relief efforts by broadcast, and helping maintain and restore public confidence in the disaster area and preventing panic.

“In the case of Larry, not enough people had heeded the advice to have battery-operated radios on hand. Televisions, phones and the Internet were down because of the lack of power and many people observed to the Task Force that, in among all their wants and needs, **this lack of broadcast information was the most disconcerting.**”

Subsequent recommendations contained in the Cosgrove Report include the following:

Recommendation 4

That consideration be given to additional ways and means to improve broadcast capability into disaster-affected regions, particularly for the early aftermath of any disaster when a loss of power characterises the event.

“... while radio networks, especially the ABC provided great public service by their emergency information broadcasts, experience shows that this information may need to be broadcast exclusively and repetitively for days and even weeks. In this regard, it would be useful to consider emulation a system used in other countries, namely the availability of specific, ‘emergency-only’ radio broadcast frequencies in disaster-prone areas, to be activated and operated where necessary as an adjunct to normal broadcasting.”

Recommendation 6

An early and high priority task in recovery from a natural disaster should be the development of a co-ordinated, succinct, practical and flexible public communications plan.

The current status of warning and post-disaster communications systems

A typical publication dealing with emergencies, *Emergencies and the National Capital – A Residents’ Guide* (published by the ACT Government) makes the following observations:

“Major emergencies are an unfortunate fact of life and come in many forms or types of hazard...The way we prepare for these events can make the difference between them being an emergency that is managed without unnecessary loss, or a disaster that has catastrophic effects on life...”

“History shows that to minimise the occurrence and impact of emergencies, we need to remove the common elements of disasters by acknowledging:

The **inevitability** of very severe events.

That **prepared communities** are less likely to suffer the consequences of catastrophic disasters.”

The *National Framework for Scaled Advice and Warnings to the Community*, under the banner of ‘*Prepare. Act. Survive*’ emphasizes the value of preparedness, and the use of **multiple methods** of warning dissemination to communities. Guides to disaster preparedness, such as that issued by the ACT Emergency Services Authority, invariably give the following advice:

“A battery-operated radio is the most reliable way to receive information if the power fails.”

All mainland states and territories except Western Australia have contracted to use the NEWS (National Emergency Warning System) alert. Western Australia uses the locally-developed State Alert system. These employ text messages and telephone calls *via* mobile and fixed line.

There are a number of important disadvantages of the NEWS Alert system that have severely compromised its value in rapidly-evolving large scale disasters, such as those that have affected Queensland.

1. **It relies entirely upon intact infrastructure, in particular power and mobile phone towers.**
2. **It is extremely reliant on complex computing resources.**
3. As the disasters in Queensland, and indeed the Christchurch earthquake disasters have demonstrated, **the mobile phone network is usually the first to fail. Even when there is partial service, the system is overloaded and fails quickly. Thus, initial warnings may be issued the follow-up warnings after the initial disaster often cannot be issued.** As media coverage of the Christchurch disaster revealed:
 - a. “Civil Defence officials have asked residents not to flush their toilets, to use water sparingly, **not to use their telephones**, check on their neighbours, and to stay away from damaged areas while authorities work to restore services and assess buildings.”
 - b. “...the message spread that **batteries in cell towers were running low and mobile phone use should be minimised. National Radio should be commended for providing an excellent service, if only most people had a radio with batteries still!**”

4. **In the current iteration, messaging to mobile phones depends upon the billing address of the subscriber.** A \$40 million roll-out of location-aware systems has been approved.
5. The NEWS Alert system usually instructs warning recipients to turn on and monitor their radios:



(Image from the Fairfax press)

6. There are large ongoing costs of maintaining the system and issuing warnings.
7. Mobile phone handsets may be switched off, or the intended recipients simply ignore the text messages or don't hear them.

The YellowBird ALERT

The YellowBird ALERT (Automatic Linking to Emergency Radio Transmissions) has been developed work as part of a national systems approach to community warning and to build community resilience. **Its special strength is catering to the needs of the vulnerable.**

The YellowBird ALERT system can be summarised as follows:

- It is a simple and reliable method of using the existing radio broadcast infrastructure to remotely switch on radios, in the event of emergency warnings (for example, tsunami, cyclone or storm, flood, bushfire, terrorist alert, traffic hazards, or multiple 'all-hazards' uses).

- The triggering software system is simple, and in final form could easily be run by emergency services from a laptop computer, iPhone, BlackBerry or other mobile device.
- The simplicity of the YellowBird system makes it almost uniquely resilient and largely invulnerable to infrastructure failures (power failure, telephone network failures, Internet failure) and deliberate sabotage (industrial or military 'hacking,' viruses and assaults such as the 'Stuxnet worm.')
- The system would be uniquely applicable to mobile telephones and mobile devices, and by using radio would totally bypass the need for an intact Internet and mobile phone tower systems. It could interrogate the GPS device in the phone, and use the phone's radio reception.

ABC radio, and selected commercial broadcasters, works with emergency services to issue emergency warnings. **However, radio warnings may be missed if the radio is switched off, especially if people are asleep. People may also be trying to preserve battery power.**

The YellowBird ALERT system is unique in that it allows emergency authorities and radio stations to **selectively** switch on radios precisely in vulnerable areas, to ensure that emergency warnings are not missed.

Even when switched off, the YellowBird ALERT chip is regularly checking for a triggering tone. If the tone is detected, the chip 'listens' for a brief datastream specifying the boundaries of the 'risk polygon.' The chip interrogates a GPS chip, and if it is located within the risk polygon, it launches **a loud siren and flashing light before activating the radio, so that anybody nearby can hear the warning.**

How does the YellowBird ALERT work for Emergency Services personnel?

1. Emergency Services personnel determine that radio warnings are to be issued, typically with SEWS preceding the warning message, according to standard protocols.
2. A 'risk polygon' is drawn. This may be on the YellowBird ALERT software, but would be equally applicable and could be drawn from National telephone Alert software or StateAlert mapping.
3. The datastream specifying the boundaries of the 'risk polygon' are either downloaded by the radio station, or faxed, or telephoned. The method used would be individually determined by Emergency Services and local radio stations.
4. Before issuing the on-air warnings, the radio station plays the triggering tone then the datastream.

5. YellowBird radios within the risk polygon emit a loud siren and flashing light to attract attention before the radio itself switches on.

Advantages of the YellowBird ALERT system over existing communications

- Instantaneous alerts can be issued with extreme precision, from single house, street, or location, to an entire country, instantly.
- Radio infrastructure is extremely reliable, and is rarely affected by the infrastructure disruptions that characterise natural, and indeed other, disasters.
- There is no computing cost or complexity whatsoever.
- The radios work when virtually all other communications have failed.
- There is no cost to Governments or Emergency Services to install and maintain the system, and there is no cost to send messages.
- Existing warning messaging protocols do not need to be changed.
- There is no reliance on intact power supplies or mobile telephone infrastructures.
- There should be compatibility with existing alert systems where a risk polygon is drawn.
- Cover of vulnerable areas is generally better with radio than all other methods of warning dissemination.
- The system can be used to cheaply provide messaging during recovery and relief operation after a disaster, when infrastructure has been damaged but emergency communications are desired.
- The YellowBird system is highly regarded by Vision Australia, as an excellent system for visually and hearing impaired, and those with conditions such as arthritis where hand use is limited.

Who has developed the YellowBird ALERT system?

A/Professor Stephen J Robson

Professor Robson was formerly a Medical Officer in the Royal Australian Navy, and has post-graduate qualifications in Public Health and holds a doctorate from the University of New South Wales. He is one of the senior academic staff of the Australian National University Medical School.

Mr David Templeman

Mr Templeman was Director General of Emergency Management Australia from 2000-2006, a period of unprecedented national and international activity. He is currently CEO of the Alcohol and other Drugs Council of Australia, and remains active in providing security and disaster management expertise in Australia and overseas. He is the author of '*Taking a punch: Building a more resilient Australia.*'

Mr Brian Flanagan

Mr Flanagan was on the senior staff of Emergency Management Australia from 1999-2006., former Communications Director, Emergency Management Australia

Mr Ross Holmes

Mr Holmes was District Emergency Management Officer, NSW Police, Monaro Region until 2009. He now works in Risk Assessment with DFAT. He has extensive experience in coordinating response to bushfires, tsunami warnings and other hazards across all agencies.

All technical development has been performed by **LX Innovations** (Sydney, NSW) and **Design Momentum** (Sydney, NSW).

Support for the YellowBird ALERT system

The system has a high level of support for trials.

Included with the submission are correspondence from the NSW Fire Brigades Commissioner (**Attachment 1**) and the ACT Emergency Services Authority (**Attachment 2**). The system was demonstrated to Emergency Services Leaders in Western Australia, and text of email traffic from Ms Jo Harrison-Ward, CEO of the Fire and Emergency Services Authority (FESA) (**Appendix 1**) is included with the submission)

ABC Radio has provided written support for, and a willingness to be involved in, trials of the YellowBird ALERT system (**Attachment 3** and **Appendix 2**)

Disaster recovery NGOs including Oxfam, Caritas and the Australian Red Cross have been involved in demonstrations of the system and have pledged support for trials – typical correspondence is included in **Appendix 3**.

It should be noted that persons with visual, auditory and mobility disabilities can be extremely vulnerable to natural disasters, and we have received support and a willingness to be involved in trial from Vision Australia (see **Appendix 4**).

The system won the Insurance Council of Australia's annual national Community Resilience Award for 2010 (**Attachment 4**).

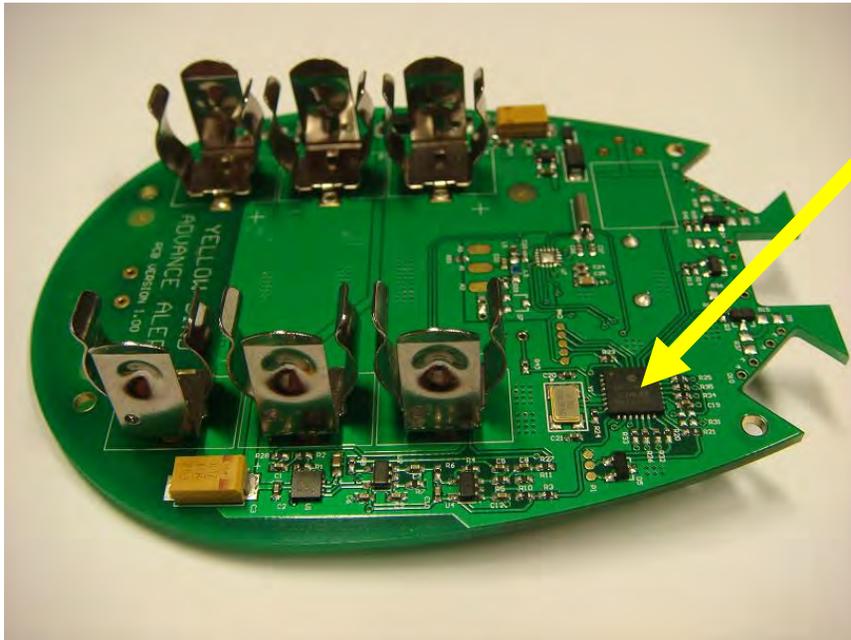
The YellowBird ALERT system also won first prize in the Electronics News Future Awards in 2010 (**Attachment 5**).

Conclusion

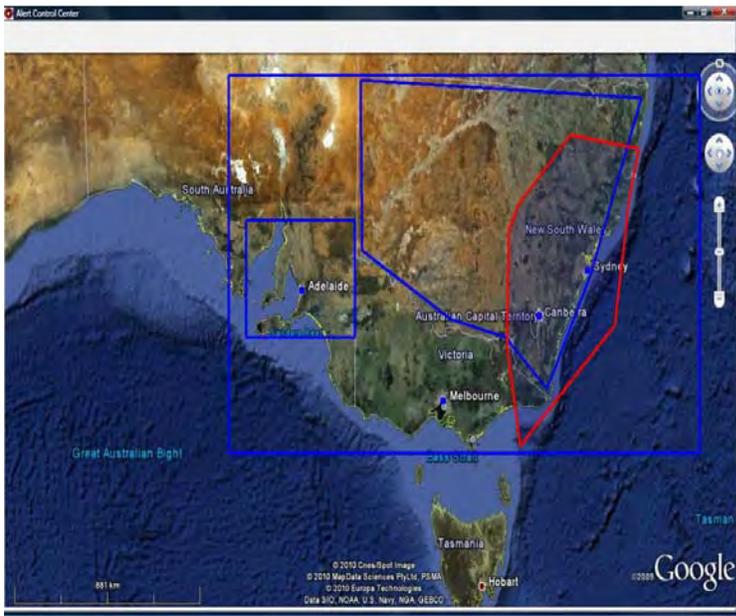
Natural and man-made disasters will continue to affect Australia, as they will the rest of the world. Current arrangements for warning dissemination have many drawbacks, and are commonly fail during and after severe disasters.

The YellowBird ALERT is a low-cost, technically simple system which can readily enhance national warning capability with minimal cost. Lessons from the experience with *Cyclone Larry* emphasize the benefits of improving the versatility of radio application in relation to warning communities in both a pre- and post-disaster setting.

We welcome the opportunity to brief your Committee of Inquiry on the importance and community significance of YellowBird ALERT. It would also be important for the Committee to have a demonstration of the YellowBird ALERT system, something we would be pleased to arrange.



YellowBird ALERT chip (arrowed) – attached to an example radio



Typical YellowBird ALERT 'Risk Polygon' Display

Example possible form of YellowBird ALERT Radio



Front View



Rear View



Yellowbird "hand-held"



Yellowbird "belt-attached"



Appendix 1

Text of email correspondence from Ms Jo Harrison-Ward to David Templeman on 1st October 2010, after our demonstration of the YellowBird ALERT system to FESA in Perth.

Thanks David

I spoke to ----- – ----- after you left and advised if they were thinking of progressing and trialling, I would be happy to partner in a trial. Jo

Jo Harrison-Ward

Chief Executive Officer

Fire & Emergency Services Authority of WA

Appendix 2

Text of email correspondence from Mr Ian Mannix of ABC Radio to A/Prof Stephen Robson, on 20th February 2011

----- Original Message -----

From: Ian Mannix

Date: Sunday, February 20, 2011 7:11 pm

Subject: RE: Yellow Bird, the ABC, and national disaster preparedness

To: Stephen Robson

Hi Steve

Good luck with the submission.

Yes, the ABC is happy to support testing of this product, and its widespread use.

Ian

Appendix 3

Text of email correspondence from Ms Carol Hubert, National Manager, Research, Australian Red Cross, to A/Prof Stephen Robson on 12th January, 2011

From: "Hubert, Carol"
Date: Wednesday, January 12, 2011 6:22 pm
Subject: RE: Yellow Bird
To: 'Stephen Robson'

Hello Steve

Well, couldn't QLD have done with such a device as yours!

I have spent an amount of time investigating possible pathways to senior Red Cross people (outside of the International Programs staff you have previously spoken with) and, sadly but not unexpectedly, have drawn a blank on the basis that product development and venture initiatives are not our 'core business'.

But, like the International ES staff you spoke with, our Australian Emergency Services Department would be most willing to trial a product once developed.

All the best

Carol

Carol Hubert
National Manager, Research

Appendix 4

Text of email from Ms Christina Hinchliffe, Vision Australia, to Mr Brian Flanagan, dated 16th November 2009.

-----Original Message-----

From: Christina Hinchliffe

Sent: Monday, 16 November 2009 1:00 PM

To: Brian Flanagan

Subject: Statistics

Hi Brian,

Thanks for taking the time to visit Vision Australia and provide a briefing on Yellow Bird. Vision Australia is very supportive of this initiative which could benefit our clients across Australia.

Please see statistics below:

Currently, there are 300,000 Australians who are blind or have low vision and with a growing and ageing population this number is expected to double to 600,000 by 2020*.

About 12,000 people in NSW, ACT and VIC are Deafblind.

In relation to other disability organisations you could approach we recommend PWD (see details below).

Therese Sands at PWD (People with Disability Australia)

You could also try the following:

Dougie Heard at Disability Council NSW

Women with Disability Australia

Physical Disability Australia/Physical Disability Council

Association of Blind Citizens

Blind Citizens Australia

Guide Dogs

Forsyth Foundation

Council on Intellectual Disability

AFDO (Australian Federation of Disability Organisations)

Christina Hinchliffe

Occupational Therapist

Equipment Solutions

Vision Australia

NEW SOUTH WALES FIRE BRIGADES



Your Reference:

Telephone No.:

File No.:

Facsimile No.:

Contact Officer:

Email:

28 April 2010

Professor Stephen Robson

Dear Stephen

Thank you for visiting me recently to demonstrate and explain the "Yellowbird" concept.

As I stated when we met, I see a clear and compelling case for introduction of such a simple, cheap and therefore readily accessible technology to complement the existing and proposed suite of measures being used by emergency services and governments to warn the public about impending or actual emergencies and disasters.

Recent experiences in Australia and abroad have highlighted the strong, and reasonable expectation by governments and members of the community that they will receive timely warnings of potentially damaging or life-threatening events. I am particularly impressed by the ability of Yellowbird, when in "passive" mode (for example when people are asleep at night) to activate and deliver a warning tone. As I indicated to you, the simplicity of the concept, and the fact that it has been developed by a member of the community who has experienced a disaster and knows first-hand the need for warnings and information, makes this concept particularly attractive.

I wish you well with its further development. Thank you again for briefing me on this most worthwhile project.

Yours sincerely

**Greg Mullins AFSM
Commissioner
Deputy Chair, NSW State Emergency Management Committee**

FILE



22 April 2010

Professor Stephen Robson

Dear Professor Robson,

Thank you for your presentation on the Yellow Bird ALERT system to the ACT Emergency Services Agency (ESA) senior officers on 30th March 2010. Emergency service organisations around the nation are acutely aware of the need to provide timely and accurate warnings to the community of impending and current emergencies; such a position has also been the subject of discussions and recommendations at many 'post emergency' investigations and reviews.

The presentation you gave on the Yellow Bird ALERT system was very well received by ACT ESA staff. The ability to use an inaudible tone from an AM or FM radio to activate a flashing light and emit a loud alarm sound is both innovative and practical, and provides another means of communicating emergency messages. The ESA team noted the key feature of Yellow Bird --being activated remotely without the need to enhance any existing radio/communications infrastructure.

I wish you well in the demonstration of this technology to governments and emergency service organisations, and trust that you will receive an equally supportive response during your discussions.

ESA would welcome the opportunity to participate in a trial of Yellow Bird.

Yours sincerely

Tony Graham
Ag Commissioner
ACT Emergency Services Agency

23 June 2009



Australian Broadcasting
Corporation

Tamara Chafee
Business Development Manager
ANU Enterprise Pty Ltd

Dear Tamara

ABC Local Radio believes that radio could form the central basis of an emergency warning system throughout Australia. Radio is free, universal, robust and a central part of the lives of all Australians. It already exists.

We are looking forward to working with your team to further develop the usefulness of radio and radio signals to deliver a possibly unique warning system for Australia.

As discussed the ABC is willing to assist with provision of support to use our frequencies as part of a trial at an agreed site or sites. Our technical staff has already assisted with some understanding of similar systems elsewhere in the world, and we will continue to work with you on that area. We are available to assist with connection and distribution of the radio signals, and to take feedback from the community.

This is an exciting opportunity which could deliver Australia a world class emergency warnings system, grown at home, and based around Australia's leading emergency warning broadcaster.

Regards

Ian Mannix
ABC Local Radio
Manager Emergency Broadcasting and Community Development

6 May 2010

Winner of the Insurance Council of Australia 2010 Resilience Award

The Board of the Insurance Council of Australia today announced the winner of the 2010 Resilience Award.

The winner, Professor Stephen Robson, won the award for his emergency alert warning system known as YellowBird.

As the recipient of the 2010 Resilience Award, the ICA has awarded Professor Robson with a \$50,000 cash prize.

The aim of the award is to increase community resilience to extreme weather events.

Extreme weather in Australia accounts for 19 of the 20 largest catastrophe events to take place in the last 40 years. While little can be done to stop extreme weather, the level of damage sustained by a community can be mitigated by a community being more resilient.

How quickly a community recovers from a disaster can also be managed. This is why raising awareness about community resilience is so important and is highlighted in the ICA's Resilience Policy.

The ICA believes YellowBird makes a significant contribution to community resilience.

YellowBird is a simple modification to standard AM/FM radio circuitry that allows (during an emergency) for a tone to be broadcast in routine radio transmissions, to automatically switch on the radio to receive emergency warnings.

A demonstration of the winning entry by Professor Robson is available at www.insurancecouncil.com.au simply follow the links.

Entries this year were of such a high standard that the ICA also commended two entries, one from the Australian Security Research Centre (ASRC) as well as the Torrens Resilience Institute. Details of their entries are available at the above web link.

The ICA would like to thank all those who made a submission to the award.

Media contact: Sandra Van Dijk

LX INNOVATIONS WINS ELECTRONICS FUTURE AWARD

- By [LX Innovations](#) on 25 September 2010
- [0 comments](#)
-
-



Download:[yellow-bird.jpg](#)

For the second year running, LX Innovations has won a major award at the Electronics Future Awards 2010.

LX Innovations was awarded winner in the Digital Home category, Highly Commended in the Communications category and nominated in the Wellness and Environment categories with YellowBird ALERT.

YellowBird ALERT (Automatic Linking to Emergency Radio Transmissions) is an emergency alert system that warns of natural disasters, such as bushfires or floods, by utilising AM and FM radio transmissions.

YellowBird logs onto a registered radio station and sits dormant until an alert is received. In the event of an emergency, authorities may decide to send an alert by creating a message and alert tone package, which sends out an immediate radio broadcast. If contact is lost with the registered radio station, Yellow Bird will notify the user and scan for alternative stations.

Simon Blyth, director of LX Innovations said "my team and I are thrilled and greatly encouraged to receive this award" and added that he was pleased to be able to support an event that recognised and promoted electronics innovation.

In 2009, LX Innovations was awarded overall winner at the EDN Innovations Awards for Best Project with WMD3000, a device that monitors a user's gym workout and provides feedback wirelessly. Also awarded to LX, was first place in Best Application of Test/Data Acquisition category and highly commended in the category of Best Application of RF Wireless Design.

The Electronics News Future Awards, continuing the tradition founded by the EDN Innovation Awards, recognises excellence in Australian and New Zealand electronics (<http://www.electronicnews.com.au/awards.aspx>).

##End##

About LX

LX Innovations is an award winning Australian electronics design house, specialising in the wireless and low power electronics designs. LX offers clients a range of professional solutions designed to take a new product idea from concept through to production.

LX Innovations services include full turnkey electronics design, electronics, firmware and software design, electronics engineer consultancy, rapid prototyping, electronics manufacturing and commercialisation and technical support. LX's team takes an innovative approach to developing each project to ensure it gets to market fast with the best possible features.

For more information about LX Innovations please visit www.lx-innovations.com.au or call 1800 810 124

STEPHEN J. ROBSON

BMEDSC, MBBS, MM, MPH, MD, FRANZCOG, MRCOG

The Hon Julia Gillard MP
Prime Minister of Australia
Parliament House
Canberra ACT 2600

Dear Prime Minister,

The YellowBird system for emergency warning dissemination

I am writing in response to your call for State and Territory Emergency Services Ministers to evaluate Australia's preparedness for, and resilience to, large-scale natural disasters.

The devastating natural disasters in this country (flood, fire, cyclone, and storm surge) as well as New Zealand (the Christchurch earthquake) and the Pacific (tsunami) have demonstrated the extreme vulnerability of existing emergency warning systems to infrastructure and environmental failure. Mobile phone, fixed line and Internet-based warning systems are useful for pre-emptive warning, but fail with loss of power and mobile phone network integrity. To make matters worse, these systems rely on computer resources and the recent IT disasters befalling the National Australia Bank and Virgin Blue demonstrate clearly the vulnerability of such warning networks to accidental or deliberate damage.

The Report into Cyclone Larry (2006) prepared by General (Rtd) Peter Cosgrove AC clearly recommended that radio is the only reliable method of communication in the acute and recovery phases of natural disasters. My group has developed the radio-based YellowBird system for dissemination of precise, instant emergency warnings and messaging direct to specific locations. The system uses the existing ABC and commercial radio infrastructure to issue 'wake up' warnings to radios (using AM, FM, and indeed any radio band). Governments would face no infrastructure cost, no maintenance cost, and no cost to send warnings. It is almost completely invulnerable to other infrastructure failure (power, phone networks, the Internet). It is precise and reliable. It could easily be adopted for use in any means of receiving radio transmission, including mobile phone and other mobile device handsets. This means that 'wake up' and warning could be precisely delivered to such devices in the absence of power and intact mobile phone networks, using radio.

The YellowBird system won the Insurance Council of Australia's national annual Resilience Award for 2010, as well as the Electronic Future award for 2010. It has the support of ABC radio for trials, as well as emergency services in New South Wales, the ACT, South Australia and Western Australia. Furthermore, the charity NGOs Red Cross, Vision Australia, Oxfam and Caritas all support trials of YellowBird. The Government of the Solomon Islands support trials of the Yellow Bird system for tsunami and other natural disaster warnings.

Despite these facts, and the repeated failure and community criticism of existing warning systems, we have had no success in gathering support from your Government. The Commonwealth Attorney-General, The Hon Mr Robert McClelland MP, has not seen a demonstration of the system, a task left to a former junior adviser Mr Ben Sakker Kelly.

It seems absolutely extraordinary that, with the awards our group has received for this innovative system to enhance community safety, and with the wide support we have from the national broadcaster and emergency services authorities, this Australian invention has been ignored by your Government. We are extremely disappointed in continually having our approaches refused. Your Government appears to have been locked into a warning system estimated to cost around \$100 million with ongoing costs every time it is used — for much less than one million dollars, YellowBird would be ready to commission for the entire country.

Prime Minister, the YellowBird system is designed to save lives when all other systems have failed. It should not replace the NEWS Alert and other systems. However, it would enhance and compliment existing arrangements.

We would welcome an opportunity to demonstrate the YellowBird system to you and your Department.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'S. Robson', with a stylized flourish at the end.

Associate Professor Stephen J Robson

15th February, 2011



JAMES W. BARWICK

12th April, 2011

ATTEN: Mick Keelty
Perth Hills Bushfire February 2011 Review
197 St George's Tce
PERTH W A 6000

Dear Mr. Keelty,

I was pleasantly surprised to read an article in the West Australian, dated 13th March, 2011, by Tim McDonald. If I understood this correctly you have the intention to put in place a facility where any person who believes that they have in their locality a dangerous situation regarding excessive fuel on the ground. I understand there will be a phone number made available that any person can ring.

This is something which, for a number of years, I have been endeavouring to get my local shire management to put in place, but they have informed me, on many occasions, that they are handling the fire problem in a reasonable and professional manner.

I have had the same response from F.E.S.A., from Jo Harrison Ford and her staff. The reason I say this to you is that I hope the facility that you have decided to put in place has no connection with the Mundaring Shire management particularly and including the Ranger service also F.E.S.A. and CALM.

Because I have to say to you Sir. With my 87 years on this earth I have never encountered a group of public servants with less common sense. I am reluctant to say this but I am of the opinion that they are just a group of people who seek self gratification and they are really a band of brothers and sisters. This Sir does not work, this is totally detrimental to any group of people who would like to have the opportunity to work together for the good and safety for all concerned.

In my many dealings with these people and departments invariably their comments have been. "We have it in hand, these burns will be carried out by the voluntary bush fire brigades who are well trained and equipped" This statement, as far as I am concerned, demonstrates that the so called responsible people are hopelessly out of touch with reality.

Let us look at the word Volunteer. The volunteer fire fighters, in our community do a wonderful job, but they are volunteers, they have their own lives and responsibilities, and we cannot expect them to do the necessary controlled burns. The job is far too huge for that simplistic suggestion.

From my observation of the larger forest areas it appears that this is well in hand, but my main concern is for the excessive amount of fuel in the built up areas and this certainly includes reserves.

The verges in the Hills, in many cases, are an enormous danger to the loss of power and the ability for people to escape in an emergency.

Regarding the danger from evaporative air conditioners. I believe I have overcome this problem by installing fine stateless steel mesh to the exterior of the cabinet.

I enclose a copy of a letter that I wrote to the Mundaring Shire Clerk and a copy of his reply to my letter. Also a letter from Frank Alban MLA. I think these letters, which are only some of many, will perhaps give you an insight as to why I cannot have any faith into their decision making.

I came into the Hills of Mundaring in 1950 and worked on the raising of the wall of the Mundaring Weir. I associated all these years with the common man, who lived from the bush, understood the bush and understood the necessity to reduce the fuel when necessary and for many years we managed to keep our surrounding areas reasonably safe and the only equipment we had would have been, common sense, a mud rake, a wet bag or a branch.

Today we have an enormous amount of equipment that is standing idle at the time of the year when we could make good use of it to help us to reduce the dangerous fuels around our areas. We need to forget the fancy words such as Mosaic Patterns and set cycles of burning or such ridiculous statements as 8 tones per hectare. We need to burn when we need to burn.

I hope Sir that you do not take this letter as from a raving idiot or as Bob Hawke called us “a silly old buggers” I am not a know all but I do have an enormous amount of experience in keeping the area around my being safe.

Yours faithfully,

Jim Barwick



Frank Alban MLA

Member for Swan Hills



4 October 2010
Please quote our Ref:

Dear Mr Barwick

Your faxed enquiry dated 25 August 2010 regarding reduction of fuel on Reserve 32727 Strettle/Brooking Roads MAHOGANY CREEK has been received and thoroughly investigated through FESA and the Shire of Mundaring.

I am confident that the process of fuel reduction within the Shire of Mundaring is being handled in a responsible and professional manner in consultation with all stakeholders.

For your information reserves are commonly vested in the relevant shire and controlled burns in wooded areas are conducted in 10-12 year cycles in what is commonly referred to as "mosaic patterns". This method seeks to minimise long-term harm to the reserve. These burns are normally carried out by the Volunteer Bush Fire Brigades who are well trained and equipped.

I am aware that the reserve in question was treated in this manner very recently and is not deemed to present a high fire hazard.

Regards

FRANK ALBAN MLA
Member for Swan Hills

Swan Hills includes:

- Aveley
- Bailup
- Baskerville
- Belhus
- Brigadoon
- Bullsbrook
- Ellenbrook
- Gidgegannup*
- Glen Forrest
- Henley Brook*
- Herne Hill*
- Hovea
- Lexia
- Mahogany Creek
- Melaleuca
- Middle Swan*
- Millendon*
- Mundaring*
- Parkerville
- Stoneville
- The Vines
- Upper Swan
- Woorloo

*Part suburbs

Shire of Mundaring



7000 GREAT EASTERN HIGHWAY MUNDARING WA 6073 TELEPHONE (08) 9290 6666 FACSIMILE (08) 9295 3288
ABN: 204 3148 7930 WEBSITE: www.mundaring.wa.gov.au EMAIL: shire@mundaring.wa.gov.au

23 March 2011

Dear Mr Barwick

FIRE SAFETY CONCERNS – MAHOGANY CREEK

Thank you for your letter dated 14 March 2011 in relation to the above matter.

The bush land within the Strettle Road Reserves is subject to a mosaic burning program whereby the fuel is burnt in a controlled manner, usually at a frequency of not less than 10 years. These burns are progressively carried out in smaller sections to maintain the overall environmental value of the bush land. This is a well recognised bush land management technique, and the Shire maintains records of all burning on these reserves.

These activities are coordinated across the Shire of Mundaring by very competent officers who are experienced and qualified and have many years practical experience in bush fire suppression and in bush fire risk reduction.

The Shire of Mundaring encourages property owners to be proactive in fire safety, however not all areas of management of private properties can be enforced as private property owners have the right to manage their own properties in their own way, provided they are compliant to the published Shire of Mundaring Fire Break Notice. This includes matters of fire breaks, grass height and total fuel loadings. This area is inspected annually by our Rangers to ensure compliance.

I hope the above addresses your concerns

Yours sincerely

A handwritten signature in black ink, appearing to read "Adrian Dyson".

Adrian Dyson
MANAGER HEALTH AND COMMUNITY SAFETY SERVICES
230301.jb



14th March, 2011

Atten: Shire Clerk,

Per Fax: 9295 3288

Dear Sir,

Reluctantly I approach you again regarding excessive fuel in the area surrounding my property. As you are well aware I have approached you in the past on more than one occasion but nothing has changed, other than each year the situation worsens. I as an individual cannot successfully communicate with C.A.L.M, F.E.S.A, our ranger service or your Mr. Ayre. I rely on you to act on my behalf. You have the ability and the necessary clout, as my Shire Clerk, to make certain that these departments act in a professional manner and not fob off their responsibilities to one another.

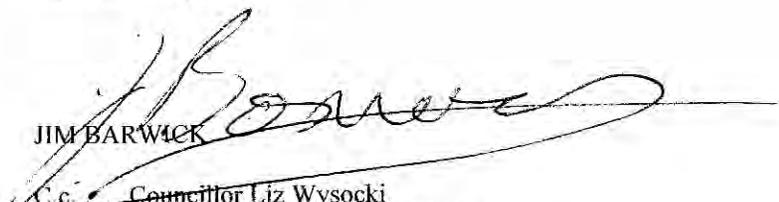
We are now in autumn and soon the safe burning time will be with us. I say to you, please get this area made safe for the coming summer. If you have a problem as to how this can be accomplished you are welcome to call upon my assistance. I have many years experience in fuel reduction in the forest.

I am certain you will accept that you as Shire Clerk are totally responsible for the wellbeing of the ratepayers in this matter. Also our councillors have a huge responsibility to make certain for themselves that our shire management and its workforce are carrying out their duties in a professional manner and not fobbing off their responsibilities to other sections of the community.

I will demonstrate to you what I mean. On the 9th February I contacted our ranger service and spoke to a Mr. Bruce Burgess. This was regarding a property which had not had its firebreaks maintained for four or five years. His immediate response was "why report this on the 9th February"? I ask why not? Every year we are bombarded by reports from the ranger service that firebreak inspections will be carried out prior to the oncoming dry weather.

Please find enclosed an article from the West Australian dated 14/03/11, by Tim McDonald. I most certainly shall make use of this facility and may I respectfully suggest to you Sir that you make it known to the ratepayers of our shire, through the local paper that this facility is available and suggest that they make use of it for the safety of us all.

Yours faithfully,


JIM BARWICK

C.c. Councillor Liz Wysocki
Helen Dullard, Madam President

Submission to Perth Hills Bushfire February 2011 Review
by David & Terri-joy Mazzucchelli

We live high on the overlooking the Brookton Hwy valley and Kelmscott and Bedforddale beyond. We have been living here for over 7 years. We have only one neighbour whose property is adjacent to ours for more than half of our boundary. The land beyond his property (to the east, south east and south, and perhaps 100metres from our boundary) is the State owned Banyowla Regional Park, as is the land across the road from us to the north, north-west and west. There is also a triangle of land abutting our boundary to the south-west that we assume is part of this same regional park.

In the 7 years that we have lived here, we have not observed a single prescribed burn in any part of the broad vista that we overlook, nor in the forest on the other side of the road from us. The only fire that has taken place anywhere close to us was in the forest to the north-west of us (but not within sight of our property) and was an uncontrolled bushfire in late December 2004 or January 2005. This was brought under control by water bombers and heavy earth moving equipment.

We walk regularly on fire trails in various different parts of the adjacent forest and have observed that the undergrowth has become more and more dense over the years, in particular with the additional encroachment of weeds that have spread freely in many parts. We have been informed by our neighbour who has lived here for around 35 years, that the last fire that went through the area was a wild fire around 30 years ago which was also catastrophic with houses being lost. Our neighbour has contacted the department previously known as CALM many times over the years asking for the forest adjacent to his property to be burned but with no success. We too have contacted CALM in the past as well as our local member of parliament but also without any result.

We are required by our local authority to maintain our property to help prevent the spread of fire. We do so religiously and so does our neighbour. However, our diligence on our own properties gives little protection from a wildfire approaching at ferocious speed up a valley where 30 years of undergrowth has been allowed to accumulate. If this land was privately owned, the owner would have been prosecuted and forced to maintain it. When the owner is the State, it would appear that all complaints fall on deaf ears. If we run a business, we have a duty of care to our employees and are responsible for their safety – anticipating likely hazards and removing them to avoid danger, but when an entity such as the State is in control of an area, it seems that they can ignore this same duty of care with impunity. Why is this so?

We recognise that in choosing to live in such a beautiful rural environment, we are more at risk of fire than if we chose to live in a higher density urban location. We accept this risk and accordingly have taken action to minimise the risk. On moving here, we immediately installed a fully protected petrol fire fighting pump and ring main around our house with two 25 metre fire hose reels – drawing water from the swimming pool. We are not connected to mains water supply, but we understand that many people who experienced this fire who *are* connected to the mains didn't just have "low water pressure" during the fire, they had "no water pressure" and that when the need was greatest, emergency services vehicles were unable to refill their water tanks from this source – and water had to be trucked in from distant mains.

2.

Since the fire event, we have spoken to a number of FESA employees and volunteer fire fighters who have presented various stories which seem to indicate that there is a worrisome degree of animosity between these parties and DEC (previously CALM). We have been told that when offers have been made by FESA to conduct burns on DEC controlled land adjacent to urban areas that they have been told to stick to their own jobs and leave the management of state owned land to DEC. We have also been told of situations where volunteer fire fighting organisations ready to assist when fires have been occurring on state owned land, being instructed that they are not to get involved until fire enters private property. This seems absurd! While we recognise the need for controls and protocols to be implemented and adhered to, there must surely be some common sense brought to the table. When you under utilise available resources, optimal outcomes cannot be achieved.

Since the fire event we have communicated with Minister Marmion detailing our concerns about the complete lack of prescribed burns in our area. He responded with some statistical information about the level of fuel in the Banyowla Regional Park, stating that approximately a quarter of the park had a fuel load of 6 years or less. We have asked for further details on this but have not received a response. The inference in the statement was that this 25% had been attended to by prescribed burns whereas we believe that in fact, it was mostly the result of bushfires. He claimed that there had been a prescribed burn to the west of Urch Rd in the last four years so we asked for details, as once again, we believe that the only burns that have occurred have been the result of bushfires and that it is inappropriate for DEC to claim credit for burns which were in fact wildfires. Minister Marmion also wrote: "I am also advised that within Banyowla Regional Park DEC undertakes a comprehensive program of fire pre-suppression works in preparation for each fire season. These works include firebreak pruning, spraying and grading (where required), gate and lock maintenance, slashing grass paddocks and liaison with stakeholders and park neighbours regarding overhanging trees and fuel loads.

To assist with bushfire preparedness and suppression works DEC also prepares a fire response plan for Banyowla Regional Park in consultation with the Fire and Emergency Services Authority and the Cities of Armadale and Gosnells. The plan includes detailed operational information that assists agencies in bushfire suppression."

We asked for details as to which of the fire pre-suppression works had "actually" been completed over the past 5 years and asked for a copy of the fire response plan for the 2010/2011 fire season. We sent our request immediately after receiving Minister Marmion's letter on 23rd March and asked that the information sought be emailed to us ASAP (as time was short) so that we could give it consideration when writing this submission. We have not received a response to date.

It is clear to us that DEC has categorically failed to appropriately manage the fuel loads on the urban interface along the Darling Scarp – not just over the 2010 period, but for many, many years, and that the catastrophic fire on February 6th was a disaster waiting to happen. While Minister Marmion pointed out that "...DEC managed land comprised a little less than half of the total area burnt...", it is apparent to us that numerous houses that were lost would have been far less likely to burn had there not been a super-charged fuel conduit connecting the affected areas.

3.

Our very real concern for the future is that the Bushfire Review will result in recommendations for greater imposition on property owners and more regulation on building practices. We already live in a highly regulated society where personal initiative is suppressed and an ever increasing level of restriction imposed. While it is up to individuals to keep themselves informed about regulations, how many people would be aware that during a total fire ban, one should not use a lawn mower? In reality, no amount of regulation will ever overcome the lack of common sense. If an apparently intelligent person deems it appropriate to use an angle grinder in the open near dry grass on any day of the year, let alone on a day of extreme heat combined with high velocity winds, heaven help us! More regulation certainly won't.

So what is the alternative? Some things which we feel are worthy of consideration are as follows:

1. First and foremost, appropriate management of state owned land. While according to Minister Marmion, with regard to the concept of prescribed burning "DEC is recognised as being a leader, on both national and international levels, in its use", there has been a spectacular failure in the implementation in this case. Why? Is the organisation top heavy with too much of the funding allocated to administration and too little to the human resources required to physically manage the land?

Is it a case of too little funding to do the job properly? If DEC is so many years behind with prescribed burning, how can they ever catch up if funding does not permit more burns to be done? If the window of opportunity for prescribed burning is shortening because of our changing climate, do we just use this as an excuse when catastrophe strikes or do we increase funding so that sufficient personnel are available in the shorter window? If more funding is not feasible, what do we do instead? We cannot continue to ignore the problem.

When funding is being examined, there must also be an examination of the cost of this fire event. If the same amount of money had been allocated to effective land management, would it have cost less?

The up side of the fire event is that DEK now has some breathing space in our area at least. There is now nothing left to burn. Hopefully, there will be an appropriate program up and running before the hazard builds up again in the months and years to come.

2. Management of privately owned land. Council restriction on land owners reducing fuel loads by burning is the greatest limiting factor. Obviously, guidelines must be established and adhered to. However, those currently in place are ineffective. If we are to make our community safe, owners must be allowed to clear fuel loads in a sensible way. When sloping ground completely inhibits the use of clearing equipment, fire is the only way to reduce the hazard. Depending on the size of one's property, it is often unfeasible to only burn in small heaps – the size of the task is too great, but the risk still must be dealt with. Well managed broad burning is often the only alternative.

Cumbersome council burning permit regulation is a great disincentive for owners to get the job done. While we obviously must take into account those people lacking in enough common sense to perform the task safely, we must also find a way to facilitate the safe management of privately owned land which is not onerous.

4.

There must be a sensible risk analysis. What is the greater evil? Would we prefer the risk of a privately conducted burn getting out of control during the shoulder period of the burning season (which obviously has a chance of occurring) and maybe moving to adjacent property, or the risk of a wildfire taking place in the middle of summer on a 40 degree day with a 40 knot wind? Would the health risks to asthmatics be of more concern with the former or latter scenario? Is the risk to bio-diversity of more concern with the former or the latter? Would it be better to take a risk that the odd house may become vulnerable in the shoulder burning period or have 72 houses burnt in the middle of summer?

What system would be the most effective (rather than the most restrictive)? While in principle we definitely do not want more rules, perhaps a system where land owners can achieve an endorsement to conduct private burns on their own properties could be implemented. Perhaps this may consist of completing a course in the safe control of a fire including selecting the appropriate weather, appropriate fire break preparation, evaluation of the fuel load and therefore the size of the area to be burned at one time, advising neighbours of the intention to burn, having appropriate personnel and equipment on hand etc. While those of us capable of employing common sense are less likely to need such instruction, we must accept that it is necessary to bow to the lowest common denominator! Once the certificate of proficiency has been awarded to the land owner, it would remain current for as long as the person owned that particular land – not requiring renewal (and fees!) every year as is so often the case with other licences. When planning to conduct a burn, the owner could then be required to make a phone call to a fire officer so that centralised monitoring can be kept. If necessary, the number of burns in a particular area on a particular day could be limited so as not to have the whole community surrounded by smoke – with the fire officer being able to either give the go ahead or deny the request if a specified number of others in the specified area have already been approved. Such a system could be very simple and keep the community fire safe.

Should the above (or an alternative simple system) be implemented, those people who own vulnerable property but don't feel confident to conduct burns themselves, should be able to call FESA or their local volunteer fire service and arrange for them to conduct burns on their behalf for a fee that is low enough to encourage this to be done.

3. Just as we believe that the mismanaged state land was simply a disaster waiting to happen, we also believe that a great number of domestic dwellings in the hills region fall into the exact same category. We've heard people say "oh, we know that we shouldn't have the trees right over the house, but we just love them". We also heard it said at a bushfire meeting that we attended in Armadale after the fire, that homes that were approved in the past in fire prone areas simply wouldn't be approved today – that there would just be too much risk in particular locations. In both of the above instances, it seems that common sense has failed. Surely vegetation control is the key to fire safety. Rather than a radical overhaul of building codes, it seems to us that keeping trees and other combustible materials well back from houses would be the most appropriate practice. If regulation is to be changed, surely this should be at the top of the list? Keeping gutters leaf free is an ongoing task even when you keep your trees 20 metres or more back from the house. When trees overhang, you're inviting the fire in! In a suburb such as Roleystone which is a very heavily wooded urban area, home owners who do not have overhanging trees are placed in severe danger by their neighbours who do. Once again – disasters waiting to happen.

5.

We have heard that in some land releases in the City of Armadale (and beyond), there are restrictive covenants that confine clearing of vegetation to a pre-defined building envelope so as to protect the natural ambience of the sub-division. If this building envelope keeps trees and scrub in close proximity to houses, surely such covenants are absurd and should be prevented.

4. Minister Marmion speaks of programs and plans being drawn up each year by the various agencies. While we realise that these are normal and necessary processes, we hope that this bushfire review will not consult only with the theorists and academics. While we do not wish to denigrate the theoretical knowledge of people in administrative positions in DEC, FESA and local authorities, we believe that the people with years of experience fighting bushfires in the hills region are far more likely to provide the most constructive suggestions as to how the best results can be achieved in the future. These fire fighters, both career and volunteer, have an intimate knowledge of bushfire behaviour which is real, not just theoretical, and do not have the same need to “protect their backs” as so many administrative personnel seem to require.

End.

Perth Hills Bushfire February 2011 Review

Private Submission from:

Robert (Bob) Tizard,

I am glad of the opportunity to comment on the Terms of Reference associated with the abovementioned Review. I do this as a resident of Bedforddale and as a Street Coordinator with the Bedforddale Bushfire Ready group affiliated with the Bedforddale Volunteer Bushfire Brigade. I am not a firefighter. My comments reflect a personal view and are not related to my role as a Councillor with the City of Armadale.

My comments connected to Terms of Reference No 1,2,3 and 4 are as follows:

Term of Reference 1

“The adequacy of current preventative measures, specifically prescribed burning and other bushfire mitigation activities”

The Bushfire Ready program undertaken by the Volunteer Bushfire Brigades at Bedforddale and Roleystone has resulted in extensive fire prevention activities in these areas. Individual property owners are encouraged and assisted in reducing the fuel loads on their properties and large areas like the Armadale Settlers Common (approx.400 hectares) and Bungendore Park (approx.500 hectares) have fire prevention programs using a mosaic burning pattern that facilitates a reduction of fuel in these reserves. The fire reduction programs are constructed to reduce fuel each year over a set proportion of bushland eg. each year 25% of the Armadale Settlers Common is burnt at optimum times during the year so that “cool” burns are possible. The third year of the four year fuel reduction program has been completed which means that only 25% of the Armadale Settlers Common remains to be burnt over the forthcoming months. This remaining bushland includes some of the lowest fuel loadings. Bungendore Park is embarking on a six year program.

These fuel reduction activities are complemented by prescribed burning in Water Corporation areas. Areas administered by the Department of Environment and Conservation appear to require more regular attention especially in those reserves that are adjacent to housing. Many residents have expressed their concern regarding the high fuel levels in these reserves eg Churchman Bushland Reserve. The bushland under the control of state agencies is largely in the vicinity of residential areas in Bedforddale and Roleystone and does present a serious

Perth Hills Bushfire February 2011 Review

threat to those that live nearby. A concerted program of prescribed burning is called for in many outer metropolitan locations and should be given immediate priority by the State Government so that the Kelmscott/Roleystone bushfire disaster is not repeated in other risk prone locations in forthcoming years.

Term of Reference 2

“The impact of land use, environmental and building laws, practices and policies in the affected areas on bushfire mitigation, prevention and response”

The current practice suggested for those caring for the environment is to plant local indigenous plants in their gardens in order to conserve water. Whilst this is a worthy sentiment it does create a garden which consists of flammable material that is known to burn fiercely. If these plants are close to the house a fire hazard is produced that will severely endanger buildings and occupants in the event of a wild fire. A safer alternative is to plant fire-retardant plants close to buildings that can consist of exotic plants requiring little water or local indigenous plants that inhibit fires. The creation of a suitable publication by FESA may assist in the distribution of this information. A recent publication from the City of Armadale does assist with this issue.

Term of Reference 3

“The options available to landowners, residents and tenants to assist in bushfire risk management including vegetation clearance, use of air-conditioners and storage of flammable materials around dwellings.”

Publications issued by the Fire and Emergency Services Authority (FESA) are invaluable resources for all households in localities likely to be impacted by bushfires. **“The Homeowners Bush Fire Survival Manual”** is well presented, easy to read and gives a detailed account of how to live safely in a fire prone area and should be made available to all residents likely to be impacted by bushfire. It is unfortunate that prior to the recent fires, residents in areas like “Clifton Hills” considered that they lived in an urban environment free from the threat of bushfire. Many hints on preparing our households for the fire season are included in this publication which includes basic activities like reducing flammable vegetation and materials on properties. This process does not require the removal of all trees around our homes but the removal of ground level fuel (grass, leaves, branches, undergrowth etc).

A more recent publication from FESA is **“Prepare Act Survive – You Guide to Preparing For and Surviving the Bushfire Season”**. This booklet was released after the 2009 Black Saturday Fires in Victoria and contains much information on the decision making process associated with the “Go Early” or “Stay and Defend” options and a section on “preparing your property”. Templates to assist residents in the preparation of their bushfire survival plans are particularly useful. On pages 16 and 17 of this booklet, details on the Fire Danger Rating are provided

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with the associated actions that we should take when these ratings occur. In the event of a “Catastrophic” rating the following information is provided:

“Impact potential -

people will die or be injured

a lot of homes and buildings will be destroyed

well prepared, well-constructed and actively defended homes are highly unlikely to be safe”

“What Should I Do -

put your survival first and leave, it is the best option

It is safest to leave early, that is hours or the day before a fire starts

under no circumstances will it be safe to stay and defend your home”

(underlining by author of this submission)

This latest information is vastly different to earlier advice that encouraged people to stay and defend regardless of the severity of the conditions. It appears that a good number of residents are not aware of the revised attitude to the “Catastrophic” rating and may stay at home ready to defend when FESA are suggesting that they leave their homes early when these conditions prevail. The situation is aggravated by those people still actively advising others to stay at home even when there is a fire in the area and the Fire Danger Rating is Catastrophic. Action to distribute this revised information from FESA to all affected residents before the next fire season is vital.

Term of Reference 4

“The adequacy and effectiveness of information and communications campaigns and mechanisms, including systems for alerting residents in relation to fire”

Early advice of an approaching fire can result in the saving of lives in a severe wild bushfire. The “StateAlert” system is a handy tool but does not give sufficient notice of an impending fire. The policy under which the “StateAlert” system is used includes the philosophy that it is only invoked in the event of a life-threatening situation. This is too late for those wishing to leave early. An approaching bushfire is not considered life-threatening at the time that people should be leaving their homes; therefore, the “StateAlert” advice will be broadcast too late.

The Bedfordale Volunteer Bushfire Brigade has a Community Information Service (CIS) in place that is not used as an early warning advice but has been extremely helpful in providing general bushfire information to local residents. CIS can send SMS messages to individual groups or to any combination of enrolled members. This has been used to advise local residents of a range of different circumstances eg. the commencement of fuel reduction burns, to highlight that smoke in the area is from a distance fire, remind Bushfire Ready members that meetings are planned etc. Expansion of this type of system to more localities could complement the “StateAlert” service in the event of a

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major emergency and provide early advice to those residents planning to leave early. It is not an expensive undertaking and is relatively easy to maintain.

One major disadvantage of living in the hills is the poor quality radio communications caused by the terrain. Those in the “shadow” of ridges or those that live in valleys have poor mobile telephone coverage. This issue also affects radio communications for the emergency services personnel. An examination of the adequacy of current radio equipment and replacement with more appropriate facilities, if required, should be an early action in the aftermath of the Kelmscott/Roleystone fire. The proposed use of fire fighting vehicles as radio repeater stations on ridges will reduce the number of units on the ground fighting fires. Opportunities exist for better coverage by the installation of higher aerials. One site that could be utilised is the abseiling tower at the Armadale Christian College in Bedfordale which is some 30 metres above ground level. The College has a strong community focus and I am sure that they would be happy to assist with this matter. Mobile telephone towers and television repeater towers are also available for this purpose.

Term of Reference 5

“Improvements that can be made in relation to the coordination of activities across all levels of Government, including with volunteer groups”

No comment.

I thank you, again, for the opportunity to comment on the Perth Hills Bushfire.

Yours Sincerely,

RJ (Bob) Tizard

13th April 2011

**Submission to the
Perth Hills Bushfire February 2011 Review**

Submissions should be submitted electronically (preferred) to:

[Redacted]

or posted to:

Perth Hills Bushfire February 2011 Review
Locked Bag 10, Cloisters Square
PERTH WA 6850

Note: All submissions received will be made available on the Inquiry's website. People wishing to make a confidential submission should make this clear at the time of lodgement and the Inquiry will not publish those submissions. However, people should be aware that whilst every endeavour will be made to ensure confidentiality, there is a possibility that such submissions might be released in accordance with the *Freedom of Information Act 1992*.

Contact Details

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Organisation Details (Where Applicable)

Is this submission presented on behalf of an organisation:	Yes / No
If yes, name of organisation:	
Position in organisation:	

Response to Terms of Reference

You must address at least one of the Terms of Reference.

- Improvements that can be made in relation to the coordination of activities across all levels of government, including with volunteer groups.**

Currently within the Fire and Emergency Services Authority (FESA) there is a lack of process to determine if a Fire and Rescue Service (FRS) Volunteer is competent to perform the operational roles expected of them.

There is no structure to determine or differentiate an FRS volunteer's level of knowledge, experience or competence. There is also no structure to determine minimum requirements for an individual to become an officer of a Brigade, even though an Officer has huge powers given to them under the Fire Brigades Act.

FRS Career fire-fighters can gain the Nationally Recognised Certificates in Firefighting and Emergency Operations. Bushfire Brigades can gain the Nationally Recognised Certificates in Firefighting Operations. The links to the National competencies provide a competency framework which is auditable as well providing common structure and in many cases, common language.

Currently, FRS volunteers can go through an RPL process to gain a Certificate in Firefighting Operations. Firefighting Operations, as described by the Australasian Fire and Emergency Service Authorities Council (AFAC) is a qualification where the core competencies reflect the competencies required by fire-fighters involved in land management and wildfire firefighting. An RPL process is all that is available rather than a structured pathway of provided training to work towards gaining this qualification.

Very few FRS volunteers have taken up this RPL process predominantly because the core competencies do not reflect the operational activities that they perform. The Certificates in Firefighting and Emergency Operations do provide the core competencies required. AFAC describe this qualification as "The core units contained within Certificates II and III in Firefighting and Emergency Operations reflect the competencies required by fire-fighters involved in structural firefighting operations." This is why FESA deliver these modules to their career fire-fighters. FESA however, will not provide FRS volunteers access, or a pathway to these modules and subsequent qualification, even though the operational exposure is the same.

The impact this can have on the fire ground during a major event such as the Perth Hills fires is that because career and volunteer FRS fire-fighters do not have like for like minimum competence as outlined within the Public Safety Certificate framework, there is a lack of common language, understanding or operational structure. The common ground is very limited.

So currently there is no common competency structure between career FRS and volunteer FRS fire-fighters. There is no structure to determine levels of competence of FRS volunteers and no specific criteria to determine a level of competence of volunteer FRS Officers. This is known within FESA; however no action has been taken, or is likely to be taken under the current atmosphere, to rectify these discrepancies.

This submission, and attached plan, is designed to highlight that one of the biggest areas for improvement in relation to the coordination of activities across all levels of government, including with volunteer groups is in the area of competence. Development of competency frameworks and associated pathways. Alignment with the nationally recognised Public Safety certificates is a good start and has been a lesson learnt in other states.

VOLUNTEER FIRE AND RESCUE SERVICE TRAINING IMPROVEMENT PLAN

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1. INTRODUCTION

Currently the Fire and Emergency Services Authority (FESA) do have a recognised competency based training framework, such as the nationally accredited certificates in Public Safety (Firefighting and Emergency Operations) for its volunteer Fire & Rescue Service (FRS) fire-fighters, although this is provided to FRS career fire-fighters.

This disparity has resulted in FESA operating in a situation where it could be accused of discriminating against FRS volunteers.

This disparity has also resulted in FESA operating in a situation where it is in breach of its duty of care obligations towards FRS volunteers.

Career FRS and FRS volunteer fire-fighters are exposed to the same fire and rescue operations and subsequent hazards as part of their normal duties; however the risks to volunteers are greater and as such require very robust controls.

Contributions to the higher risk profile of FRS volunteers include, no minimum standard to determine competence across the range of operations performed and as such there is no determination as to competence of individual members including officers of Brigades. The frequency of operational exposure to the range of operations for FRS volunteers is generally less than FRS career fire-fighters which has an affect on retention of knowledge. Not all reasonable types of incidents that a volunteer Brigade may be exposed too have been identified and subsequent training provided.

2. PURPOSE

The purpose of this training improvement plan is not to criticise or denigrate FESA. Its purpose is to raise the awareness of the disparity that currently exists within FESA and provide positive action, through demonstration of actively progressing towards alleviation and improvement of the current situation in an effort to support FESA.

The focus of this plan is on FRS volunteers. This plan mentions bush fire brigades and FRS career fire-fighters for reference purposes only and does not address, nor is it intended to address, any possible disparities that occur within these branches of the organisation.

The recent tragic events of the Toodyay fires, Lake Clifton fires and Roleystone fires highlight the commitment and dangers that FRS volunteers face. As such, the competence required to be a volunteer fire-fighter, Senior fire-fighter or an Officer of a Brigade needs to be defined and linked to a robust standard, such as national standards, as it is for career fire-fighters.

Do to the level of commitment that volunteers demonstrate their level of training and ability to achieve relevant real world qualifications should be world class. Currently, for FRS volunteers, it is not.

3. DEFINITIONS

Definitions have been taken from the WA Government internet site: <http://wa.gov.au/>

3.1 Discrimination

Discrimination is any distinction, exclusion, restriction or preference made on a particular basis because of a certain characteristic or quality they possess or do not possess.

Workplace discrimination is unlawful under the Equal Opportunity Act 1984. The Act applies to both direct and indirect forms of discrimination and covers all aspects of employment, including the recruitment, management and termination of employees.

FESA currently exclude and will not allow Volunteer FRS members to achieve the certificates in Public Safety (Firefighting and Emergency Operations) even though it currently provides this training to career fire-fighters and volunteer members of private fire Brigades.

3.2 Competent Person

In relation to the doing of anything, means a person who has acquired through training, qualification or experience, or a combination of those things, the knowledge and skills required to do that thing competently.

FESA has defined the competency levels of Career fire-fighters through direct links to the nationally recognised Certificates in Public Safety (Firefighting and Emergency Operations), yet it has no definitions of competency (fire-fighter, senior fire-fighter, Officer) for Volunteer fire-fighters and does not link competency to any nationally recognised standard. There is no structure linked to definition.

3.2 Duty of care

- Employers must provide a workplace where employees are not exposed to hazards.
- Employers must provide a safe system of work.
- Employees must take reasonable care for their own safety and health and that of others affected by their work.
- Employers and self-employed people must, as far as practicable, look after their own safety and health and ensure that their work does not affect the safety and health of others.
- Designers, manufacturers, importers and suppliers must provide plant which is safe to install, maintain and use at workplaces.
- All plant must be installed or erected so it can be used safely.
- Safety and health information must be supplied with all plant and substances used at work.
- Employees and safety and health representatives must consult and co-operate in matters related to safety and health at work.
- Employers must provide employees with information, instruction, training and supervision to allow them to work in a safe manner.

Without a defined competency framework, it is difficult for an organisation to comply with, or establish that they have in place, the appropriate processes to ensure that employees have the information, instruction, training and supervision to allow them to work in a safe manner.

3.3 Person with Control of a Workplace

Person having control of a workplace means a person other than an employee who has, to any extent, control of a workplace where persons who are not employees of that person work or are likely to be in the course of that work and where the control is in connection with the carrying on by that person of a trade, business or undertaking (whether for profit or not); and includes a person who has, by virtue of a contract or lease, an obligation of any extent in relation to the maintenance or repair of a workplace

Responsibility of persons having control of workplace

Unless the contrary intention appears, where a person having control of a workplace has a duty under a provision of these regulations to do or not do something in relation to the workplace, the person's duty —

(a) relates only to a matter over which, and the extent to which, the person has control or can reasonably be expected to have control having regard to the person's interest in the workplace; and

(b) is limited to persons who are at the workplace.

When an FRS volunteer is performing FESA "work", FESA have control of the workplace and owe a direct duty of care. As such, training and competence need to be assured. Currently they are not.

4. BACKGROUND

4.1 The Problem

While the hazards that FRS volunteer fire-fighters are exposed too are the same as FRS career fire-fighters and arguably "effectively" managed, the structure and subsequent level of training is very different. Career fire-fighters progress along the well structured, nationally accredited and recognised certificates in Public Safety (Firefighting and Emergency Operations; Firefighting Supervision). Progression through these certificates is directly linked to career progression (fire-fighter, senior-firefighter station officer). FRS volunteers do not have a similar "career" progression model or structure.

It would be accepted that it is not practicable to expect a volunteer to develop the same level of skilled application as a career fire-fighter, nor is or should this be expected. However the Public Safety certificates do make it practicable that all fire-fighters, regardless of being volunteer or career, have the same minimum knowledge and competence. The reason for this is because the Public Safety framework provides minimum criteria only. Effectively, the framework provides a level playing field from which to progress.

It is reasonable however, that the minimum knowledge and competence that an FRS volunteer and career fire-fighter have would be the same for the same operations. The differentiator between the two is in skill level or skilled application. Through the career FRS recruit training school, an FRS career fire-fighter develops a greater level of skill and application of that skill. This transfers into a higher level of competence than the minimum required under the Public Safety framework.

As an example, the minimum criteria under the Public Safety framework to demonstrate competence in breathing apparatus (BA) may be, for the sake of discussion, 20 hours of instruction and wear under different conditions. Once this is

achieved a fire-fighter is deemed competent. If they are a volunteer they can begin to wear BA in operational circumstances, however if they are a career fire-fighter they may have an additional 60 hours of instruction and wear to improve or enhance their skill level. A career fire-fighter is competent after the initial 20 hours; however this competence is defined and enhanced for an additional 60 hours, which is fair and reasonable.

The practicality of delivering nationally accredited training in the Public Safety certificates to volunteers has already been established throughout various volunteer organisations within FESA and by other Australian State and Territory fire fighting and emergency services as well as through FESA accredited private Brigades. So precedence relating to this level of training has been established both within FESA and throughout other recognised emergency services.

As a result of FESA not training its FRS volunteers, or offering this Public Safety training to volunteers, there is within FESA unintentional discrimination and unintentional duty of care omissions which has resulted in FESA and its management being exposed to the implications this creates. This situation also has implications for the State Government.

4.2 Barriers

FESA has to contend with both the United Fire-fighters Union (union) and the Volunteer Association when it comes to volunteer training and competence, however neither of these organisations have “skin in the game” under the Occupational Health and Safety Legislation. The onus regarding volunteer training and competence however, always remains FESA’s.

The onus always remains FESA’s due to the fact that volunteers would be considered, under the Occupational Health and Safety (OHS) Legislation (OHS Regulations Division 3, section 23E), to be “employees” of FESA and as such a direct duty of care is owed to them by FESA. This is further highlighted within the OHS Legislation as FESA have control of the FRS volunteer’s workplace when the FRS volunteers are performing FESA “work”.

Volunteer training is one area where FESA’s duty of care obligation must have clarity and direction. The situation regarding bush fire brigades (BFB) however is slightly different. Although FESA still have a duty of care to the BFB’s, this duty is a shared duty with the local governments, this therefore reduces FESA’s direct obligation.

FESA do not have this luxury with FRS volunteers and as such, owe a full and direct duty.

FESA have been challenged fairly extensively with regards to training, competence and discrimination with regards to volunteers. However these have been related to Bush Fire Brigades (BFB) volunteers and not FRS volunteers. FESA appear to conclude that it is acceptable to compare as the same, the outcomes of these BFB challenges with those of a Volunteer FRS Brigade or member. Yet the duty owed is a full and direct duty to Volunteer FRS rather than the shared duty as is the case with the Local Government (LG) and their (LG) BFB. Therefore comparing the two services and suggesting that what is applicable for one is applicable to the other is misleading and lacking in fundamental understanding of the different services.

FESA also claim that Volunteer FRS can achieve recognition of prior learning or recognition of current competencies for the certificates in Public Safety (Firefighting Operations). This framework (Firefighting Operations) however is for Bush Fire Fighting and does not cover the full range of competencies that Fire and Rescue services require (Firefighting and Emergency Operations). This is recognised by FESA as they do not provide this (Firefighting Operations) competency pathway to its career FRS personnel as it is deficient in being able to provide them with the required competencies for them to perform their full operational role. Yet it is the only Public Safety competency pathway available to Volunteer FRS!

The difference between these two qualifications is further highlighted through the definition obtained through the Australasian Fire and Emergency Service Authorities Council (AFAC), of which FESA is a member. It defines these qualifications as such:

Fire Sector Qualifications

The core units contained within Certificates II and III in Firefighting and Emergency Operations reflect the competencies required by fire-fighters involved in structural firefighting operations.

The core units contained within Certificates II and III in Firefighting Operations reflect the competencies required by fire-fighters involved in land management and wildfire firefighting.

Volunteer FRS Brigades perform structural firefighting operations and as such the Certificate II in Firefighting and Emergency Operations should be available to them. The “industry” recognised body has already identified and recommends this.

Another barrier is the reliance on career fire-fighters providing training to volunteers. This is expensive and inefficient. It also has the tendency to come to a complete halt when the union perform industrial action against FESA which stops all training, this action results directly in the cessation of training of volunteers for the period that the industrial action takes place. However many long established volunteer organisations have policies regarding volunteers training and assessing other volunteers, therefore removing the reliance on “paid” trainers providing this service.

With well established competency based training systems such as the nationally recognised public safety and the training and education frameworks, the process of volunteers training and assessing other volunteers is made easier to manage and assure and allow the over all training process to be somewhat de-coupled from the career arm.

It is because of the direct duty of care owed and the control of the workplace that FESA need to actively strive to reduce the disparity that currently exists with its training of volunteers and its reliance on career fire-fighters to provide this training.

As other geographically diverse emergency service organisations and private training providers already provide this public safety training and training and assessment systems to volunteers, there is no need for FESA to “re-invent the wheel” when they can effectively “purchase off the shelf” these existing systems. If managed appropriately, this will greatly reduce development and implementation time and cost.

The Training modules for the certificates in Public Safety (Firefighting and Emergency Operations; Firefighting Supervision) can be purchased from the Australasian Fire and Emergency Service Authorities Council (AFAC), which FESA is a member. It is of interest to note however that FESA already, as a Registered Training Organisation (RTO) deliver the certificates in Public Safety (Firefighting and Emergency Operations; Firefighting Supervision) modules to career FRS fire-fighters and private volunteer FRS Brigades.

It does not and will not deliver this training to its FRS volunteers!

4.3 Concerns

As other areas within FESA already have well establish training that complies with the national framework relevant to them, and that FRS career fire-fighters are trained

to the national framework; the disparity existing within FESA can easily be established.

When comparing the content of the current FESA training available to FRS volunteers against the content of the Public Safety certificates (Firefighting and Emergency Operations; Firefighting Supervision), there is a divide between these and the subsequent competence level considered as the minimum.

If, as other Authorities, industry and other arms of FESA have dictated that the Public Safety certificates are now considered the minimum standard, then FESA in relation to FRS volunteers are operating below, not only what its peers and industry consider to be the minimum standard, but below other areas within its own organisation.

Current FESA training for volunteers has no refresher or expiry date. Some FRS volunteers have not attended a training course on a specific skill set for over ten years. In this time hazard identification, skill application and general competency requirements may have changed, yet this FRS volunteer is still considered “competent” under the current regime. This situation also has duty of care ramifications and requires improvement.

An Officer of a Brigade has huge powers under the Fire Brigades Act, which is appropriate, however FESA do not have a minimum competence level to help determine the competence required to be an Officer of a Brigade. As a result, it can come down to a popularity vote to choose Brigade Officers. Sometimes it comes down to who ever put their hand up, rather than if a person is competent to perform the role or not. The existing training process and structure does not reflect the authority and responsibility that Brigade Officers have. As such, it also does not support the Brigade Officers.

There are currently areas of emergency operations where volunteer fire-fighters are required to perform an operational duty, yet they have no training or minimum competence in the area. Examples of this, although not exhaustive, include confined space entry with mobilisation to cats in drains, heavy vehicle rescue with mobilisation to truck versus car incidents, aircraft firefighting and rescue with mobilisation to small aerodromes for an aircraft incident. All of these have specific hazards and risks associated with them, as such, each Brigade should be risk assessed (training needs analysis) regarding the probable exposure to these types of incidents and the relevant training made available to the Brigades. This currently does not exist.

An alternative solution is to not mobilise FRS volunteers to these types of incidents. This would be an irresponsible response to this issue and would likely impose a greater risk on to volunteers as mobilisation to these incidents would only arise when FRS career brigades were over engaged, therefore leaving the volunteers fully exposed with the only likely back up available being another volunteer brigade. This back up would also not have the knowledge, training or skill to apply the highest risk controls to manage the hazard(s).

Looking at the recent Toodyay, Lake Clifton and Roleystone fires, a contributing factor to the amount of loss may have been the lack of common language and therefore understanding between career and volunteer FRS Brigades as a result of the different training and minimum competence each have obtained. Without the minimum competence being the same between these FRS Brigades, there can be no assurance that communication, intent of message or action taken as a result of the communication, achieved the desired outcome.

When a fire truck arrives with blue and red flashing lights, the general public do not care if the truck is manned by career or volunteer fire-fighters. However they do expect that the personnel in attendance can competently perform the role required for the incident which they have been called too. Under the current arrangement regarding competence, there are no guarantees, benchmarks or even minimum standard.

4.4 Benefits

Through FESA adopting the Public Safety (Firefighting and Emergency Operations; Firefighting Supervision) certification framework for FRS volunteer members, it effectively provides FESA with a duty of care blanket around the organisation, its management and the State Government due to the fact that volunteers will have been assessed to a minimum standard that has been nationally adopted and recognised. This greatly reduces the argument and establishment of structure, standard and competence in a court of law or coronial inquest.

With FRS volunteers and FRS career fire-fighters being trained to the same minimum competence, any claim of discrimination can not be established. The difference in skill level and skill application can also be easily managed.

Adopting the well established Public Safety (Firefighting and Emergency Operations; Firefighting Supervision) certification framework for volunteers and having volunteers train and assess its own, increases efficiency and capability whilst reducing costs to FESA and allows volunteers to continue to operate unimpeded by union industrial action that has no relevance to them.

Adopting the Public Safety (Firefighting and Emergency Operations; Firefighting Supervision) certification framework for FRS volunteer members also gives something tangible back to volunteers. If structured correctly, it provides a clear path of progression which can be used as a retention tool.

The training can be expanded to include real world qualifications for members that remain in the service for 7 plus years or who take on added responsibilities through management roles. This training could take the form of subsidised study or grants in areas such as Certificate IV in Business, Project Management etc. This is once again an attraction and retention tool as well as building greater and real capability within the FESA family as a whole.

Once a level of competence has been established, such as Certificate II Public Safety (Firefighting and Emergency Operations), the specialised risk based training can be provided to Brigades that can foreseeably be exposed to the hazard e.g. aircraft incident, marine incident, confined space incident etc.

5. IMPROVEMENT PLAN

In an attempt to reduce the risk that currently exists to FRS volunteers and FESA whilst also attempting to significantly and immediately reduce the identified duty of care disparity and discrimination that currently exists within FESA, the following details how this improvement plan will function.

5.1 Schedule

A schedule has been developed with clear beginning and end dates. This schedule provides a phased approach with deliverables identified as milestones to be achieved at each phase.

The schedule allows for this area of competence to be researched and to assess how other organisations train and assess their volunteers. It allows for structure and pathways to be agreed and developed so that the best model fits the best, in all situations.

The deliverables include areas such as:

- The appointment of a project manager who has the expertise to manage this process;
- The alignment of volunteer training with the national framework Certificates II, III and IV;
- The development of volunteers training and assessing volunteers;
- Risk based training.

Should a milestone not be achieved, then the action is to escalate this plan to the next identified responsible person. The schedule is not onerous, but it does need to be managed.

5.2 Escalation

In the event that a milestone is not achieved, or sufficient proof of advancement is not presented, this improvement plan will be escalated through forwarding it to the next identified responsible person.

The escalation will be as follows:

- 1 Lloyd Bailey
Assistant Chief Operations Officer Metropolitan Fire
- 2 Craig Hynes
Chief Operations Officer FESA
- 3 Jo Harrison – Ward
CEO FESA
- 4 Rob Johnson
Minister Emergency Services
- 5 Colin Barnett
Premier, Western Australia

An escalation log has been included to assist with tracking the process and capturing reasons for escalation.

6. ESCALATION LOG

Date:	19/10/10	Escalated from:	Murray Bawden Regional Director Fire Services Perth South	Escalated to:	Lloyd Bailey Assistant Chief Operations Officer Metropolitan Fire
Reason for escalation:	Milestone target date not met <input type="checkbox"/>	Ineffective organisation <input type="checkbox"/>	Lack of human resources <input type="checkbox"/>	Lack of financial resources <input type="checkbox"/>	
Other:	Regional Director Fire Services Perth South, Murray Bawden forward the Training Improvement Plan to the Assistant Chief Operations Officer Metropolitan Fire, Lloyd Bailey on Tuesday the 19 th October 2010. Reason – lack of Authority to implement this level of change.				
Date:	23/11/10	Escalated from:	Lloyd Bailey Assistant Chief Operations Officer Metropolitan Fire	Escalated to:	Craig Hynes Chief Operations Officer FESA
Reason for escalation:	Milestone target date not met <input type="checkbox"/>	Ineffective organisation <input checked="" type="checkbox"/>	Lack of human resources <input type="checkbox"/>	Lack of financial resources <input type="checkbox"/>	
Comment:	Response from David Evenis, FESA Manager Training and Development did not address any of the issues highlighted relating to lack of competence of volunteers, discrimination against volunteers and FESA managements lack of compliance with their duty of care obligations.				
Date:	25/01/11	Escalated from:	Craig Hynes Chief Operations Officer FESA	Escalated to:	Jo Harrison – Ward CEO FESA
Reason for escalation:	Milestone target date not met <input checked="" type="checkbox"/>	Ineffective organisation <input type="checkbox"/>	Lack of human resources <input type="checkbox"/>	Lack of financial resources <input type="checkbox"/>	
Comment:	Meeting held with Craig Hynes Chief Operations Officer FESA and David Evenis, FESA Manager Training and Development on the 1 st of December 2010. Clarity provided as an outcome of the meeting via e-mail from B. Privilege To C. Hynes on the 8 th December 2010. No further correspondence received.				
Date:	12/04/11	Escalated from:	Jo Harrison – Ward CEO FESA	Escalated to:	Rob Johnson Minister Emergency Services
Reason for escalation:	Milestone target date not met <input checked="" type="checkbox"/>	Ineffective organisation <input type="checkbox"/>	Lack of human resources <input type="checkbox"/>	Lack of financial resources <input type="checkbox"/>	
Comment:	No correspondence received.				
Date:		Escalated from:	Rob Johnson Minister Emergency Services	Escalated to:	Colin Barnett Premier Western Australia
Reason for escalation:	Milestone target date not met <input type="checkbox"/>	Ineffective organisation <input type="checkbox"/>	Lack of human resources <input type="checkbox"/>	Lack of financial resources <input type="checkbox"/>	
Other:					
Date:		Escalated from:	Colin Barnett Premier, Western Australia	Escalated to:	
Reason for escalation:	Milestone target date not met <input type="checkbox"/>	Ineffective organisation <input type="checkbox"/>	Lack of human resources <input type="checkbox"/>	Lack of financial resources <input type="checkbox"/>	

7. SCHEDULE

ID	Task Name	Start	Finish	Duration	Q3 10	Q4 10				Q1 11			Q2 11			Q3 11			Q4 11			Q1 12			Q2 12			Q3 12																		
					Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug																		
1	Clarification of Improvement Plan	30/09/2010	8/10/2010	1.4w	■																																									
2	Identify a suitable Project Manager	8/10/2010	5/01/2011	12.8w	■																																									
3	Appoint a Project Manager	6/01/2011	6/01/2011	0w					◆																																					
4	Preparation of phased and risk based training model.	6/01/2011	6/04/2011	13w					■																																					
5	Training model issued as final.	7/04/2011	7/04/2011	0w						◆																																				
6	Develop Draft phase 1 training calendar	7/04/2011	4/05/2011	4w					■																																					
7	Draft phase 1 training calendar issued for review.	4/05/2011	4/05/2011	0w							◆																																			
8	Finalise phase 1 training calendar	5/05/2011	15/06/2011	6w					■																																					
9	Issue final phase 1 training calendar	15/06/2011	15/06/2011	0w							◆																																			
10	Create phase 1 TRK's	15/06/2011	4/10/2011	16w					■																																					
11	TRK's finalised, training commenced	4/10/2011	4/10/2011	0w									◆																																	
12	Develop Draft phase 2 training calendar	4/10/2011	24/10/2011	3w										■																																
13	Draft phase 2 training calendar issued for review.	25/10/2011	25/10/2011	0w											◆																															
14	Finalise phase 2 training calendar	25/10/2011	21/11/2011	4w										■																																
15	Issue final phase 2 training calendar	21/11/2011	21/11/2011	0w											◆																															
16	Create phase 2 TRK's	21/11/2011	9/03/2012	16w											■																															
17	TRK's finalised	9/03/2012	9/03/2012	0w														◆																												
18	Develop Draft phase 3 & risk based training calendar	9/03/2012	5/04/2012	4w														■																												
19	Draft phase 3 & risk based training calendar issued for review.	6/04/2012	6/04/2012	0w															◆																											
20	Finalise phase 3 & risk based training calendar	6/04/2012	26/04/2012	3w														■																												
21	Issue final phase 3 & risk based training calendar	27/04/2012	27/04/2012	0w															◆																											
22	Create phase 3 TRK's	27/04/2012	30/08/2012	18w											■																															
23	TRK's finalised	31/08/2012	31/08/2012	0w																										◆																