

1<sup>st</sup> August 2011

Committee Secretary  
The Senate – Environment and Communications References Committee  
PO Box 6100  
Parliament House  
Canberra ACT 2600

**Sent via email:** [ec.sen@aph.gov.au](mailto:ec.sen@aph.gov.au)

Dear Committee Secretary

**Inquiry into the capacity of communication networks and emergency warning systems to deal with emergencies and natural disasters**

I refer to the terms of reference contained in Senate Standing Committees on the Environment and Natural Disasters.

Field Secure is a private enterprise dedicated to the development of early stage Incident Detection and Safety Management technologies. Developing solutions that bridge the siloed approach of agencies provides a complete picture of incidents and allows for a faster response with less risk for field based responders.

Field Secure has recently been endorsed to work with the United Nations Secretariat of the International Strategy for Disaster Reduction (ISDR) based in Geneva, Switzerland. We are a fledgling provider that is assisting the UN deliver it's Disaster Risk Reduction strategies to over 160 nations.

It is my intention to respond directly to the issues that have been identified in this inquiry.

1.0 The effectiveness of communication networks, including radio, telephone, Internet and other alert systems (in particular drawing on the spate of emergencies and natural disasters of the 2010/2011 Australian summer):

- (i) in warning of the imminent threat of an impending emergency,
- (ii) to function in a coordinated manner during an emergency, and
- (iii) to assist in recovery after an emergency;

**Response:** These are important questions and I think it is painfully obvious that the answer to (i) and (ii) is that the networks did not function in a fashion that provided immediate and adequate warning of the impending disasters and as a result Australians perished.

The most poignant issue is that fact that NO governments in Australia provide for early incident detection and systematic response. Instead the traditional approach is based on a rapid mobilization of various agency resources into collective control centers. The issue with this approach is that adequate warning of impending danger moves further away from the incident start and places more lives at risk. Analysis of the Victorian Black Saturday Bushfires and the Grantham Tsunami disaster of 2011 highlight this fact.

The Royal Commission into Black Saturday (Kilmore East) showed that warning messages were compiled but not distributed due to chain of command failures.

The Grantham disaster was a different issue. After the deluge, a wall of water made its way down East and West Creeks in Toowoomba, joining together in the town center and moving down Gowrie Creek it washed down through Murphy's Creek and flooding the Lockyer Creek it devastated Grantham causing multiple fatalities.

Both these incidents were preventable. The image below is an attempt to scale the loss of life from both these tragedies, relative to the response and notification process enacted. As you can see in the Kilmore East fire, the warning never came. What is hard to fathom is the fact the fire was detected 4 hours before the first deaths! In the Grantham case the Cranley Gauge (BOM) registered the flooding at approximately 2:35PM, an hour before the wall of water struck Grantham and over five hours before NEWS sent SMS warnings to Grantham.

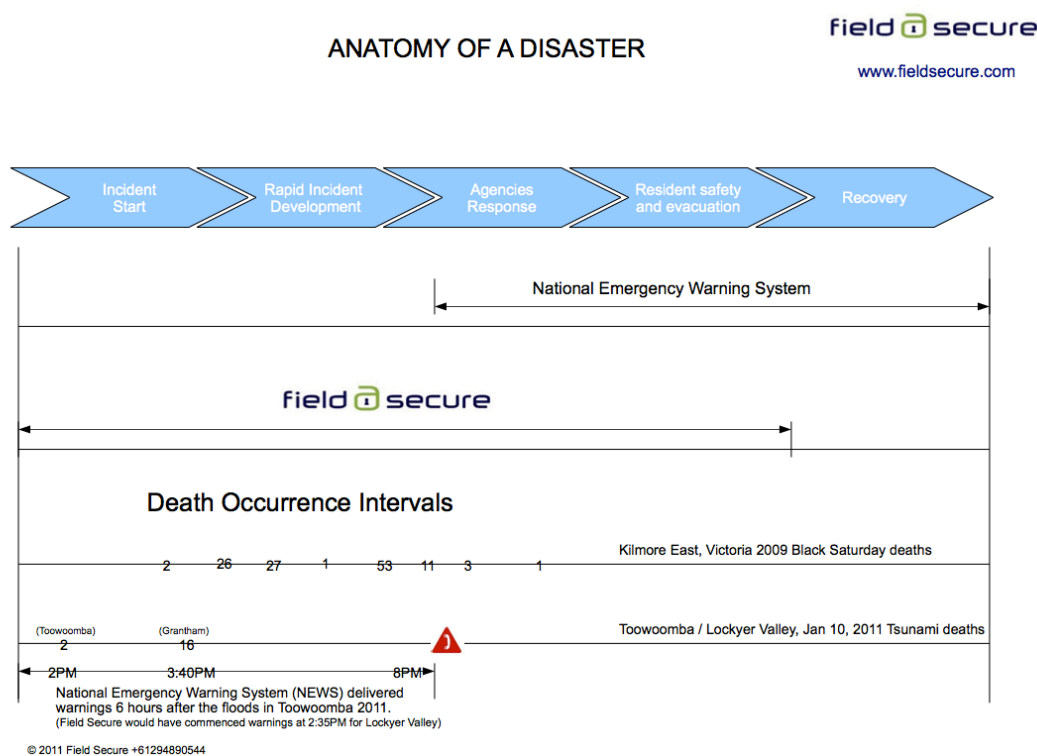


Fig 1.0

Field Secure is a system designed to carry out early detection of incidents such as floods and fire.

There are a number of Early Warning Systems on the market in Australia that repackage publically accessible data from BOM, SES and other Emergency Agencies and carry out a managed notification process to subscribers. These are fine services for slow moving hazards like the approach of a Cyclone or the gradual rise of a river system due to upstream flooding. But as has been seen in evidence and in practice with recent events, the data capture and presentation from the agencies and services is often not granular enough, complete or provided at all.

Field Secure uses these services but provides sensors and meters to track any number of metrics that indicate the presence of an Incident. These are bespoke solutions to solve local problems and provide advanced warnings.

Field Secure works with local bodies to define the rules and triggers for warnings to be disseminated to populations. Sometime these are subordinate to higher levels of authorization but our recommendation is to always have a failsafe built in to generate warnings if the triggers are activated and there has not been a manual authority to release the warnings. History has shown in the last two years that this would have saved lives if it had been enacted. In the case of Toowoomba the trigger to activate downstream warnings would have been initiated at 2:35PM when the Cranley Gauge exceeded 2.5 mtrs. For Kilmore East the notifications would likely have commenced when the fire jumped the highway 15 minutes after it was spotted and was out of control.

Field Secure is designed to aggregate all available data and the extra data that its sensor network provides to provide a consolidated picture to all Emergency Services and Responders allowing for more complete and better management capabilities.

This is challenging for individual agencies that protect the control of their operating environment and have proved reluctant to share closely the data they possess as seen during Black Saturday.

Communications infrastructure is important to this process. Fixed telephony is the first to fail followed by mobile infrastructure. For this reason we use satellite, short burst data services, which are independent of the wireless and terrestrial service the Telecommunications companies provide. It is the use of this technology that also supports household devices that can be contacted and their warning status changed or notification processes commenced. This is a key advantage over reliance on a SMS service that may or may not have coverage, network capability or get there on time.

Field Secure operates a Patent Pending Emergency Notification system that can report on the success of all communications as well as the intent of the individuals that it is notifying.

In regards to the success of the communications infrastructure this is largely dependent on the incident itself and the devastation that it has caused to the availability of infrastructure.

2.0 The impact of extended power blackouts on warning systems for state emergency services, including country fire brigades and landholders or homeowners;

Response: Any system that is dependent on mains power for extended capabilities in this environment will run out of power eventually. Field Secure sensors in general are solar powered devices that have a long life profile going to sleep when not active and conserving power. In the case of fast moving incidents notification or warnings are increasingly difficult the further away from the commencement of the incident they are.

3. The impact of emergencies and natural disasters on, and implications for, future communication technologies such as the National Broadband Network (NBN);

Response: The NBN is proposed to be a hybrid fibre and wireless network. It will have similar issues under duress as has the existing terrestrial and wireless networks in Australia.

4. The scope for better educating people in high-risk regions about the use of communications equipment to prepare for and respond to a potential emergency or natural disaster;

Response: The community needs to be educated about their role in the early detection and notification of incidents. This together with their individual safety plans will ensure their survival.

Communications needs to be benchmarked to ascertain the best systems for the worst conditions. Currently it is a request to the existing dominant Telecommunications players to use their services, which will likely fail under duress. I think an independent assessment of all technologies is required to ascertain which works best for the Australian situation.

5. New and emerging technologies including digital spectrum that could improve preparation for, responses to and recovery from, an emergency or natural disaster;

Response: Once again it is the best horse for the course. An independent analysis of the current networks for the best solution for Australian conditions.

6. Any other relevant matters:

Response: I think that it is time for a complete re-assessment of the strategy around incident response in Australia.

The prevailing opinion is that a person in a fire tower is the best solution for bushfire detection and starts the current response process.

This is questionable, as Black Saturday proved.

Detection under the old methods did not herald the end of the issue as was seen. There is a role for a whole of incident management system that includes an early warning and notification system that also provides a management infrastructure that adheres to accepted and well thought out protocols such as AAIMS.

The main issue I believe is reluctance by agencies to provide access to a system that is perceived to be senior to their own systems.

There is an opportunity to learn from the recent disasters that have taken lives and open the thinking up around best practice for saving lives.

I thank the The Senate – Environment and Communications References Committee for this opportunity. I apologise for the late delivery of this document and hope it provides some food for thought.

Regards

Mark Armstrong  
Director  
Field Secure

## Appendix a

### Field Secure

Is a early stage incident detection and notification system coupled with a management system that complies with AAIMS.

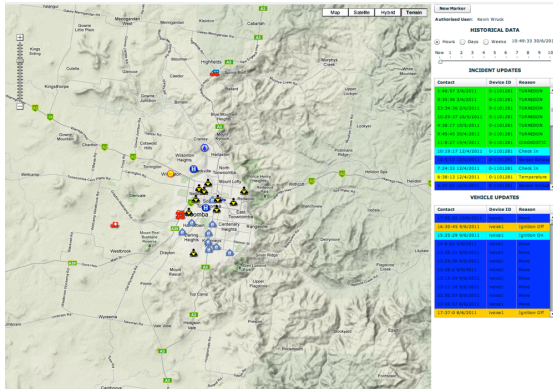


Fig:2.0 Field Secure

Field Secure provides:

- Incident Detection
- Advanced notification systems
- Data capture and auditing capabilities on an incident
- Vehicular tracking and management capabilities
- Asset protection services
- Personnel tracking and reporting capabilities
- High risk site management i.e. Hospitals, Aged Care and Schools
- Government data integration