

Statement by Adrian Philip Butler, Chairman & Co-Founder, World Fire Safety Foundation in relation to the death of Bessie Tokona and Eunice Felton on 3 September 2015

I, Adrian Philip Butler, State:

1 Introduction

My name is Adrian Philip Butler. My date of birth is 6 January 1957.

I am the Chairman and Co-Founder of the World Fire Safety Foundation ('The Foundation' formerly The International Crusade Against Fire Deaths). I am a former full-time New Zealand Fire Service fire fighter. The Foundation has been researching and reporting on the known, life-threatening limitations of ionisation smoke alarms and the safe photoelectric alternatives since it was founded in New Zealand in March 2000. I have personally spent over 25,000 hours working on this issue.

The Foundation has played a significant role in exposing the limitations of ionization smoke alarms and has been involved with legislation mandating photoelectric smoke alarms in several states and municipalities across the U.S.A., Australia and New Zealand.

Since 2004 I have developed and maintained the Foundation's websites and social media sites which contain over 500 webpages with scientific and media reports and other research information. The World Fire Safety Foundation is widely regarded as the most comprehensive reference source on the ionisation vs photoelectric smoke alarm issue. Those are the two most common types of smoke alarms fitted in residential dwellings.

I have been involved in the production of several videos about fire safety relative to smoke alarms and have been on T.V. and radio, and in newspapers and magazines extensively throughout New Zealand, Australia and the U.S.A. since 2004.

Limitations of Ionisation Smoke Alarms

The limitations of ionisation smoke alarms referred to previously are:

1. They have an unacceptably high false alarm rate.
2. There is a high probability they will not activate in time to save life in the event of a house fire.

This is a serious and significant limitation given that when people install a smoke alarm they do so expecting that in the event of a fire they will have sufficient time to safely escape. The expectation is that if they are asleep in bed at night and a fire breaks out in their home they will be awoken by the sound of the smoke alarm during the early stage of the fire to give them sufficient time to safely escape and to assist any other dependents to escape. That is the purpose and expectation of residential smoke alarms.

Most fatal fires start with an extended slow, smouldering phase, usually while people are asleep. The smouldering stage may last from thirty minutes to well over an hour. Ionisation alarms typically will remain silent during the early smouldering phase and will fail to activate until the fire transitions into the flaming stage. The flaming stage is typically very swift and may engulf a home in less than 5 minutes.

A smouldering fire on its own can be fatal. It is often the smoke that kills before the flame.

Standards organisations typically measure visible smoke by light obscuration per lineal metre. The maximum safe limit of visible smoke set by Standards Australia at which photoelectric smoke alarms must operate is 15% light obscuration per lineal metre. Standards Australia have determined that if the level of smoke in a home is above 15% then occupants will not be able to escape safely.

A significant problem which most home owners and many people in key official positions are unaware of is that ionisation smoke alarms do not activate till at least double the 15% maximum safe limit. Typically most will not activate till over 50% light obscuration per lineal metre. At this level of smoke occupants will be unable to safely escape.

Burnt Toast

The number one problem faced in getting this message to the public, fire fighters and the media can be summed up in two words, 'burnt toast'.

Because almost everyone has experienced ionisation smoke alarms activating from cooking they have a core belief that they are highly sensitive and therefore they are extremely effective. They will detect the hot, invisible, sub-micron particles emitted by red-hot heating elements from a cooktop, oven or toaster. Tragically, the same ionisation smoke alarms that activate when cooking will remain silent in the slow-smouldering stage of fires such as faulty electrical appliances that may smoulder for an hour or more before bursting into flames. Ionisation alarms are a sub-micron particle detector, they do not detect visible smoke. Photoelectric alarms detect visible smoke.

In 2005 I developed a simple 'Aquarium Test' to demonstrate the ineffectiveness of ionization alarms. The test shows them failing to activate when surrounded by thick toxic smoke from a smouldering fire. This test has been used by fire departments and news organisations across the U.S.A. and Australia to demonstrate the inability of ionisation alarms to activate in the early smouldering stage of fires.

Background

In November 2014 I sent a detailed report to Housing New Zealand Corporation (HNZC) outlining the life-threatening limitations of ionisation smoke alarms. The report included a reference to Building Association of New Zealand (B.R.A.N.Z.) tests.

I became aware of the deaths of Eunice Felton and Bessie Tokona in a house fire at 15 Exeter Crescent, Takaro, Palmerston North, New Zealand on 3 September 2015.

After the Tokona fire the Foundation contacted HNZC. We discovered that 275,000 ionisation ('IoPhic') alarms had been installed into 64,000 HNZC homes. This included the Tokona's home.

IoPhic smoke alarms are an ionization smoke alarm. They contain an ionization sensor. They do not contain a photoelectric sensor. They are manufactured by Universal Security Instruments Incorporated (USI), a company based in Maryland, USA. USI make several marketing claims in relation to their IoPhic alarms. They are a single-sensor, ionisation smoke alarm. They are a particularly ineffective smoke alarm.

In June 2014 IoPhic smoke alarms were tested by B.R.A.N.Z. B.R.A.N.Z. gave them a 0 out of 10 score in the smouldering fire tests. 8 different makes and models of ionisation alarms tested by B.R.A.N.Z. failed the smouldering fire test. They all received 0 out of 10. By contrast all twelve photoelectric or photoelectric combination smoke alarms passed the test with scores ranging from 7.4 to 8.9 out of 10.

I learned recently that HNZC has withdrawn, or is in the process of withdrawing, all 275,000 Iopic alarms and is destroying them all so they may not be reused. I applaud HNZC for this.

I am concerned that the occupants of privately owned New Zealand homes are still endangered by the installation of ionisation alarms.

The Australasian Fire & Emergency Service Authorities Council (AFAC) is the peak representative body of all Australian and New Zealand fire brigades. Greg Mullins is the most senior fire service official in Australia and New Zealand. He is the Commissioner of Fire & Rescue New South Wales and the President of AFAC. Since the Australian Senate Hearing into smoke alarms, in December 2015, Commissioner Mullins and myself have repeatedly stated in the media that ionisation smoke alarms should be banned.

In August 2016, following the advice of a Coroner, the Queensland Government enacted legislation mandating the use of photoelectric smoke alarms. Ionisation technology has been deliberately excluded from the legislation, even when used in combination with a photoelectric alarm.

The World Fire Safety Foundation remains concerned that hundreds of thousands of people living in privately owned accommodation throughout New Zealand falsely assume that they are adequately protected by their existing ionisation smoke alarms. They are not and they should be warned of the potential danger.

Ideally private home owners will follow the lead of Housing New Zealand and withdraw all existing ionisation smoke alarms and replace them with photoelectric smoke alarms.

My recommendation to the Coroner is to advocate for the mandatory installation of photoelectric smoke alarms in all New Zealand residential dwellings and ban the sale of all ionisation smoke alarms for residential applications.

This will be a major step to avoid further tragedies such as the deaths of Bessie Tokona and Eunice Felton.

Thank you for allowing me the opportunity to present this information.