

Fire & Rescue

Autumn 2016

News

**'LEADING
FROM THE
FRONT':
HISTORY OF NSWFB/
FRNSW CHIEF
OFFICERS BY
SO DAVID TAI**

**STRATEGIC
OPERATIONS
CENTRE**

**IT'S TIME TO
REALARM**



Fire &
Rescue NSW

The Minister WRITES



Thankfully the 2015/16 summer our State was spared major bushfires, however other states were not so fortunate.

Bushfires burnt through large areas of land in WA, SA, Victoria and Tasmania, devastating many local communities and in some cases leading to loss of homes, infrastructure and even lives. With NSW's extensive firefighting capability and expertise, I am pleased that when requested, we were able to send firefighting deployments to support and boost over-stretched resources in other states.

The NSW Government remains committed to providing our firefighters with the best possible equipment, technology and facilities so that they can effectively and safely get on with the job they do best – saving life, property and the environment.

Late last year, I joined Commissioner Mullins to view the TAF20, Australia's first firefighting robot, as it was put through its paces. In March, I was also given a preview of other firefighting technology in action. I've recently been shown demonstrations of integrated technologies including drones streaming video to new mobile command centres for improved situational awareness across large sites and mobile data terminals (MDTs), rolled out to 180 fire appliances in 2015, which now deliver rich data to firefighter's fingertips in an emergency.

It's important also to acknowledge the level of ongoing investment in major capital works including new fire stations and recent major refurbishments. In February Pyrmont Fire Station was unveiled following a \$2.7 million heritage renovation. Also in February I was pleased to officially open a new \$3.1 million state-of-the-art fire station at South Windsor and a new \$3.3 million fire station at Yennora. South Windsor Fire Station replaces a century-old station which was no longer meeting the needs of the community.

Finally, it is wonderful to witness a long-serving and respected organisation like FRNSW celebrating and preserving its heritage with a new coffee table book. *Leading from the front* by Station Officer David Tai tells the fascinating story of the 21 remarkable leaders of the NSW Fire Brigades (and later Fire & Rescue NSW) between 1884 and 2015. I congratulate the author for his considerable effort in documenting FRNSW's proud part in our State's shared history.

David Elliott MP
Minister for Corrections, Emergency Services
and Veterans Affairs

The Commissioner WRITES



This year marks the 10th anniversary of legislation requiring smoke alarms in all residential buildings, a move championed by FRNSW.

While this has improved community safety, the anniversary means millions of alarms may now be reaching their 'best before date'. In addition, research has made it clear that ionisation alarms should be replaced with photoelectric alarms.

Over April and May a new 'REALARM' smoke alarm campaign replaced the usual 'Change your clock, change your battery' message to urge community members to replace old alarms with new photoelectric alarms. As we have seen in recent campaigns like Hydrant Heroes, we can influence the public to take action if firefighters champion the message in their local areas. I ask everyone at FRNSW to familiarise yourselves with this new direction and be leaders of change at home and at work.

An issue I remain passionately committed to is our need to increase diversity in our workforce. As President of the Australasian Fire and Emergency Services Authorities Council (AFAC), I recently released a joint Statement on Workforce Diversity endorsed by all emergency services Chief Officers and Commissioners committing their agencies to create a workforce and culture that is truly inclusive, and that reflects the diverse communities that they serve.

The 2016 FRNSW permanent firefighter recruitment campaign will deliver equal numbers of men and women to the recruit classes. I don't shy away from the fact that this is a bold step, however I can put my hand on my heart and say this is the right thing to do. I have been asked if it is fair and my answer will always be the same. Yes, because it creates equity for all applicants, and women have been disadvantaged in the recruitment process until now.

In the last few months, NSW experienced unseasonable rainfall and flooding while bushfires burned in large areas of Victoria, SA, WA and Tasmania. This again highlighted the extreme variations in weather across Australia and the ongoing effects of climate change. Climate change is a huge issue for emergency services throughout the world as the integrity and frequency of extreme events contributes to increase, my thanks to all those who took part in interstate deployments and who demonstrate that time and again, FRNSW will go to the aid of our neighbours whenever required.

We will continue to look for new ways to do things, and our strategic direction and priorities for 2016/17 will be on the table at our third annual Emergency Management Conference in May. As an organisation it is important we do not rest on our laurels and events such as this ensure we are not just up there with the best, but that we ARE the best.

In closing, I wish to pay tribute to my friend and long-term professional colleague, Deputy Commissioner Jim Smith, on his well-deserved retirement.

Greg Mullins AFSM
Commissioner



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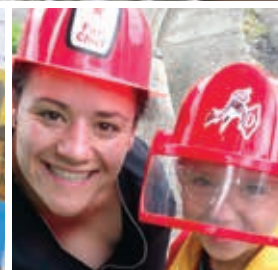
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Interior shots of the new Strategic Operations Centre

NEW AND IMPROVED 24/7 INTELLIGENCE GATHERING AT THE STRATEGIC OPERATIONS CENTRE

A new 24/7 situation room to be known as the Strategic Operations Centre, or the SOC, is being established at the Sydney Communications Centre, Alexandria.

The SOC will support frontline operations with up-to-the-minute situational awareness while coordinating FRNSW operational readiness. The SOC will replace the Major Incident Control Centre (MICC) as the coordination centre for major incidents and events and will act as a 24/7 intelligence centre.

I am excited FRNSW is leading the way in this area. New technology is providing great opportunities to improve the safety of first responders and the community they are working to protect.

The SOC will continue the successful components of the MICC and enhance the potential for intelligence gathering and dissemination. It aims to improve FRNSW's operational readiness through better situational analysis, improved resource management and increased information management and dissemination. It will also increase support to Incident Commanders (ICs) providing a central point to access intelligence and advice where required.

The room will be staffed by a Superintendent, an Inspector (Response Coordinator), a ComCen Supervisor, and ComCen Operator. A recruitment process will be run to fill the permanent role of Manager Strategic Operations & Readiness (Superintendent) with an EOI for up to six months for the State Intelligence Coordinator (Station Officer) and Intelligence Officer (Firefighter).

Assistant Director Operational Communications, Chief Superintendent Greg Wild said the room will monitor incidents, social media and a number of other intelligence sources to enable FRNSW to better inform first responders.

"I am excited FRNSW is leading the way in this area. New technology is providing great opportunities to improve the safety of first responders and the community they are working to protect.

"The SOC will allow us to gather intelligence about the situation and dangers firefighters may face when they arrive at the scene of an incident. We can then better use the information we collect from incidents to improve our approach to operations.

"In addition, the new Mobile Command Centre (MCC) will be the SOC's eyes and ears at incidents and firefighters will be able to produce tactical media and relay information back when they are at an incident.

"The SOC will populate the ADASHI incident software so that when the IMT arrive at the incident they will be able to take over incident management seamlessly."

The former MICC has been remodelled to fit the needs of the new Strategic Operations Centre which is expected to be fully functional by June 2016.

END

SOC OBJECTIVES

- Improve operational readiness
- Improve firefighter safety
- Provide a strategic overview of current and emerging incidents State-wide, nationally and internationally
- Assist first responders in remote regional locations when the attendance of senior officers may be delayed or communications with these officers may be difficult
- Provide accurate and timely information to the community
- Gather intelligence from a wide range of sources including social media



Apple TV has been rolled out to all stations

STAY TUNED IN THE STATION

New satellite phones, improved wi-fi and Apple TV are revolutionising IT capability at fire stations across the State.

The program of fire station IT improvements commenced in the last quarter of 2015.

By January 2016, IT had replaced all NEC2 satellite phones with the Inmarsat IsatPhone2. This upgrade was necessary because the NEC2 service was being discontinued. The Inmarsat IsatPhone2 is more reliable, connects faster and can be used as a portable satellite phone.

In addition to the sat phone upgrade, appliance mobile phones are expected to be upgraded to new Samsung Note 4 smartphones continuing into next

Apple TV allows firefighters to view FRNSW training and informational videos hosted on Vimeo via the station TV.

financial year. Customised mounting brackets to cater for the larger phone size are required and will take time to roll out to all stations.

Inside fire stations, the wireless access point has been upgraded in almost 50 locations (mainly metro areas) with the rollout continuing for all stations across the State. The upgrade has extended the coverage and increased the reliability of wi-fi internet access.

In January 2016, a program to roll out Apple TV to all stations commenced with the project due to be completed by June. Apple TV allows firefighters to view FRNSW training and informational videos hosted on Vimeo via the station TV. Vimeo is a modern video hosting service similar to YouTube, which FRNSW uses to securely host videos. Firefighters can also stream content from Apple Airplay compatible devices to the Apple TV.

Installation and support instructions for the new sat phones and Apple TV can be found in the toolkits on the intranet.

END



Following countless hours of researching, interviewing family members and sourcing pictures, SO David Tai checks sheets of images used in 'Leading from the Front' (Photo by Andrew Parsons)



'LEADING FROM THE FRONT': INSPIRING STORIES OF EFFECTIVE LEADERSHIP

A new coffee table book, published by FRNSW, tells the fascinating story of the 21 remarkable leaders of the NSW Fire Brigades (and later Fire & Rescue NSW) between 1884 and 2015.

As Chief Officers and Commissioners of FRNSW, these 21 men helped transform a small under-resourced fire service into a world-leading modern and highly professional emergency service which is highly respected in the wider community.

The story of the powerful legacy forged by this group of inspirational men has been told by Station Officer David Tai following four years of intensive research.

The seed for the book was sown through an off-the-cuff remark SO Tai made to Commissioner Greg Mullins about how sad it was that so little was known about the past leaders of FRNSW. In response, the Commissioner encouraged SO Tai to uncover the story of each of the 21 men.

Capitalising on his own passion for history, SO Tai dedicated his spare time to researching and writing a manuscript, liaising with family members and delving into a wide range of public and personal records.

The result is a richly illustrated history charting the lives and careers of the 21 Chief Officers/ Commissioners from 1884 up to the present time. The book is a must-read for those fascinated by the history of firefighting and emergency services. It is also full of valuable insights for anyone keen to learn about effective leadership during changing times and organisational transformation.

Copies of the book will be held at the FRNSW Library at the State Training College and at selected libraries across the State. More information about the book, including other stockists, will be made available to staff soon. **END**

EXTRACT FROM THE FOREWORD BY COMMISSIONER GREG MULLINS

131 years have passed since the organisation's inception, and as Commissioner of Fire & Rescue NSW, I am very much aware of the rich history and the many legacies left by those who went before us. As we face significant challenges in the modern world, I wonder what must have gone through the minds of Chief Officers who in their day were faced with challenges such as the change from horse-drawn to motorised appliances, dealing with depleted staffing due to firefighters heading overseas to fight during World Wars I and II, and the introduction of new technologies, such as radio telephones.

I also wonder what they would think of the service today – with appliances dispatched on the basis of real-time satellite tracking, deployment of rescue Task Forces to Japan and New Zealand, and with the routine use of thermal imaging and advanced chemical detection equipment.

Indeed, a lot has changed. But other things have not – and here I refer of course to the bravery, commitment and ingenuity of the men and women who serve in the frontline as firefighters.

As Commissioner, it is my duty and my humble pleasure to serve and support them as they protect the community. This too, has not changed, and I congratulate Station Officer David Tai for his research into the people behind the photographs on the "Chief Officers' Wall" at the State Training College. This is their story, and part of our wider story, and I hope that you enjoy reading about them.

ST FLORIAN'S DAY PIN OF OUR OWN



St Florian is the patron saint of chimney sweeps, soapmakers and firefighters. St Florian's Day is observed on 4 May each year.

In recent years, FRNSW marked St Florian's Day with a limited number of red and yellow ribbons and award ceremonies recognising service, conduct and bravery.

In 2014, the Media and Communications Unit designed a red and yellow remembrance ribbon with a limited number produced. The ribbons were worn at a special St Florian's Day awards ceremony at the State Training College Alexandria, and by firefighters and staff throughout the Greater Sydney Area. Ribbons were also provided to media outlets and worn by presenters on Seven News, Nine News and by regional newsrooms (Prime7, NBN and WIN).

In 2015, a metal pin was designed and a small number produced for St Florian's Day. This was the first metal firefighter 'remembrance pin'.

"For 2016, I wanted to design a Fire & Rescue NSW specific pin," said Andrew Parsons, Assistant Director, Media and Communications Unit. "The Commissioner approved a new FRNSW pin for this year, and this time we've had quite a few produced for firefighters and staff."

The 2016 FRNSW firefighter remembrance pin will be circulated to fire stations throughout the State (in small quantities) for firefighters and staff to wear on St Florian's Day.

"The new pin is smaller, easily identifiable by the red and yellow chequers of the fire service and has the FRNSW crest offset to the side – making it uniquely ours," said Andrew Parsons. "There's no specific place to wear the pin, however, it suits the lapel buttonhole on jackets, or can be worn over the left breast pocket of dress and drill shirts or over the left breast pocket buttons on galateas."

Station Officers and Captains will receive packs containing remembrance pins to be distributed among firefighters at stations by the end of April. **END**



Fire crews carrying out hazard reductions at Hornsby Heights

HAZARD REDUCTION A MAJOR PRIORITY DURING COOLER MONTHS

With the main bushfire season now behind them, the focus of FRNSW and other Australian fire services is moving to the vital task of hazard reduction.

The importance of hazard reductions

Commissioner Greg Mullins has highlighted that a bushfire is the emergency event with the biggest potential to impact negatively on communities within FRNSW fire districts. Most life and property at risk from bushfires within the State is located within FRNSW fire districts.

To reduce bushfire risk for next summer, over the coming months FRNSW is carrying out a targeted program of hazard reduction burns in cooperation with the NSW Rural Fire Service (NSWRFS), National Parks and Wildlife Service (NPWS) and local government. These burns decrease bushfire fuel between homes and surrounding bushland, thus reducing the impact of uncontrolled bushfires on life, property and the environment. The burns also protect critical areas of remnant urban bushland and native animal

habitats and can assist with regeneration of native fauna.

Despite limited hazard reduction burn opportunities, due to less than optimal weather conditions prior to the bushfire season, in 2014/15 FRNSW completed 197 hazard reductions. These burns reduced the bushfire risk for 1,796 properties with an accumulated value of over \$1.7 billion.

The areas most at risk are located within the urban bushland interface. The total interface boundary within the Greater Sydney Area alone exceeds 6,000 km. This interface is made up of varying and diverse ecosystems with a variety of vegetation that ranges from grasslands subject to fast-moving fires, to coastal heath that burns with great intensity, through to dry and wet sclerophyll forests that can experience high-intensity crown fires.



The public's interest in the health of the ecosystems that surround them varies greatly, ranging from little or no interest at all through to being very passionate about its protection and survival. Many residents living in or close to the interface do so because they enjoy the beauty of the natural environment.

Partnering to reduce risk while still ensuring environmental health

FRNSW is seeking to partner with other agencies and non-government organisations involved with bush and grassland ecosystems. Through these partnerships, FRNSW will introduce fire into the environment in a safe and planned manner, with the aim not only of reducing fuel loads but also creating a healthier natural ecosystem for all to enjoy. One example of this is the relationship that FRNSW is gradually developing with NPWS to enable both organisations to share expertise.

A further example of working together is Bushfire Officer Rob Strauch's partnership with the Nature Conservation Council through husband-and-wife team Drs Judith and Geoffrey Lambert to protect the endangered Eastern Suburbs Banksia Scrub. Likewise the work of land manager Amelia Jones from Hornsby Shire Council whose burn, when undertaken with FRNSW at Mount Colah, resulted in up to 21 native flowering species being regenerated through the careful introduction of fire into a suburban bushland reserve.

FRNSW is also seeking to foster partnerships with traditional indigenous landowners to ensure culturally significant sites are protected when introducing fire into the landscape. These partnerships will provide opportunities

for FRNSW to promote indigenous understanding of the use of fire and how they managed their lives around it in the past.

Fire stations adopting the changing focus in bushfire risk management

Hazard reduction, and in particular prescribed burning, requires firefighters with a particular skill and passion for fire management in the environment. The science behind it is extensive and is continuing to evolve. This provides an exciting opportunity for suitable stations, particularly those with bushfire tankers, to be involved in the learning evolution.

In addition, nearly 600 Community Fire Units (CFUs) across the State help residents improve bushfire safety. CFUs are therefore a critical part of FRNSW's efforts to assist the community to be better prepared and more resilient to the threat of bushfires while ensuring recovery is supported from within the community itself.

Research highlights key factors determining bushfire risk

Dr Trent Penman, a bushfire behaviour expert and researcher at the University of Melbourne, states in the *Journal of Biogeography* (Volume 42, Issue 11, November 2015) that in all regions studied, extreme weather is a stronger predictor of risk – up to 10 times – than the extent of past fires.

"Because the weather is so important, we'll never be able to eliminate fire," Dr Penman said. He advocates a greater focus on reducing fuels next to houses and residents better preparing their property for fire, given about 90% of homes lost to bushfires are the result of ember attack.

Professor Ross Bradstock is Director of the University of Wollongong's Centre for Environmental Risk Management of Bushfires and is an author, researcher and consultant on bushfires and the environment. He said the condition of forest fuels within about one kilometre from homes appears to be a crucial factor in determining risks. Efforts should therefore focus on 'constructing a shield' near homes, because otherwise, it's likely other measures wouldn't have much impact on risk.

"Hazard reduction fires near homes, though, are costly in terms of resources needed to ensure blazes don't get out of control," said Professor Bradstock. "Negative impacts, such as smoke and other disruption on communities, are among the trade-offs residents in bushfire-prone areas have to make."

FRNSW's purpose is to save life, property and the environment from fires, emergencies and disasters. In line with the NSW Government's *NSW 2021* plan, a key priority of FRNSW's corporate plan is to ensure the organisation remains ready to deal with major emergencies and natural disasters in partnership with other NSW emergency services.

Reducing the hazards associated with bushland urban interface by careful and considered introduction of fire into the landscape greatly assists FRNSW in meeting this key priority. **END**



NSW IMT deployment to help combat fierce bushfires in Tasmania

NSW FIREFIGHTERS DEPLOYED TO FIGHT BUSHEIRES INTERSTATE

While thankfully NSW has not had to contend with major bushfire activity this summer, it has been a very different story in other states.

Despite NSW experiencing periods of heavy rainfall and flooding, bushfires have burned out of control in large areas of Victoria, South Australia, Western Australia and Tasmania, highlighting the often extreme variations in weather across Australia.

Since the start of 2016, FRNSW officers have responded as members of NSW firefighting contingents to requests for assistance from Victoria, Western Australia and Tasmania, providing much-needed boosts to over-stretched local resources.

Following requests from Emergency Management Victoria, a total of four incident management team (IMT) rotations consisting of eight personnel each (including one representative from FRNSW each rotation) were deployed to Victoria from 1 January onwards.

On 9 January a request was received from the WA Department of Fire & Emergency Services, resulting in the first deployment of 68 personnel from

NSWRFS, NPWS and the Ambulance Service of NSW. This was followed on 11 January by a second deployment of 62 interstate personnel including 38 from NSW (from FRNSW, Supt Selwyn Mathias and SO Anthony Hojel filled roles within the Logistics Team), five from ACT, 13 from South Australia and six from Queensland.

From early January right throughout February and into March, extensive bushfires burned in remote and/or wilderness areas in Tasmania with tens of thousands of hectares burnt out. Following a request for assistance by the Tasmania Fire Service on 21 January, 133 personnel including 100 NSWRFS firefighters, five paramedics and two FRNSW IMT officers departed for Tasmania. As the bushfire campaign stretched on, further rotations were deployed each with two FRNSW IMT officers. **END**

The following is a typical thank you from a Tasmanian family grateful for the interstate assistance in fighting the bushfires devastating their State:

“Thank you for helping in Tasmania. Although we do not live in the affected bushfire region of our beautiful State, we wish to say thank you for sending firefighting personnel to assist ours combat the out of control fires in our State. Please if you can, pass our sincere thanks to all these heroes, they have and still are doing an amazing job. Sometimes the public forget to say thank you.”

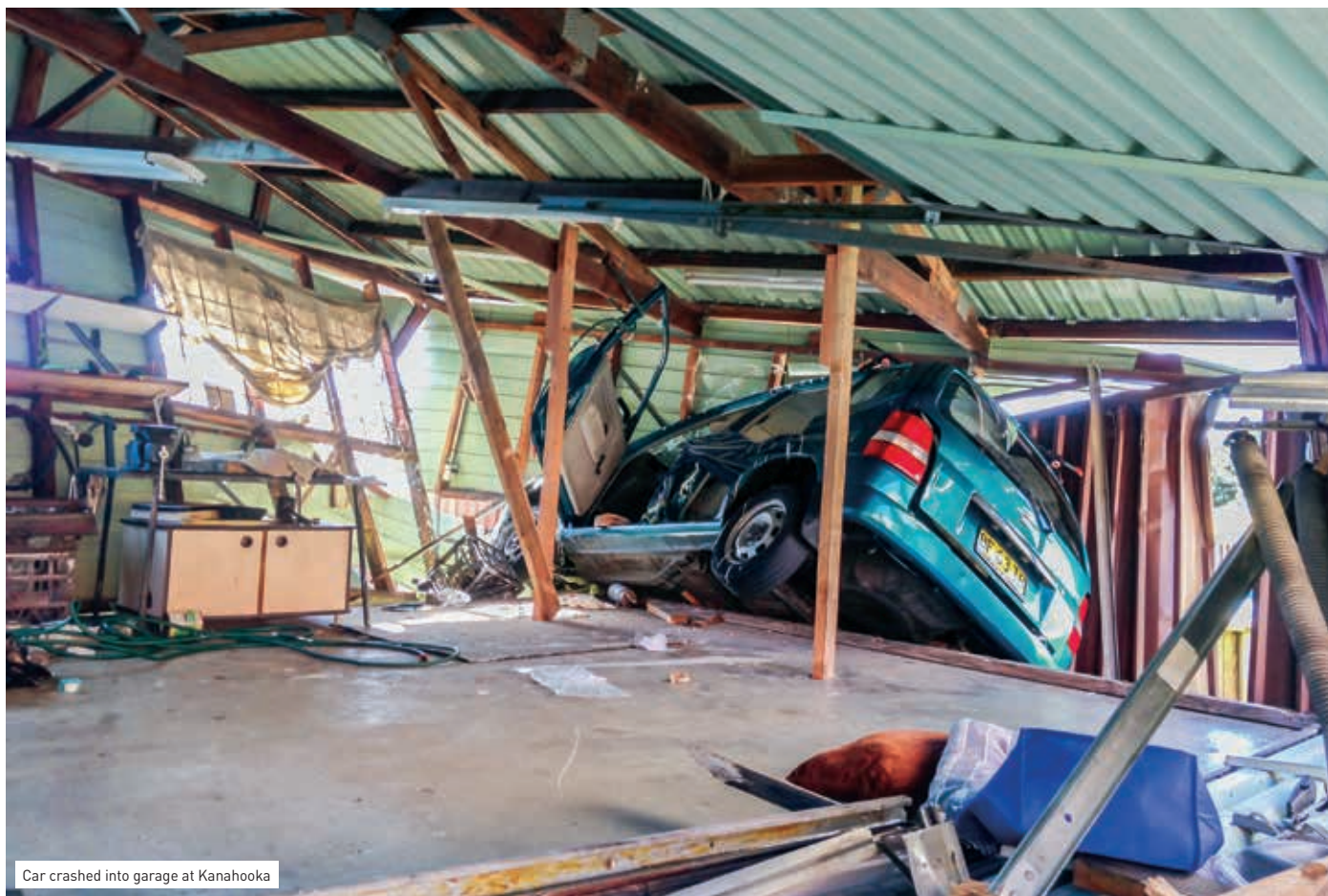
Avril and Jeff Summers,
Sandy Bay, Tasmania

 **VIEW VIDEO AT**
fire.nsw.gov.au/frnews

OR

 **SCAN CODE TO WATCH NOW**





Car crashed into garage at Kanahooka

USAR/RESCUE READINESS AND RESPONSE

FRNSW's internationally-accredited Urban Search and Rescue (USAR) capability provides specialised equipment, training and techniques used to locate and rescue people trapped following major building collapses and other complex rescues.

(Information in this article is sourced from the AUS-2 [NSWTF/1] 2016/1 Newsletter – to join the mailing list for this newsletter, email russell.turner@fire.nsw.gov.au)

Training

Major USAR skills maintenance program

Over recent months, FRNSW Instructors delivered a major skills maintenance program. During this period, more than 90% of the available Cat 2 rescuers (Rescue Technicians) participated in at least one day of the program. Some Cat 2 Paramedics and Hazmat Technicians also attended training.

The skills maintenance program was scheduled over four-day blocks, and covered new INSARAG guidelines, rapid damage assessment, navigation, shoring, hot cutting, tech roping and tech search skills. For those who missed out, further sessions will be run after the main bushfire season finishes.

USAR members participate in AusMAT course

In November 2015, NSW USAR Team members participated in an Australian Medical Assistance Team (AusMAT) course. This course was developed to ensure NSW is well-positioned to provide skilled team members in the event of any domestic or overseas response for medical assistance.

There were 24 course participants consisting of 16 doctors and nurses, four ambulance paramedics, two police officers and two USAR logistics firefighters. The course was run over four days and three nights at Glenfield Scout Camp, and simulated a deployment, including living in tents and eating ration packs for the entire duration!

Training responders in risks posed by damaged brickwork

The number of incidents involving vehicles crashing into homes appears to be increasing, and often the integrity of badly damaged brick walls is questionable. In conjunction with FRNSW, Public Works is developing a basic training program called "Unstable brickwork awareness". This program will enable first responders to identify and assess the risks involved when working around damaged brick walls.

International involvement

INSARAG Team Leaders, Asia-Pacific and Global Meetings

The international USAR community gathered for the second International Search and Rescue Advisory Group (INSARAG) Global Meeting and INSARAG's 25th anniversary in Abu Dhabi in October 2015. This was the largest gathering in INSARAG history, with 313 participants from 94 countries and organisations participating.

The FRNSW-led USAR Team was represented by Team Leaders Chief Superintendents Paul McGuiggan, John Denny and Greg Wild. They were joined by other Australian representatives including FRNSW Commissioner Greg Mullins, Assistant Commissioner Jim Hamilton, Queensland Fire Commissioner Katarina Carrol, Queensland USAR Team Leaders, and representatives from Emergency Management Australia and the Department of Foreign Affairs and Trade (DFAT).

This unprecedented gathering proved that INSARAG remains a critically important network delivering valuable life-saving assistance across the globe based on agreed standards during natural disasters and other major emergencies.

Following two years of consultation, the conference endorsed and launched the revised 2015 INSARAG Guidelines, reflecting the collective best practices of the network. Delegates praised the efforts of Chief Supt Denny –

This unprecedented gathering proved that INSARAG remains a critically important network delivering valuable life-saving assistance

one of the main "fathers" of USAR in FRNSW and an acclaimed international expert – in bringing the new guidelines to fruition.

Two other important preparedness tools – the First Responder Training package and the revised Earthquake Response Exercise package – were also completed.

During the conference the UN and the USA Government asked Commissioner Mullins whether FRNSW would act as formal mentor for one of the world's most experienced USAR teams, Los Angeles County Fire Department, as it prepares for its reclassification exercise. FRNSW has agreed to perform this role.

Exercises

On 6 December 2015, USAR Logistics conducted Exercise Heavy Lift in conjunction with the Royal Australian Air Force (RAAF). This exercise was run to:

- exercise the ability to mobilise a heavy USAR cache from FRNSW's Disaster Response and Rescue

Education Centre at Ingleburn to the Richmond Air Force Base after the cache restructure

- check load and configuration for C17 aircraft
- conduct initial load planning, and check and fit cache load onto KC30a (Military A330) aircraft
- conduct a joint meeting between AUS-1, AUS-2, DFAT, CASA, the RAAF and HK Logistics to discuss aspects such as moving into civilian aircraft options and dangerous goods.

The exercise was conducted over a 4-day period and involved flying to Brisbane to facilitate the loading of the KC30a aircraft with RAAF air movements. This included all equipment including the full rescue and medical caches. **END**

USAR ON SOCIAL MEDIA

Some 2015 statistics from the NSW USAR Facebook site:

- Number of stories posted: 175
- Number of clicks on any content: 71,598
- Most 'liked' story: Vanuatu deployment photos (454 likes)
- Most seen story: Damage assessment at Dungog and Hunter Valley (26,176 views)
- Most popular video: Cat 2 course video (16,664 views)



Exterior view of Kanahooka MVA

SAMPLE OF RECENT INCIDENTS INVOLVING USAR/RESCUE RESOURCES

Car into garage, Kanahooka, 16/11/15

Heavy Rescue and Rescue Pump 503 Wollongong were called with Pumper 277 Dapto to an MVA with persons trapped at Kanahooka, south of Wollongong. On arrival, firefighters found an elderly man trapped in a car under a collapsed garage which had moved off the concrete slab making the whole structure very unstable. Crews stabilised the structure, enabling the driver to be extricated.

Bus into interchange, Chatswood, 14/12/15

USAR 1 and Team Leader Rescue/USAR were called to Chatswood Station Transport Interchange where a bus had crashed into a wall, injuring many people and damaging the structure. The bus was removed to enable assessment of building damage. Close examination thankfully confirmed no casualties beneath the bus or debris, and that the wall was non-loadbearing. USAR crews used an electric rebar cutter to make the area safe.

 **VIEW VIDEO AT**
fire.nsw.gov.au/frnews
OR
 **SCAN CODE TO WATCH NOW** 

Storm operations, Kurnell, 16/12/15

FRNSW performed a range of critical tasks after a tornado severely impacted Kurnell, causing extensive damage.

- Damage assessment was conducted on nearly 400 residential buildings, identifying degree of damage, hazards and other issues that needed to be addressed.
- Asbestos risk was neutralised in private properties, allowing other emergency crews to move in and perform taskings.
- Dashboard assessments were conducted on more than 500 houses, ensuring that residents' needs were addressed.
- Tarps were placed on many houses with damaged roofs.
- USAR crews provided charging points for residents without power, enabling them to charge their mobile devices.
- The 6-wheel all-terrain vehicle of USAR 1 was used extensively to move resources and logistics around the heavily-blocked streets, allowing fire crews to continue their work.

(See the Fire & Rescue Operations Journal in this issue for a comprehensive incident report on FRNSW's full response to the Kurnell tornado).

 **VIEW VIDEO AT**
fire.nsw.gov.au/frnews
OR
 **SCAN CODE TO WATCH NOW** 

Car into house, Mount St Thomas, 22/12/15

503 Wollongong responded to an MVA at Mount St Thomas, near Wollongong and found that a car had crashed into a 2-storey building, causing major structural damage. Initial stabilisation was conducted to allow shoring to take place. The damaged area was assessed by USAR Cat 2 operators onsite and shoring was carried out by local crews assisted by USAR 3. Rain and wind hampered operations.

Severe storm causes building collapses, Sydney, 14/01/16

Destructive winds, large hail and heavy rain caused significant damage in the Greater Sydney area. FRNSW responded to five separate building collapses in suburbs across Sydney, ranging from total collapses to scaffolding and walls blown over.

 **VIEW VIDEO AT**
fire.nsw.gov.au/frnews
OR
 **SCAN CODE TO WATCH NOW** 

Flood rescues, Hunter, 05/01/16 and days following

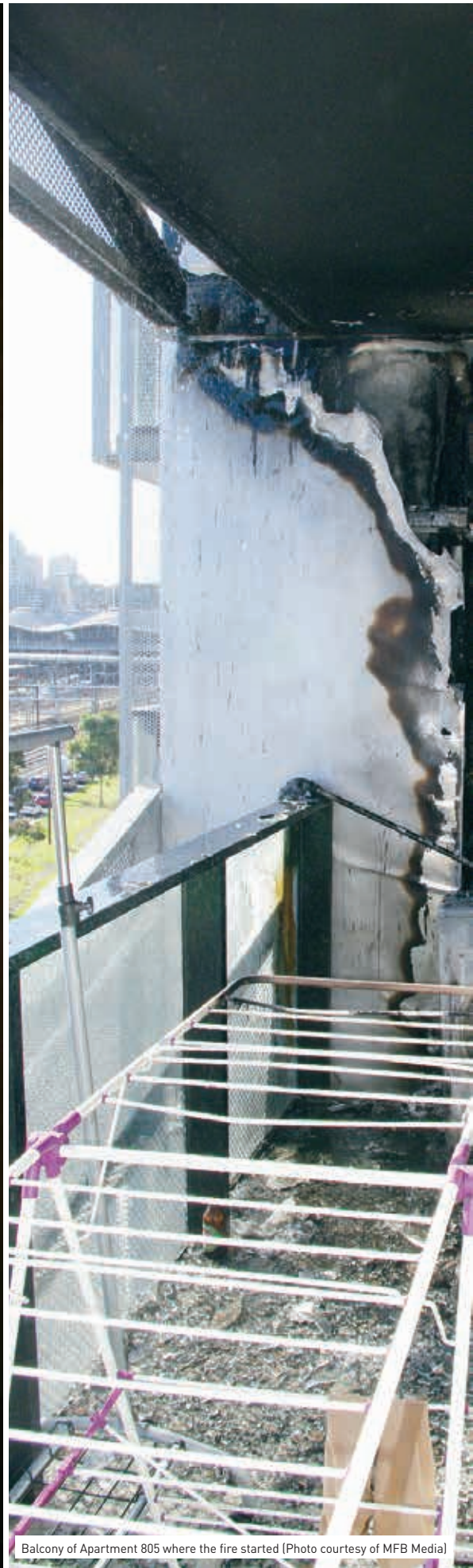
NSWSES asked FRNSW for flood assistance due to heavy rain in the Newcastle, Raymond Terrace and Central Coast areas. Swiftwater teams from Hurstville and Eastwood were deployed and assisted with flood operations for over 24 hours, conducting a number of rescues. In the storm's aftermath, damage assessment teams worked in flood-impacted areas, collecting data to assist affected communities return to normal as quickly as possible.



FRNSW swiftwater team in action



Fire spreads rapidly on the facade of the Docklands residential block [Photo courtesy of MFB Media]



Balcony of Apartment 805 where the fire started [Photo courtesy of MFB Media]



'UNCOMMON AND CHALLENGING FIRE BEHAVIOUR' AT MELBOURNE HIGHRISE FIRE

Report by Kim Thai, Research Officer, Fire Investigation and Research Unit

A case study on rapid vertical fire spread in a multi-level residential building in Docklands, Melbourne in November 2014 has important lessons for other fire services.

Summary of incident

Melbourne Metropolitan Fire Brigade (MFB) crews responded to a 000 call to a reported apartment fire at 673-675 La Trobe Street, Docklands at 0224 hours on Tuesday 25 November 2014. The first firefighters to arrive on scene at 0229 hours observed that the fire had already extended up the external walls and balconies over approximately six levels. At 0235 hours, crews reported that the fire had reached the roof of the building above the 21st floor.

The fire scenario and behaviour encountered by crews was uncommon and challenging. The rapid vertical spread (approximately 3.8 metres per minute) appeared to be directly associated with the external façade of the building rather than the internal parts or the large fuel loads stored on many of the balconies.

The rapid spread and penetration into the internal areas over multiple levels resulted in the evacuation of the entire building. Over 400 evacuees were assembled in La Trobe Street to the building's north. Damage to the emergency warning and intercommunication system (EWIS) on most fire-affected levels forced crews to enter every level and each apartment to alert occupants and ensure complete evacuation.

The time of the incident and sheer number of residents who needed to be sheltered presented another challenge for the MFB. Evacuees assembled in La Trobe Street were initially escorted to the Southern Cross Station bus shelter. An emergency relief centre was later established at the adjacent Etihad Stadium. Coordination of the event involved the MFB Incident Management Team, Victoria Police, Ambulance Victoria, State Emergency Service,

KEY FACTS

Point of interest:

Rapid external fire spread in a multi-level apartment building resulting in a mass evacuation

Incident time and date:

0224 hrs, Tuesday 25 November 2014

Location:

Lacrosse Docklands, 673-675 La Trobe Street, Docklands, Victoria

Building classes:

Class 2 Residential apartments
Class 6 Restaurants/retail
Class 7a Ancillary carparking

Construction:

Walls: masonry, concrete, dry wall
Floors: concrete
Roof: concrete, metal

Net floor area:

21,600 m²

Building height:

Effective building height 58.7m

Storeys:

23, 2 basement levels

Occupants:

Approximately 400

Fire sprinklers:

Yes

Smoke alarms:

Hardwired, AS1670.1 and AS3786

Response:

122 MFB firefighters, 22 appliances, 3 aerial appliances, 4 specialist vehicles

Losses:

Nil fatalities, nil injuries, estimated \$5,000,000 damage

Supposed cause:

Discarded cigarette

Area of origin:

Level 8 balcony (Apartment 805)

Melbourne City Council, Department of Human Services, Red Cross and Salvation Army.

Post-incident investigations revealed that many apartments contained bedding arrangements indicating a higher occupancy level than expected. The installed fire sprinkler system operated well above its designed capability preventing further internal fire spread and any injury. There were no sprinklers covering the balcony areas of the building.

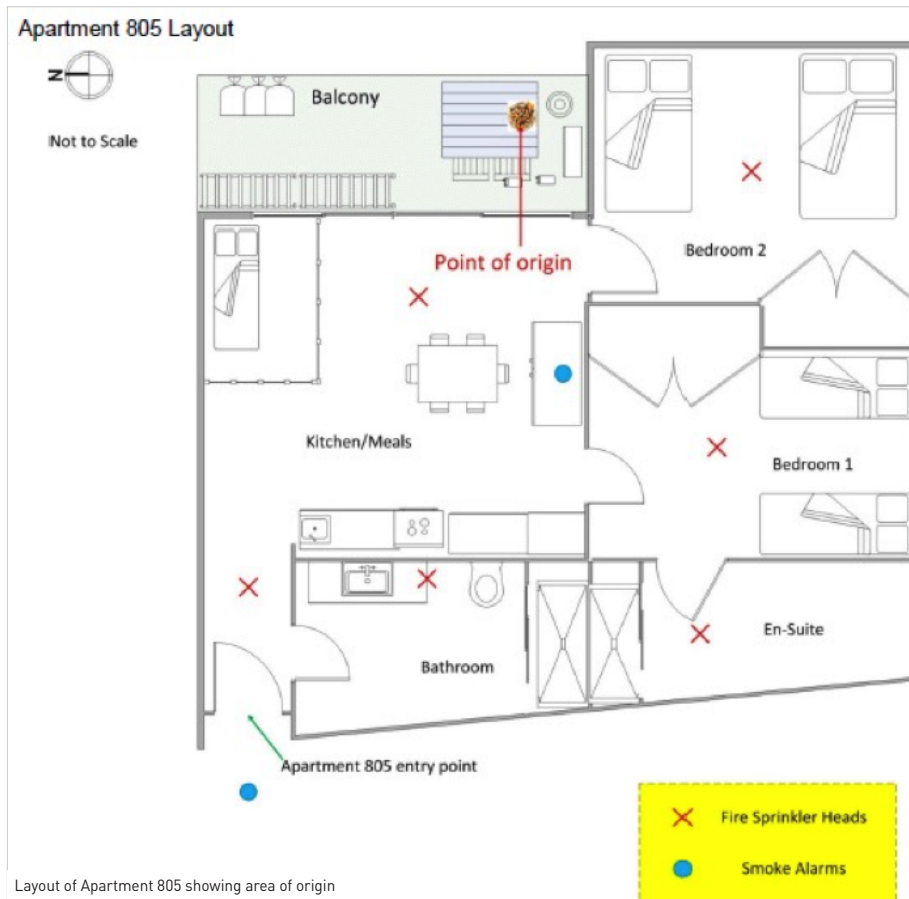
The general structure of the building comprised reinforced concrete suspended floor slabs and loadbearing walls. Aluminium panel wall systems were used for external cladding.

Cause and origin of fire

The fire originated on the balcony of Apartment 805 on level 8. The balcony contained various appliances, furniture and items including a compressor unit for a split system air conditioner, two vacuum cleaners, an external wall light located centrally above the compressor unit, a timber and metal outdoor table, plastic and metal outdoor chairs, steel bedframe parts, bedding, clothes in plastic garbage bags, brooms, clothes drying racks, a timber door and other miscellaneous items.

Investigators noted that the most severe fire damage was to the southern end of the balcony (see Layout of Apartment 805). Sooting had occurred to the ceiling of the kitchen/dining area within the apartment near the double sliding glass doors leading to the balcony area. The fixed panel of glass had broken and collapsed to the internal floor area. There was also severe water damage to the remainder of the apartment due to the fire sprinkler system activating.

The southern wall of the balcony area was common with the northern wall of bedroom 2 of the apartment. There was minor sooting to the room and contents, and extensive water damage. The back of electrical outlets mounted on the northern wall had sustained heat damage. The wall construction consisted of (from inside to outside) two layers of plasterboard, steel studs with fibreglass insulation batts between them, wall wrap, steel battens and an exterior aluminium/polyethylene composite panel façade (Alucobest cladding). The walls also included a PVC stormwater downpipe and several combustible electrical/television cables and interface plates. The Alucobest cladding on the southern wall of the balcony was almost entirely consumed by the fire, with a 'V' pattern emanating from the floor level across the entire width. A 400mm vertical section of wall which protruded past the balcony balustrade allowed the fire to progress up the building.



Layout of Apartment 805 showing area of origin

MFB fire investigators eliminated the appliances present in the balcony area as ignition sources and determined that the fire was started by a cigarette butt discarded in a plastic container on top of the timber-topped outdoor table, positioned towards the southern end of the balcony of Apartment 805. The fire developed from the plastic container and extended to involve the timber table, and then combustible material nearby, including the air conditioning compressor unit.

The Alucobest composite cladding was non-compliant and facilitated the rapid fire spread

The vertical nature of the burn patterns suggested that the cladding, along with the foam lagging and the PVC downpipe within the wall, contributed to the fire load and the rapid vertical spread to the floors and balconies above. Meanwhile embers and fire residue had fallen onto a balcony area below, starting a fire around the air conditioning compressor unit of Apartment 605.

Issues

A number of issues and contributory factors led to the events of 25 November 2014.

1. **The Alucobest composite cladding was non-compliant and facilitated the rapid fire spread.** The external composite panel cladding was identified as the standard grade Alucobest panel of 4mm thickness, which contains a polyethylene core. The product is manufactured by Shanghai Huayuan New Composite Materials Co. Ltd, China. Samples taken from the Lacrosse building were tested at the CSIRO facility in North Ryde, NSW for indicative testing according to AS 1530.1:1994 – *Combustibility test for materials*, and was deemed 'combustible' with excessive and sustained flaming and smoking. This does not meet Specification C1.1 of the *Building Code of Australia* (BCA) for Type A construction, which requires that the external walls must be non-combustible as determined by AS1530.1.
2. **The fire collars surrounding PVC downpipe penetrations failed to prevent fire spread to connecting levels.**
3. **The internal fire sprinkler system water supply in the building performed beyond its design capabilities.** The building has two separate types of fire sprinkler systems installed.

The combined hydrant/sprinkler system that runs throughout the residential levels is compliant with AS 2118.6, which requires the simultaneous operation of four sprinkler heads and two fire hydrants.

The system performed well beyond the requirements, with 26 sprinkler heads activated over 16 floors preventing internal fire spread. Additionally, firefighters were required to use hose lines from the two internal fire hydrants on Level 10 and Level 19 to combat larger fires within Apartments 1005 and 1905. It is undetermined whether these hydrants were used simultaneously.

The prevailing winds at the time of the fire were from the west, and likely assisted in drawing flames and hot gases away from the internal building compartment. Under different circumstances, internal fire growth and spread would have hindered effective evacuation and fire brigade intervention.

4. **The fire extinguishers were inaccessible.** Fire hose reels were not provided on residential levels in this building. There were however, three extinguishers (two 9L water extinguishers and one 2.1kg dry chemical powder extinguisher) located on each level of the building. In many instances, the water extinguisher enclosures were used by occupants as storage areas, blocking access. Additionally, the chemical powder extinguishers on all levels were locked away in service rooms and were inaccessible to both occupants and firefighters. None of the extinguisher enclosures had location signs as required by AS 2444-2001. There was no record of any occupant using an extinguisher, however a number of on-site extinguishers were used by firefighters to extinguish some of the smaller balcony fires.
5. **Sprinklers were not required on the balconies under the BCA.** Under the BCA [AS 2118.1 Section 5.7.10], only covered balconies that exceed 6m² in floor area and are deeper than 2m are required to have installed sprinklers. The balconies associated with the fire measured 1.8m x 4.7m. Had sprinklers been installed on the balcony of Apartment 805, the fire would likely have been contained at this level.
6. **Many apartments had a high occupancy rate.** Some apartments had sleeping arrangements for up to eight people, leading to a larger amount of furnishing and personal belongings within the apartment and balconies contributing to the fuel load.

7. **Mass evacuation was necessary.** Due to rapid fire spread and involvement of a large proportion of the building, the entire building had to be evacuated.
8. **The EWIS system was compromised.** The wiring and sounder of the EWIS was damaged in the fire soon after the smoke detector outside Apartment 805 activated. Many occupants who were interviewed after the incident reported not hearing the cascading alarms and PA messages.
9. **Many smoke alarms had been tampered with.** In a number of apartments, the hard-wired smoke alarms were covered, or the back-up batteries removed, presumably to avoid nuisance alarms. When the battery is removed in this type of alarm, the mains power to the unit is disrupted and the alarm is inoperable.

This incident, although rare, is not an isolated case and can potentially occur in multilevel residential and commercial buildings throughout Australia. Following the Docklands incident, the Victorian Building Authority (VBA) commenced an audit of 170 buildings in the Melbourne CBD and identified potentially non-compliant cladding in 51% of buildings surveyed, including hospitals and an aged care facility. For further information on the Docklands incident, the Post-Incident Analysis Report is available on the MFB website at: <http://www.mfb.vic.gov.au/News/Publications/Reports.html>

END

FIRES OCCURRING WORLDWIDE INVOLVING FIRE SPREAD ON COMBUSTIBLE CLADDING

Similar incidents have been reported overseas, including:

- Ajman One Tower, Ajman, United Arab Emirates, 28 March 2016
- The Address Downtown Hotel, Dubai, 31 December 2015
- Baku, Azerbaijan, 19 May 2015 (15 deaths)
- Marina Torch, Dubai, 21 February 2015
- Grozny City Towers, Chechnya, 3 April 2013
- Tamweel Tower, Dubai, 18 November 2012
- Polat Tower, Istanbul, 17 July 2012
- La Tour Mermoz, Roubaix, France, 14 May 2012 (1 death)
- Al Tayer Tower, Dubai, 28 April 2012
- Dynasty Wanxin, Shenyang, China, 3 February 2011
- Jing'an District, Shanghai, China, 15 November 2010 (58 deaths, 70 casualties)
- Sonacotra building, Dijon, France, 14 November 2010 (7 deaths)
- Wooshin Golden Suites, Haeundae, Busan, South Korea, 1 October 2010
- Water Club Tower, Atlantic City, New Jersey, USA, 23 September 2007

KEY STEPS TAKEN IN NSW TO ADDRESS THIS ISSUE

- In 2015, FRNSW formed an internal working group to address this issue, and is working with other NSW Government agencies on a combined risk mitigation strategy.
- FRNSW issued *Operations Bulletin 2015-02* dealing with fires involving non-compliant combustible external cladding materials. Incident Commanders in particular should consider this risk during size-ups. A toolkit of resources was also published online on the intranet (see Building Fire Safety < Combustible Cladding).
- The NSW Department of Planning and Environment issued *Planning Circular BS 15-001* to raise awareness and advise councils, certifiers, builders, architects, building designers, industry practitioners and other stakeholders about considerations when assessing the suitability of external wall systems and attachments.





FRNSW's Rotary Emergency Services Award nominees, winner SO Hurley is on the left

A HUMANITARIAN LEADER AT HOME AND OVERSEAS

After being deployed to Japan following the devastating earthquake and tsunami in 2011, Station Officer Brendan Hurley was inspired to learn more about humanitarian response.

A Google search led him to the Humanitarian Leadership Program (HLP) at Melbourne's Deakin University. In 2014 he became the first emergency management person to complete the eight-month course. It was a big learning curve for someone who, prior to being deployed in Japan, had no previous experience in humanitarian response.

"In Japan we achieved a great deal, but I constantly found myself thinking there were other ways we could assist the affected communities," explained SO Hurley. "We needed to look at the bigger picture."

Despite his enthusiasm, when he secured a place on the HLP in 2013, his

biggest challenge was credibility within the humanitarian sector.

"I wondered if my background within the emergency management and USAR environment would be effective within a humanitarian response setting. But in actual fact, we're all humanitarians, just on varying levels."

With the HLP completed, SO Hurley had the opportunity to apply the leadership behaviours he had learned in the field as a Humanitarian Operations Manager with Save the Children International in Uganda, and later as Field Manager in South Sudan.

"In Africa I was exposed to highly culturally diverse operations teams that required me to adapt my leadership style.

I became more effective in leading teams in high pressure, high consequence environments with numerous pieces of conflicting information.

"I learnt to look at the bigger picture and take the 'balcony view' in response environments. It's a skill I can use within my role in FRNSW."

Seeing the parallels between the work FRNSW does and the objectives of humanitarian leadership, SO Hurley decided to try to bring FRNSW and Deakin University's Centre for Humanitarian Leadership together.

On 18 February 2016, Commissioner Greg Mullins joined SO Hurley in Melbourne to sign a groundbreaking Memorandum of Understanding to form



The FRNSW-led USAR Team repairing a roof in Vanuatu after Cyclone Pam wreaked widespread damage

an official partnership between FRNSW, Deakin University and the Centre for Humanitarian Leadership in Melbourne after the Commissioner delivered a presentation on crisis management to 38 participants from 17 countries.

“Deakin University and I decided to pursue a partnership because we believe that FRNSW can play a critical role in professionalising the humanitarian

I wondered if my background would be effective within a humanitarian response setting

sector,” said SO Hurley. “There are many FRNSW officers with valuable experience and leadership skills which can be developed, enabling them to become effective leaders within a humanitarian environment.”

As a result of the partnership, three positions in each HLP will be funded by FRNSW and allocated to selected staff. FRNSW will also supply guest speakers

to share leadership experiences and knowledge with program participants.

For SO Hurley, who has made a significant personal time investment in humanitarian work thanks to the ongoing support of his family, it is a great outcome.

“At the end of the day, it is about providing effective and efficient aid to people and communities in need, at the local, national and international level.”

END



SO Hurley during his work with Save the Children in Uganda

ABOUT THE HUMANITARIAN LEADERSHIP PROGRAM

Since the HLP was launched in 2011/12, more than 350 students from 50 organisations across 55 countries have completed the course.

As the only program of its kind, the HLP challenges participants intellectually and emotionally, enhances understanding of the humanitarian sector and develops the skills required to lead in challenging and complex contexts. Graduates are awarded a Graduate Certificate of Humanitarian Leadership from Deakin University.

FRNSW candidates will be selected via a targeted EOJ process, with applications invited from operational staff with the relevant qualifications and experience. Commitment to the HLP involves a minimum of 10 hours of study per week and two residential components (eight days in Indonesia and a week in Melbourne).

For more information about the program, visit www.humanitarianleaders.org.



Fuelled by a large and volatile fuel load, the Milperra 4th Alarm car stacker fire developed rapidly, burning fiercely and spreading quickly as firefighters tried to establish cut-off points. Photo Courtesy SO Richard Lucas.

ISSUE 4:

**FIRE &
RESCUE
OPERATIONS
JOURNAL**

EDITOR'S NOTE

Welcome to edition four of Fire & Rescue Operations Journal. This edition reports on a number of major structure fires and complex rescue incidents responded to by FRNSW firefighters as well as operations following the Kurnell tornado.

The structure fires reported within this edition occurred within typical occupancies found in everyday use that routinely operate without any cause for concern. However, once involved in fire, a combination of factors including fuel load type and arrangement, building construction and structural layout all contributed to fire behaviour that was extreme (and in some cases unexpected). These scenarios presented significant hazardous conditions and unique operating challenges to responding firefighters. This edition will examine some of the factors that contributed to this fire behaviour, the hazards and difficulties these scenarios presented, and the operations undertaken by FRNSW to safely and effectively control each situation.

Each incident contained numerous hazardous conditions. While some are obvious, others are not so obvious; however all are capable of causing serious injury or death. An important component of this edition is that where hazardous conditions are identified, the appropriate safety strategies undertaken by firefighters to control the hazard are also detailed. This edition contains a special report on the parapet wall collapse at Liverpool and more importantly, the precautions adopted by firefighters to ensure all crews on scene remained safe.

The firefighting and emergency landscape continues to change and we are called upon continuously to respond to that change. A key to safe and effective firefighting operations in this ever-changing environment is to know the buildings in our response area, particularly through pre-incident planning exercises. This will give us a vital head start in understanding the likely fire behaviour within a building, the possible hazardous conditions that could be encountered, and the most appropriate tactics and safety strategies for conducting firefighting operations in a particular structure.

Within a number of the rescue incidents reported in this edition, FRNSW crews were the first emergency responders to arrive on scene. Firefighters found chaotic scenes, often involving numerous competing priorities associated with an unknown number of injured persons, complex entrapments, highly hazardous conditions present, very unusual scenarios and people in states of confusion and distress. Firefighters were thoroughly professional in their response; in the first instance implementing safety strategies to enable all emergency responders to remain as safe as possible throughout operations. This was followed by conducting detailed and thorough size-up and assessments of the nature of the emergency, identifying incident priorities, formulating an appropriate operating plan and identifying necessary resource requirements. Firefighters were able to conduct operations in a deliberate and systematic manner, ensuring all incident objectives were safely and effectively achieved. The high level of communication, consultation and cooperation between FRNSW crews and members of responding emergency services (ensuring all operations were conducted in a coordinated manner) was a key component to achieving successful outcomes at all operations.

Firefighters were met with highly challenging and at times very dangerous scenarios and responded with resourcefulness, determination and courage. In all situations, firefighters encountered members of the community in confused and distressed states. On all occasions, FRNSW firefighters showed care and compassion and performed their duty with great diligence and professionalism, making a real difference to all members of the community we came into contact with. Please enjoy edition four of the journal and please continue to remain safe.

Inspector Kernin Lambert

Editor, *Fire & Rescue Operations Journal*



Firefighters work to extricate the trapped patients as paramedics conduct medical stabilisation. Note collapsed brick walls and Acrow props placed to create initial stabilisation.

CARLINGFORD CAR INTO HOUSE

Firefighters respond to a motor vehicle collision into a house, resulting in structural collapse and severe entrapment of two people at Carlingford.

FRNSW crews responded to a motor vehicle containing two elderly occupants that had left the roadway and collided into the brick wall of a two-level house. Following the collision, the vehicle was located in the front room of the house. The front and side brick walls of the house were demolished as a result of the impact, leaving the front of the house standing partially unsupported immediately above the vehicle and in danger of further collapse. The vehicle was located beneath a significant quantity of structural collapse debris, severely trapping the vehicle's occupants. The condition of the occupants was serious and deteriorating. Numerous other hazards existed at the scene, including a large quantity of electricity consumer mains in close proximity to the vehicle and the electricity distribution box displaced from the wall due to impact and lying on the debris pile. FRNSW crews were the first emergency responders to arrive at the scene, finding a situation of chaos. Firefighters worked through a systematic and deliberate process of making the scene safe (including structural stabilisation) and extricating the two occupants from the vehicle. Firefighters worked closely with ambulance paramedics and the aero-medical retrieval team. Despite the numerous hazardous conditions present and the challenges and complexities facing the emergency crews, this was a textbook rescue that had a very successful outcome.

Incident type: Motor vehicle accident, persons trapped.

Call details: 1415 hours, Tuesday 6 October 2015, direct line call from Police RCO, MVA persons trapped, Dalmar Place, Carlingford.



Note the position of the dislodged electrical distribution board and consumer mains leads extending from the board across the rescue scene

Nature of entrapment/emergency:

A motor vehicle collision into a house, resulting in partial demolition of the house, severely trapping two elderly occupants of the vehicle. The house remained unstable and in danger of collapse onto the vehicle containing the occupants

FRNSW response: Pumpers 65 (Rydalmere) and 42 (Ryde), Rescue Pumper 59 (Eastwood), Heavy Rescues 20 (Hurstville) and 59, USAR-1, Team Leader Rescue/USAR SO Clayton Abel and Duty FRNSW crews responded to a motor vehicle containing two elderly occupants that had left the roadway and collided into the brick wall of a two-level house. Following the collision, the vehicle was located in the front room of the house. The front and side brick walls of the house were demolished as a result of the impact, leaving the front of the house standing partially unsupported immediately above the vehicle and in danger of further collapse. The vehicle was located beneath a significant quantity of structural collapse debris, severely trapping the vehicle’s occupants. The condition of the occupants was serious and deteriorating. Numerous other hazards existed at the scene, including a large quantity of electricity consumer mains in close proximity to the vehicle and the electricity distribution box displaced from the wall due to impact and lying on the debris pile. FRNSW crews were the first emergency responders to arrive at the scene, finding a situation of chaos. Firefighters worked through a systematic and deliberate process of making the scene safe (including structural stabilisation) and extricating the two occupants from the vehicle. Firefighters worked closely

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FRNSW response: Pumpers 65 (Rydalmere) and 42 (Ryde), Rescue Pumper 59 (Eastwood), Heavy Rescues 20 (Hurstville) and 59, USAR-1, Team Leader Rescue/USAR SO Clayton Abel and Duty Commander MW2 (Parramatta) Inspector Craig Easy.

Additional services in attendance:

Ambulance Service of NSW, Ambulance medical retrieval team, Electricity Authority and Gas Authority.

Weather at time of incident: The closest Bureau of Meteorology automatic weather station located 3km from the incident site recorded a temperature of 37°C at the time of the incident. There was no cloud in the sky and the air was very still, with a westerly wind of 2km/h recorded.

Situation prior to arrival of FRNSW:

On the afternoon of Tuesday 6 October 2015, a motor vehicle containing two elderly female occupants was travelling

down a slight incline at Harebell Close, Carlingford, when it came to a T intersection with Dalmar Place. The vehicle was unable to stop and left the road, becoming airborne and colliding into the front of a two-level house located at the base of an embankment. As a result of the collision, the vehicle entered the house, coming to rest completely within a first-level front room and beneath the second level of the house (about 4.0m below the level of the road). The force of impact caused the ground level front (east facing) and side (south facing) brick walls of the house to collapse. All sections of the timber structural frame on the eastern and southern sides of the section of house impacted by the vehicle were displaced, causing a large section of the second level of the front of the house to stand unsupported and in danger of possible collapse. The timber floor joists of the second level were unsupported and in danger of falling. If this happened, the front (eastern end) of the house would collapse onto the vehicle beneath it. The front (east) and side (south) facing second level brick veneer of the house was suspended where the base of the second-level had been. Although the brick work was tied in to the timber frame, a large amount of cracking and displacement of bricks was visible.

The motor vehicle containing the two elderly occupants was located directly beneath the unsupported section of the house. As a result of the collision, numerous bricks, structural timbers, debris and other large components of structure had entered the motor vehicle or were located on the vehicle, injuring and severely trapping the two occupants. A large amount of debris had entered the



A rescue board is positioned for release of the first patient.



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vehicle through the roof skylight and front windscreen. The vehicle and occupants were buried beneath structural debris. The front windscreen of the vehicle had been completely pushed into the vehicle. Large sections of brick wall located on the second level of the house were cracked, displaced and in danger of further collapse. The roof and A pillars of the vehicle were crushed down onto and close to the heads of the vehicle's occupants. The passenger side A pillar had been sheared off by the force of impact. The vehicle occupants had sustained serious injuries as a result of the collision and their conditions were deteriorating.

The house electricity distribution board had been dislodged from the side wall at the time of impact and was located on the ground, among debris, with numerous live electricity wires in close proximity to the vehicle. A gas main and service valve impacted by the collision were located beneath the vehicle. Numerous passers-by had gathered around the scene. A member of the public had climbed onto the debris pile and the vehicle, attempting to assist the two trapped occupants. There was significant danger that the complete collapse of the unsupported second level of the house onto the vehicle containing the trapped occupants could occur. The site was unstable and contained numerous hazards. No other emergency services had arrived at the scene at this time. This was the situation that confronted firefighters.

FRNSW crews arrive on scene: Pumper 65 and Heavy Rescue 20 (standing by at 59 Station) were initially responded to the incident. Heavy Rescue 20, operated by Senior Firefighters Peter Nolan and Alan Rourke, were the

first emergency responders to arrive at the incident. Firefighters found a chaotic scene and numerous bystanders in danger of harm from further collapse and the many hazards present. A rapid survey and assessment of the scene was conducted by firefighters and at 1421 hours, Rescue 20 transmitted the following situation report;

"FIRECOMS RESCUE 20, BLUE. FROM THE ADDRESS AS STATED, WE HAVE A CAR THAT IS BURIED BENEATH BRICKS AND DEBRIS WITHIN A TWO STOREY HOUSE, TRAPPING TWO OF THE OCCUPANTS OF THE CAR. HEAVY RESCUE IS GETTING TO WORK. WE URGENTLY NEED POLICE AND AMBULANCE."

Initial scene stabilisation and safety: Firefighters immediately removed all bystanders to a location of safety, away from the potential collapse zone and out of danger. Firefighters removed to safety the member of the public who had climbed onto the vehicle. This person was shaking and highly distressed, telling firefighters two elderly women were badly injured inside the vehicle. Firefighters provided reassurance to this person. A restricted access zone was established around the property using barrier tape.

Prior to undertaking any actions, firefighters attempted to isolate electricity to the site. The electricity distribution box was lying on the debris pile. Underground supply mains were connected to the distribution box and numerous consumer mains leads remained connected to the distribution box and in close proximity to the entrapment vehicle. Firefighters switched off power at the distribution box, although the supply mains could not be isolated.

At about this time, Pumper 65 under the command of SO Phil Host arrived on scene. SO Host assumed the role of FRNSW Commander. The crew of Pumper 65 began to ferry rescue tools and equipment from the Heavy Rescue appliance to the rescue scene (located at the base of an embankment). Scene fire protection was established.

Initial stabilisation of structure: The first action of Rescue 20 firefighters was to position Acrow props as a means of providing interim stabilisation of the house. Pumper 65 Firefighter Chad Thompson (a qualified builder) was able to provide information to the rescue crew on the most advantageous place to position the Acrow props to achieve the safest and most effective shoring. The first Acrow prop was placed between the timber frame top and bottom wall plates at the corner of the demolished front and side walls. The second Acrow prop was also placed at the corner of the demolished front and side walls, between the bottom layer of the remaining brick veneer (at the base of the second level) and the base of the brick wall located on the concrete footings. As firefighters were putting initial stabilisation in place, they made contact with the vehicle occupants, reassuring them and advising them that they were making the scene safe and that the ambulance was on its way.

Firefighters conducted an assessment of the vehicle and identified the front doors wouldn't open, although the rear doors remained functional. The airbags had deployed. Firefighters turned off the vehicle ignition. The vehicle had self-stabilised on bricks, wedging itself into debris. Firefighters identified that although the second-level brick veneer remained suspended, it was severely cracked and in danger of

collapse. A collapse zone was established immediately beneath and one metre either side of the suspended brick veneer. The area of entrapment was beneath the suspended second-level floor and not within the identified brick collapse zone.

Patient access: Pumper 65 Firefighter Chad Thompson conducted a rapid assessment of the trapped occupants and identified the passenger most in need of immediate attention due to severity of injuries (including a partial limb amputation). Firefighter Thompson brought the EMT kit to the entrapment scene, placed the passenger on oxygen and controlled the bleeding of the patient's badly injured right arm.

Additional resources requested: Pumper 65 SO Host conducted an assessment of the rescue scene, identifying the need for additional substantial shoring and additional crews to support the rescue operation. At 1425 hours, SO Host sent the following situation report;

"FIRECOMS PUMPER 65 BLUE, HAVE A CAR INTO A HOUSE, PART OF THE HOUSE HAS COLLAPSED ONTO THE CAR, TRAPPING TWO PERSONS. THE REMAINDER OF THE HOUSE IS IN DANGER OF FURTHER COLLAPSE ONTO THE CAR. RESCUE CREWS ARE CURRENTLY AT WORK ATTEMPTING TO SHORE THE HOUSE WITH ACROTE PROPS. WE ARE UNABLE TO ISOLATE POWER. WE REQUIRE ONE ADDITIONAL PUMPER, USAR-1 TO ASSIST SHORING, THE DUTY COMMANDER, AMBULANCE, ELECTRICITY AND GAS COMPANY."

Initial rescue operations: Once hydraulic rescue tools were in position, firefighters were able to cut away the front half of the vehicle roof that was in contact with the victim's heads. Due to the tight confines of the entrapment area, Firefighters Ashlea Anderson and Jason Aisbett held the roof of the vehicle while the rescue crew, assisted by Firefighter Thompson, cut the roof off the vehicle. Once the front half of the roof was removed, Firefighters Thompson, Aisbett and Anderson began to remove the large quantity of rubble and debris that had fallen onto the vehicle and the victims, consisting of bricks, windscreen glass, gyprock and wool/fibre insulation. A large number of timber beams were located on the vehicle; timber beams were also trapping the driver. Bricks had entered the vehicle and were located on the chest, upper body and legs of the passenger. Firefighters removed approximately 30-40 bricks from the passenger, which were conveyed to the side yard of the adjoining property away from the rescue scene. Throughout this process, firefighters continued to talk to and reassure the trapped occupants. Firefighters conducted further assessments of the patient entrapments as they removed debris. Although a significant amount of debris was located in contact with the patients, they were not trapped by compression.

Upon removal of debris, firefighters were able to open the rear passenger door of the vehicle, providing the first

access for Ambulance paramedics to the trapped occupants. The rescue crew and Ambulance paramedics conferred regarding the most effective extrication plan. Maintaining spinal alignment was a key element of the extrication plan. The plan involved removing both patients in a straight line, through the rear of the vehicle. At all times, firefighters worked under the medical direction of paramedics during the extrication of the patients.

Rescue response increased: Duty Commander Parramatta Inspector Craig Easy arrived on scene. Following a transfer of command, Inspector Easy became the FRNSW Commander and SO Host was appointed Operations Officer. Following a further assessment of the rescue, Inspector Easy requested the attendance of further rescue appliances for the provision of additional rescue operators, resulting in the response of Rescue Pumper 59 and Heavy Rescue 59 (Inspector Easy was aware that a number of Category 2 USAR operators were aboard 59 station appliances). Inspector Easy's most significant concern was for the safety of all people present at the incident and ensured that all emergency services personnel were provided with full briefings of the safety issues present and safety strategies in place. Aware that USAR-1 was en route, Inspector Easy requested the Police Commander to clear the eastern side of Dalmar Place of all vehicles, creating a clear pathway to facilitate the passage of the specialist collapse rescue unit to a location as close as possible to the rescue scene.

Scene collapse safety: Pumper 42, under the command of SO Dennis Nadazdy, arrived on scene. SO Nadazdy was appointed Safety Officer. Pumper 42 firefighters assisted to ferry additional rescue equipment down to the entrapment scene and assisted in the removal of debris from the vehicle. SO Nadazdy was positioned at a location that enabled him to closely monitor the unsupported brickwork located above the rescue scene for any signs of movement, further cracking or deterioration. This also enabled him to rapidly communicate to the FRNSW Commander and the rescue crew any signs of movement of the brickwork he observed. At this time, Ambulance Special Operations and SCAT paramedics and the ambulance medical retrieval team, including a trauma doctor, arrived on scene.

Rescue operations continue: A large amount of bushes and shrubbery was located at the front of the house, between the rescue scene and the sloped concrete driveway. Firefighters cut away a quantity of this vegetation to create a pathway for the later removal of patients. This also created a clearer working space around the crash scene for the rescue crews.



Wider view of rescue scene. Note cracks in second level brick walls

Heavy Rescue 59 arrived at the incident, followed a short time later by Rescue Pumper 59 under the command of SO Craig Vincent. Firefighters placed a third Acrow prop in place, along the front of the house towards the middle, between the brick veneer and the bottom layer of the remaining brick work to provide additional support for the front of the house. Firefighters used hydraulic tools to cut the remainder of the vehicle roof off. Firefighters realised the vehicle was located within a bedroom of the house and conducted a search of the room for any occupants that might be present. Fortunately, this search found no people present. Upon the arrival of the electricity authority, all power to the house was isolated from the street.

USAR-1 and Team Leader Rescue/USAR SO Clayton Abel arrived on scene. USAR operators positioned laser monitoring equipment around the site to detect any movement of the structure while the rescue was in progress, establishing a further layer of safety for all present. USAR operators also conducted a further examination of the structure and an assessment of the structural stability.

Patients released: The rear of the passenger seat was cut with bolt cutters, to enable the seat to be laid down manually. After lowering the seat, the passenger was then placed onto a rescue board and removed via the rear of the vehicle, before being loaded into a Stokes litter and carried to the top of the embankment, where she was then loaded aboard an ambulance. The driver's seat was electric. Due to the dangers of re-energising the vehicle electric circuit, power to the vehicle was not turned on. Firefighters used hydraulic shears to cut the back of the seat, enabling it to be lowered down. The second patient was then placed on a rescue board, removed from the vehicle, loaded aboard a Stokes litter and carried to the top of the embankment to an awaiting ambulance at 1528 hours, approximately one hour and 15 minutes after the alarm was initially raised.

Following the release and conveyance to hospital of the vehicle occupants, the FRNSW attendance was scaled back. Rescue Pumper 59, Heavy Rescue 59, USAR-1 and Duty Commander MW2 remained at the scene while the vehicle was removed from the house. Firefighters then provided shoring to the house, stabilising the structure with a three-tier dead shore, providing longer-term stability of the house.

Notes

- 1 The first arriving FRNSW crews were faced with a chaotic scene and numerous competing urgent priorities. Prior to conducting any operations, firefighters conducted a rapid scene size-up, enabling incident priorities to be determined and resource requirements identified. Significantly, the initial size-up enabled firefighters to identify hazardous conditions present, enabling an appropriate safety strategy to be immediately implemented. Operations were carried out in a careful, systematic, well-planned and deliberate manner.
- 2 Although the rescue requirement was urgent, scene safety for all present was the first priority of firefighters. The initial actions of firefighters stabilised the scene and mitigated the most serious hazardous conditions present, enabling the rescue operation to then proceed safely.
- 3 Rescue crews recognised the expertise of FF Chad Thompson, a qualified builder aboard Pumper 65. FF Thompson's knowledge of building construction ensured the placement of the first Acrow props achieved the greatest benefit in stabilising the structure. This was critical.
- 4 Firefighters provided initial patient care to the critically injured patients, until the arrival of Ambulance Paramedics. Within the chain of survival, provision of quality initial patient care at the earliest opportunity provides injured people the greatest chance of receiving the best possible outcome.
- 5 This incident demonstrates the importance of conducting a thorough and continuous size-up, enabling an extrication plan to be formed that is safe and effective, particularly when incident conditions are complex. When forming the extrication plan, firefighters worked closely with Ambulance paramedics, ensuring patient care considerations were met during the release. As firefighters worked their way down through debris, crews gained a clearer picture of the entrapment, enabling the extrication plan to be amended accordingly.
- 6 The incident was a multi-faceted operation; the rescue process involved considering all steps necessary to release and convey the trapped patients to the ambulance. While rescue crews were working on the extrication, firefighters were clearing a pathway through bushes, enabling the patients to be immediately conveyed to the waiting ambulances upon their release, without delay.
- 7 Throughout the incident, safety remained the highest priority of firefighters, due to the numerous hazardous conditions present. As the incident progressed and additional resources arrived on scene, control measures for hazardous conditions were expanded, providing additional layers of safety for all people present.
- 8 Category 2 USAR operators (from 20 and 59 Stations) brought a significant level of expertise to the incident, particularly concerning establishing safe and effective operations associated with the unstable building structure.
- 9 Whenever a structural collapse scenario is present, firefighters should be prepared for numerous hazardous conditions to also be present, associated with all aspects of the incident.
- 10 The operations, support and assistance provided by firefighters from (non primary rescue) 42 and 65 stations was critical, significantly contributing to the very positive incident outcome.
- 11 All personnel at the scene worked under oppressive conditions, with temperatures over 37°C.
- 12 Once again, the level of communication, consultation and cooperation between firefighters and Ambulance paramedics was excellent.
- 13 Due to the increasing number of incidents being responded to involving unstable structures formed of brick construction, NSW Public Works engineers are developing an awareness package called "Unstable Brickwork Awareness". This initiative will provide skills and knowledge to ensure that first responders are able to assess the risks involved when working around damaged brick walls and will be rolled out via the FRNSW Rescue Section.
- 14 Congratulations to all crews who responded to this very challenging incident. An element of danger existed at the beginning of the incident, however firefighters were prepared to place the lives of the trapped vehicle occupants ahead of their own safety, while they stabilised the scene. Although robust interim stabilisation was put in place at an early stage, the unsupported brick walls contained an element of instability. All people (firefighters and Ambulance paramedics) who worked beneath the partially demolished front of the house did so with courage, displaying high levels of professionalism, skill and determination. **END**



Firefighters assess the entrapment and form an extrication plan.

CECIL HILLS MVA

Severe entrapment due to a multiple heavy vehicle collision on the M7 Motorway at Cecil Hills.

FRNSW crews responded to a motor vehicle collision on the M7 Motorway, involving a front-to-rear collision consisting of a truck and two semi-trailers (one being a B-double). The truck was located heavily wedged between the two semi-trailers, severely trapping the driver in the truck cabin. The force of impact was so severe, the front chassis and engine of the truck had been pushed under the rear of the semi-trailer and the truck cabin sheared from its mounting bolts. The severe distortion of the truck cabin due to collision impact greatly hindered the ability of firefighters to operate rescue tools. Firefighters devised an ingenious method of release, involving two rescue teams working in conjunction with each other to simultaneously lift and push the cabin to create enough space to free the driver from entrapment.

Incident type: Motor vehicle accident, persons trapped.

Call details: 1034 hours, Monday 19 October 2015, direct line call from Police RCO, MVA persons trapped, M7 Motorway, Cecil Hills.

Nature of entrapment/emergency: Front-to-rear collision involving three heavy vehicles;

Vehicle A: B-double semi-trailer carrying 7.0m and 14.0m shipping containers, with gross vehicle mass of approximately 67 tonnes. The shipping containers were loaded with paper and cardboard.

Vehicle B: two-axle rigid truck fitted with a flat top body. A 2,000 litre cylindrical container loaded with sewerage was situated on the tray top. No spill from the container occurred.

Vehicle C: prime mover and side loaded trailer, carrying a 7.0m shipping container. The gross vehicle mass was approximately 38 tonnes. The shipping container was loaded with Class 9 miscellaneous dangerous goods. No spill from the container contents occurred.

As a result of the collision, the 27-year-old male driver of Vehicle B was severely trapped by compression within the cabin of his Vehicle.

As a result of the collision, the front 1.5m of vehicle B, including the front chassis rail and entire engine assembly, were located under the rear of vehicle A and completely locked in place. Due to the force of impact, the cabin of vehicle B had been sheared from the mounting bolts of the chassis and pushed backwards approximately 1.0m along the tray of the truck, resulting in the lower cabin being compressed into a concertina shape. As a result of impact, the floor pan of vehicle had folded upwards in an inverted "V" shape. The front of the cabin folded rearwards. The seat had collapsed downwards under the driver in a "V" shape and the dash had folded upwards in the shape of an inverted "V". The rear of the cabin folded forwards. The driver was trapped within the compressed and concertinaed cabin of the truck; the dash and seat were located on top



To prepare for the rearward push of the cabin, firefighters used hydraulic shears to remove the steel headboard and exhaust assembly located behind the cabin.



First arriving rescue crews attempt to gain access to the trapped driver

of the driver, and both legs of the driver were compressed between the cabin fire wall and forward floor-pan. The driver was conscious and able to communicate with emergency services. No part of the driver from the waist down was visible.

The brakes of vehicle A were locked on, due to an air-line failure, making this vehicle immovable. The front of vehicle C was wedged into the rear of vehicle B.

FRNSW response: Rescue Pumper 101 (Bonnyrigg Heights), Heavy Rescue 102 (Regentville), Aerial Pumper 7 (Horningssea Park), Logistic Support Vehicle 1 and Duty Commander MW1 (Huntingwood) Inspector Bob Sayer.

Additional services in attendance: Ambulance Service of NSW, Ambulance Aeromedical Retrieval Unit, NSW Police, NSW Rural Fire Service, NSW Roads and Maritime Services and heavy vehicle recovery contractors.

First FRNSW crews arrive on scene: Rescue Pumper 101 under the command of SO Danny Butler was the first FRNSW appliance to arrive on scene. As Rescue Pumper 101 approached the scene, SO Butler observed the collision scene and realising the severity of entrapment and likely complexity of extrication, sent a RED message calling for a heavy rescue appliance and an additional FRNSW pumper (at this time there was no fire protection in place).

Upon arrival, firefighters conducted a scene assessment and observed the driver was severely trapped (see section above "Nature of Entrapment/Emergency" for details of entrapment). Firefighters consulted with Ambulance paramedics and began to form an extrication plan, which at that stage consisted of removing layers of the vehicle away from the driver. At this time, the driver was not visible from the waist down and the full extent of his injuries could not be determined. The driver was conscious and communicating verbally with firefighters and paramedics. Rural Fire Service crews arrived on scene and took over fire protection duties, releasing Aerial Pumper 7 firefighters to provide support and assistance to the rescue crews during the extrication.

Initial access to patient gained: Firefighters initially conducted an off-side door removal with hydraulic shears and spreaders to provide access to the driver for Ambulance paramedics. During the entrapment assessment, firefighters observed the collision impact had caused severe distortion of the truck cabin, resulting in structural components located at oblique angles to each other, making operation of the hydraulic rescue tools very difficult.

These unusual structural angles severely limited the ability of firefighters to conduct the extrication using conventional techniques.

Upon the arrival of Heavy Rescue 102, firefighters removed the near side door, improving access for paramedics. SF Terry Hay made no relief cuts to the cabin because firefighters intended to later use the roof of the cabin to push off, requiring the roof to maintain as much strength as possible (cutting the roof would have significantly weakened the strength of the cabin, greatly hindering its ability to be used as a push point for the rescue tools).

Extrication plan formed: Firefighters identified that due to the front of the truck being wedged into the rear of the semi-trailer, the forward impact compression to the truck could not be reversed, preventing space from being created by pushing the cabin forwards. However the space on the tray would allow the cabin to be pushed rearwards, opening the cabin. The rearward push of the cabin would also cause the floor-pan to be pushed down and flatten, creating further space around the driver's lower limbs. As more space was created, firefighters and paramedics would be able to identify what injuries the driver had sustained. To prepare for the rearward push of

the cabin, firefighters used hydraulic shears to remove the steel headboard and exhaust assembly located behind the cabin.

Rescue crews create space within truck cabin: The severe folding of the floor-pan prevented firefighters from using the hydraulic ram to push between the front and rear of the cabin, necessitating the use of spreaders to push the cabin open. The rear of the cabin was angled downwards, requiring firefighters to lift the rear of the cabin at the same time the rear of the cabin was being pushed backwards, enabling the floor-pan to be compressed into a horizontal position. This required a very careful and coordinated operation, with the simultaneous lifting of the rear of the cabin at the same time the back of the cabin was being pushed rearwards. Firefighters planned to carry out this operation in a very slow, careful and methodical manner. At this time the driver was not showing any signs of obvious or significant injuries and there was no requirement for a rapid extrication. Heavy Rescue 102 firefighters removed the windscreen glass from the truck.

Duty Commander MW1 Inspector Bob Sayer attended the incident and established a FRNSW Incident Command

Point. The Duty Commander remained in constant liaison with commanders of all services present on scene for the entire incident.

An emergency release plan was formed, in the event the driver's condition rapidly deteriorated, consisting of pulling the front semi-trailer forward away from the truck containing the trapped driver. Firefighters secured the rear of the truck to the front of the second semi-trailer with two chain pull sets, to stop the truck moving in the event an emergency release was required.

A hydraulic ram was placed between the tray and the rear of the cabin at the top, operated by Heavy Rescue 102 SF Max Meredith. At the same time, Rescue Pumper 101 firefighters placed hydraulic spreaders between the front and rear of the cabin. SO Butler coordinated movement of the spreaders and rearwards push of the cabin. SF Hay coordinated movement of the ram and upwards push. Timber packing was put in place as the ram was operated. SO Butler and SF Hay were in close communication with each other during this operation. As the cabin was lifted, space was made enabling the spreaders to push the cabin rearwards. As the cabin was opened, space was created at the front of the cabin, enabling the driver's right leg and foot to then be released.

During the process of extending the ram, the forward half of the roof began to push down close to the driver's head. Firefighters then decided to partially remove the roof with hydraulic shears and fold the roof back, creating more room in the cabin. The hydraulic shears were then used to remove the steering wheel.

Semi-trailer pulled forward: Firefighters continued to spread the cabin apart until the spreaders had reached their limit. The cabin had been opened approximately 50cm. A decision was then made to pull the front semi-trailer forward to create additional space at the front of the truck to allow a forward spread of the cabin. A heavy under-lift tow-truck was connected to the front of the lead semi-trailer. When all was in readiness, under the command of SO Butler, the semi-trailer was slowly pulled forward 15cm. Prior to this operation commencing, SO Butler communicated with all agencies present, ensuring all people were prepared for the movement of the semi-trailer. A complication to this procedure was caused due to the brakes of the semi-trailer being locked on by an air-line failure.

After the semi-trailer was moved forward, additional space was created at the front of the truck, although firefighters were still unable to see



Firefighters work to release the driver from the off-side



Additional timber packing is placed as the cabin was lifted.



View of the near side of the collision vehicle, showing the extent to which the front of the vehicle was embedded beneath the rear of the semi-trailer.

the driver's left leg. Firefighters then continued to operate hydraulic spreaders. A set of spreaders was used to push the front of the firewall forwards. Located immediately beneath this set of spreaders, a second set of spreaders was used to push the back of the cabin rearwards, compressing the floor-pan downwards. This operation was successful in creating space around the driver's left leg, increasing the opening by a further 50cm (to a total opening of 1.0m). A paramedic cut the boot off the driver's foot, who then reported his left leg was now free.

Patient released: After releasing the driver's lower limbs from entrapment, the driver was then able to be removed from the truck. At 1307 hours the driver was placed onto a rescue board, removed from the truck cabin and placed on a waiting ambulance stretcher, before being conveyed to hospital.

Notes

- 1 A comprehensive size-up identifying the full nature of the entrapment was critical to the formation of an effective extrication plan.
- 2 Firefighters adopted an approach that was methodical, careful and not rushed. The result was a highly successful extrication.
- 3 As always, the level of communication, cooperation and consultation between firefighters and ambulance paramedics was of the highest order. Despite the complications and complexities associated with the extrication, this high level of cooperation ensured all incident priorities were safely and effectively achieved.
- 4 Rapid size-up by the first arriving SO identified the need for additional resources, including a heavy rescue appliance. This was a critical decision and contributed significantly to the success of the operation.
- 5 SO Butler was extremely mindful of the hazards associated with operations involving heavy vehicles. Precautions taken included ensuring all vehicles were completely secured and that the utmost care was taken

- 6 during the process of moving the vehicles. In particular, there were high levels of communication between all services, the heavy salvage operator and the rescue commander (SO Butler) who was coordinating the movement of the semi-trailer, increasing situational awareness and safety of all present.
- 7 The extrication operation involved two teams working to simultaneously lift and push the truck cabin. Communication between the two teams was excellent, enabling this operation to be conducted effectively, safely and in a coordinated manner.
- 8 Firefighters from Aerial Pumper 7 provided critical support and assistance to the extrication crews.
- 9 Congratulations to all crews, who responded in a highly diligent and very professional response, resulting in the best possible outcome being achieved for the patient. **END**



Aerial view of parapet wall collapse at Macquarie Street fire. The I-beam extending from front to rear of building had expanded due to exposure to flames, pushing the parapet wall out, causing collapse. Photo courtesy SO Wayne Schweickie FIRU.



The I-beam is visible in the centre of the photograph sitting on the wall. This I-beam expanded and pushed the parapet wall out resulting in collapse.

LIVERPOOL, PARAPET WALL COLLAPSE

Liverpool building fire highlights dangers of parapet wall collapse.

This report should be read in conjunction with FRNSW Safety Bulletin 2015/02 "Wall Collapse Risk at Incidents".

Introduction: On 22 November 2015, fire broke out within a discount variety shop at Macquarie Street, Liverpool. During firefighting operations, a total collapse of the parapet wall occurred in Charlie Sector, where a large number of firefighters were engaged in firefighting operations (see report in the Toolkit (Intranet → Toolkit → Operational → Post incident → Fire and Rescue Operations Journal), titled "Many dangers present at 7th Alarm Liverpool discount variety store fire"). The parapet walls at this building were formed of double brick construction and were 2.1m high and 30m long (each). There was little to indicate the building was fitted with double brick parapet walls at the front and rear. As with most parapet wall collapses, this wall gave very little indication of impending collapse. Typical of most parapet wall collapse, the wall came down suddenly, bringing several tonnes of bricks and cement mortar onto the street.

Highly respected retired Fire Department of the City of New York Deputy Chief Vincent Dunn has much knowledge and is recognised as a leading authority concerning structural collapses during firefighting operations. Chief Dunn notes that more firefighters have been killed by parapet wall collapses than any other type of structural collapse and believes parapet wall collapse presents the most dangerous type of structural collapse scenario for firefighters.

What was not typical of the Liverpool parapet wall collapse (based on many tragic overseas experiences) was that all firefighters remained safe before, during and after the collapse, and firefighting operations continued safely without interruption. The purpose of this report is to highlight how firefighters remained safe at this fire and dangerous collapse, and to reinforce this message to firefighters who may respond to similar situations in the future.

What is a parapet wall? A parapet wall is a continuation of the exterior wall of a building above the roof line. Parapet walls are free-standing and unsupported. The purpose of a parapet wall is simply for ornamental purposes only and provides no structural support or other structural purpose to a building.

Construction features of parapet walls: Parapet walls are free-standing walls that sit above the roof line of the structure. Sometimes, heavy stone corbelling forming ornamental cornices may be attached to the tops of parapet walls. Often, parapet walls sit on a steel lintel that acts as a shelf on which the parapet wall is supported. Sometimes, a parapet wall may be located on a steel I-beam that extends laterally across the front of the building at the top of the roof line. In many commercial buildings, the roof structure is supported by a series of interconnected steel I-beams (formed of rolled steel joist construction) located at roof level. It is common for a centre I-beam to extend



This view shows the projection of bricks to the opposite side of the lane that occurred following collapse of the parapet wall.



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longitudinally from front to rear of the structure at roof height. Typically, the end of this I-beam may be in contact with the base of the parapet wall, the steel lintel at the base of the parapet wall or the lateral I-beam the parapet wall is seated on.

(Pre-fire) Weakening and destabilisation of parapet walls: Parapet walls are exposed on three sides (front, top and rear) to the continuous effects of weather (heating, cooling, wind and rain) and ageing, weakening the cement mortar holding the wall together. The older the wall, the more unstable and vulnerable to collapse it becomes.

Walls receive much of their strength and support from the load they support and from other parts of the structure they are connected to. The more load a wall supports, the more stable the wall becomes. A parapet wall is free-standing and neither supports nor is connected to anything. For this reason, a parapet wall is inherently unstable. The higher a free-standing wall is, the less stable it becomes. Parapet walls become more unstable when loads are attached to them, such as heavy signage, billboards, canopies, facades and awnings. Over time, the installation of additional

assemblies to the parapet wall may cause a weakening of the wall. Lack of maintenance over time may also lead to a weakening of the wall.

Building loads that pass directly through elements of structure at an angle of 90° to the ground are known as axial loads and are quite stable. Loads that pass through a structural element at an angle other than at 90° to the ground place more weight on one side of the element than the other and are known as eccentric (off-centre) loads. Eccentric loads can make an element of structure unstable. An eccentric load places a strain on the structural element that pulls laterally. Eventually, a critical point will be reached where the eccentric load causes the wall to collapse. Eccentric loads on parapet walls include such things as signage, awnings and attached facades. Of late, additional eccentric loads attached to parapet walls include mobile phone transmission equipment.

Any parapet wall fitted with additional loading should be suspected of a collapse occurring earlier than would normally be expected.

Performance of a parapet wall under fire conditions: When structural steel in a building is exposed to fire, heat from flame exposure causes the steel roof beams to expand. It is important to remember that when a 30m section of steel I-beam is heated by a temperature exceeding 540°C, it will expand 22cm lengthwise. In particular, longitudinal I-beams (extending from the front to rear of a building) will expand lengthwise and push out against either (1) the front (lateral) I-beam the parapet wall is sitting on, (2) the lintel supporting the parapet wall or (3) the parapet wall itself. The parapet wall will no longer be supported and will collapse. On many occasions, the collapse of the parapet wall will also bring down most of the supporting wall beneath the parapet wall.

The I-beam or steel lintel upon which the parapet wall sits can be impacted by heat caused by direct flame impact, causing softening and resulting in parapet wall collapse, with tonnes of brickwork falling to the ground with great force. Sometimes, the line of bricks immediately above the lintel is referred to as the "hinge point", because this is the base of the parapet wall that will move first, bringing the entire wall located above it down.

Heating of the steel lintel will cause it to soften, causing the lintel to lose strength and its ability to support the heavy weight of bricks above, resulting in collapse. Whatever support a roof joist system is providing to a parapet wall is significantly degraded due to the weakening effects of the direct flame impact to the unprotected steel, further weakening support and increasing destabilisation. When a parapet wall collapses, brickwork is falling from the highest part of the building to the ground; accordingly, such a collapse will occur with the greatest force.

Identification of a parapet wall: One of the biggest problems facing firefighters is identifying that a building is fitted with a parapet wall. In some circumstances, particularly where the parapet is not of an ornamental nature (such as the Macquarie Street fire) it is very difficult, if not impossible, from ground level to see that the upper portion of a wall may in fact be an extension above the roof line and therefore is a parapet wall. Often the front façade of a building may be attached to the front wall of the building and may extend over the parapet wall, concealing the presence of the parapet wall. The most effective way to identify a parapet wall is with the benefit of pre-incident planning exercises. When conducting roof reports, it is critical that aerial operators look for signs a building is fitted with a parapet wall and if identified

or suspected, report this information to the IC as soon as possible.

Signs of an impending parapet wall collapse: There are numerous accounts from many firefighters (including the report author) that a parapet wall will show little (if any) signs that it is about to collapse. A parapet wall collapse is a sudden event that often occurs with little or no warning. On the very rare occasions that a parapet wall does show signs of impending collapse, indicators include the following:

- cracking of the wall
- bulging of the wall, particularly in the location the internal roof I-beam is located
- leaning of the wall
- smoke seepage through the wall
- any movement of the wall or anything else about the wall that "doesn't look right."

A likely indicator a parapet wall collapse is probable is any occasion where there is a heavy fire condition within a structure that the parapet wall is fitted to. The fire does not have to be impacting the parapet wall, only specific elements of structure the parapet wall is connected to (which may be remote to the parapet wall); this is one of the reasons why parapet wall collapses are so dangerous.

Many parapet walls are covered with facades or large awnings, which will most likely conceal many of the signs of an impending collapse.

Precautions: Some of the precautions that may assist safe operations at a building fitted with a parapet wall include the following.

1. Monitoring the wall for signs of collapse.
2. When heavy fire conditions are impacting a structure, consider the possibility that parapet wall collapse could occur.
3. When it is suspected a parapet wall may collapse, establish collapse zones in accordance with FRNSW Safety Bulletin 2015/02 "Wall Collapse Risk at Incidents" ensuring the collapse zone is established at a minimum distance from the wall of at least one and a half times the height of the wall.
4. Establishment of collapse zones must be enforced with barrier tape and broadcast via fireground and strategic radios, ensuring all firefighters are aware of the collapse zone. Once established, collapse zones must be rigidly enforced (without exception).
5. When it is suspected a parapet wall may collapse, the IC should consider moving to a defensive strategy.
6. In situations where a collapse zone has been established, it is advantageous to conduct fire attack from a flanking position, with master streams; the operation of large diameter streams will provide much greater stream reach, enabling firefighters to position safely, well outside of collapse zones.



Macquarie Street parapet wall collapse. The I-beam visible in the centre of the photograph sitting on the wall had expanded and pushed the parapet wall out, resulting in collapse.



Heavy flames are visible venting from the centre of the building impacting the steel I-beam, causing it to expand. The parapet wall at the left side of the building is still standing and signs of collapse are minimal. The wall collapsed one minute later.

7. Any firefighter who observes signs of possible collapse (or any other hazardous condition), must report this information as a matter of urgency to their Officer or Sector Commander, who in turn must immediately report this information to the Incident Commander.
8. When evaluating stability of a parapet wall, it is important to take into consideration additional fixtures to the parapet wall, such as cornices, signage, and heavy attachments etc that may cause additional instability of the parapet wall and lead to collapse.
9. At night time, illuminate parapet walls with lighting from rescue units or any other available light source to provide the best possible conditions to visually monitor the wall.

Once a structure has been identified as being fitted with a parapet wall, the IC must constantly assess the stability versus the probability of collapse of the parapet wall. This task is made more difficult due to things that may obscure a clear view of the parapet wall, such as smoke conditions, presence of a facade or if the fire is at night time.

What brought the parapet wall down at Liverpool: The building false ceiling contained the fire for a very short period of time (less than 10 minutes), before fire broke through the ceiling and flames began to directly impact the unprotected structural steel roof frame, including the

centre longitudinal I-beam, extending from the front of the building to the rear. Flame impact caused this I-beam to expand lengthways, pushing out against the base of the parapet wall and causing it to begin to lean outwards. The end of this I-beam (web 600mm high and flange 400mm wide) was in contact with and pushing against the base of the parapet wall. Diagonal cracking was also visible in the brick wall. As flame continued to impact the longitudinal I-beam, the I-beam continued to expand and push out against the base of the parapet wall, causing the outward lean of the parapet to increase. Movement of the wall was completely unnoticeable to the human eye. The lean continued until instability of the wall caused it to suddenly collapse (about 35 minutes following fire ignition). This collapse was extremely sudden and without warning, resulting in tonnes of bricks and cement dropping onto the ground and several cars parked in the street below.

At the front of the building (Alpha Sector), the aggressive interior fire attack by firefighters prevented fire from breaking through the false ceiling and impacting the roof steel. As a result, the steel roof frame attached to the front half of the building did not expand and the parapet wall remained secure.

Precautions that ensured all firefighters remained safe at Liverpool:

Firefighters at the Liverpool fireground were extremely vigilant to the dangers of parapet wall collapse. When the collapse occurred, the wall fell suddenly and without warning, dropping onto several parked vehicles. Bricks projected across the full width of the laneway. Firefighters remained safe during and after the collapse, due to the following precautions undertaken;

1. At all times, firefighters maintained a heightened awareness of the dangers of wall collapse, due to the heavy fire activity impacting the structure, even before any physical signs of impending collapse were detected. The wall was monitored for signs of collapse.
2. Aware there was a danger of collapse (although no physical collapse signs were showing), firefighters remained out of the potential fall zone of the wall in Charlie Sector.
3. Immediately that signs of potential collapse were detected within the parapet wall in Charlie Sector (diagonal cracking and leaning of the wall), a collapse zone was established. The collapse zone was secured with barrier tape and broadcasts were made via the fireground and strategic radio channels, ensuring all firefighters were aware of the collapse zone. A Duty Commander was appointed



Visible signs of cracking in the parapet wall, indicative that the wall is being pushed out.

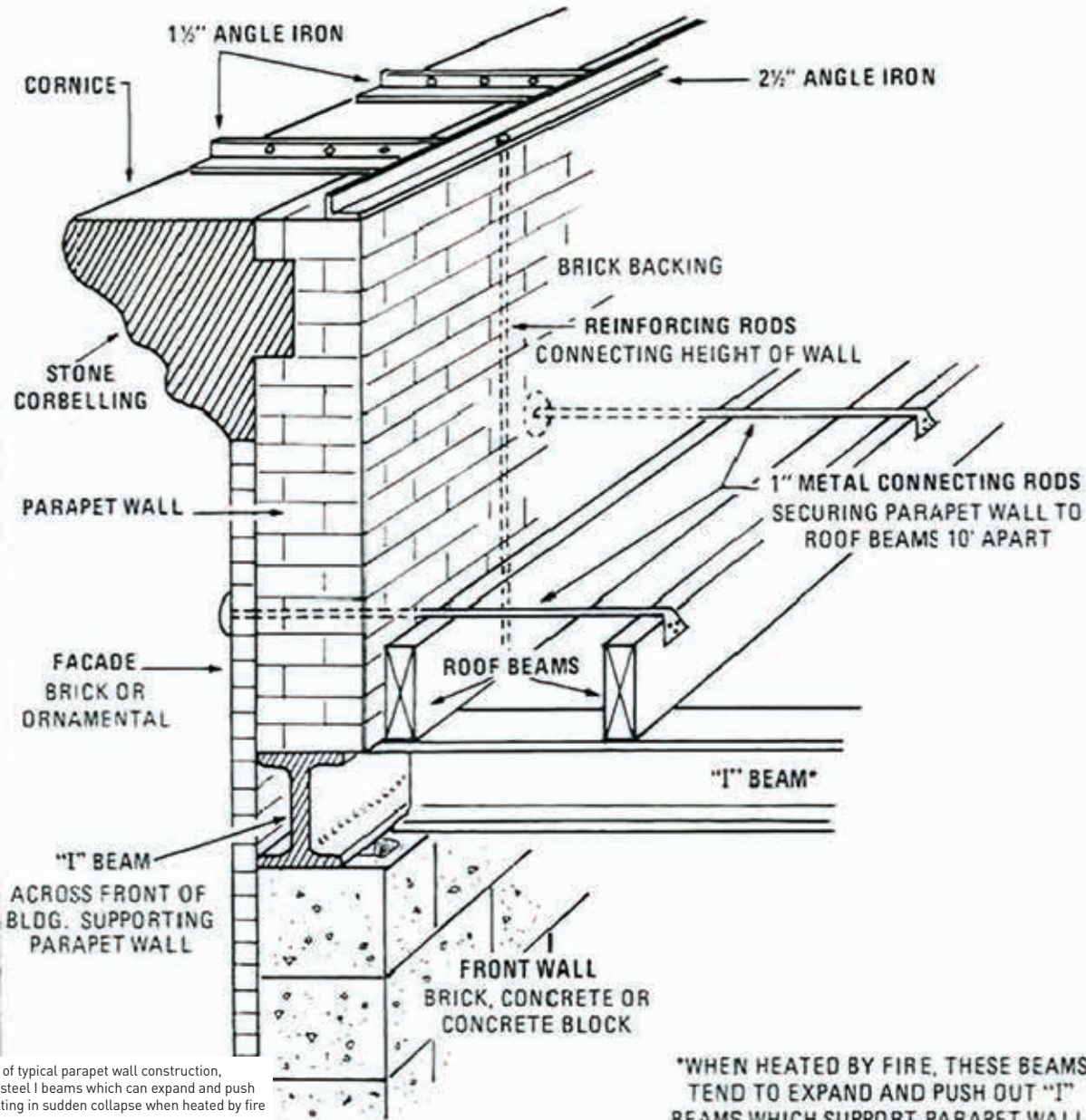


Diagram of typical parapet wall construction, showing steel I beams which can expand and push out resulting in sudden collapse when heated by fire

WHEN HEATED BY FIRE, THESE BEAMS TEND TO EXPAND AND PUSH OUT "I" BEAMS WHICH SUPPORT PARAPET WALL.

- to Charlie Sector, ensuring strict enforcement of the collapse zone.
- 4. Aerial master stream operation operations were set up outside of the collapse zone, from side flanking positions. Aerial master streams ensured water could be projected onto the fire at the maximum distance from the potential collapse zone, with no firefighters located in dangerous positions.
- 5. When collapse occurred, the wall fell harmlessly and firefighting continued uninterrupted. A Personal Accountability Report was quickly taken by Charlie Sector Commander and the collapse reported to the IC, including that all firefighters were accounted for.

Notes

- 1 Parapet wall collapse during a fire is the leading killer of firefighters due to structural failure.
- 2 Firefighters are the eyes and ears of the Incident Commander. When any signs of a potential parapet wall collapse (or any other signs of a hazardous condition) are observed, this information must be communicated as quickly as possible to the Sector Commander for relay to the Incident Commander.
- 3 Parapet wall collapse is particularly dangerous because collapse can occur remote to the location of the fire. The parapet wall itself does not have to be impacted by fire to cause a collapse, only part of the structure that is in contact with the parapet wall.
- 4 When conducting pre-incident planning exercises, it is important to consider and note the presence of parapet walls fitted to buildings.
- 5 When conducting roof reports, aerial operators should be alert to the presence of parapet walls fitted to buildings and communicate this information to the IC without delay.
- 6 The Liverpool parapet wall collapse demonstrates that although parapet wall collapses are highly dangerous, occurring suddenly and without warning, adherence to correct precautions will ensure all firefighters remain safe and the job still gets done.
- 7 Firefighters are encouraged to read and discuss FRNSW Safety Bulletin 2015/02 "Wall Collapse Risk at Incidents".
- 8 Special thanks to the following people for their assistance in preparing this report; Battalion Chief Frank Miale (FDNY Battalion 27), Battalion Chief Kenneth Zaveckas (FDNY Battalion 20) and Assistant Chief Jack Mooney (FDNY Chief of Training). **END**



Firefighters conduct searches of damaged houses and storm debris, including an overturned boat on Bridges Street.



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KURNELL TORNADO

Firefighters respond to devastating tornado at Kurnell.

Tornadoes are some of the most violent storms in nature. FRNSW crews were initially responded to Automatic Fire Alarm activations to facilities on the Kurnell Peninsula. Within a short time after leaving stations, firefighters knew something wasn't right when fire appliances began to be hit by large hail stones and strong winds and the sky went very dark green. A powerful tornado had just impacted the township of Kurnell, resulting in substantial damage to major infrastructure facilities, industrial premises and numerous houses, providing significant safety threats to the local population. As firefighters were responding to Kurnell, they were informed numerous reports were now being received of collapsed buildings and persons trapped as a result of the tornado. In addition to the unfolding emergency, the area of tornado impact contained numerous hazardous conditions for responding firefighters. This is an account of how FRNSW

firefighters responded to the most powerful winds ever recorded in NSW and the impact of an F-2 tornado to the southern Sydney township of Kurnell.

Incident type: Storm and tornado.

Call details: 1027 hours, Wednesday 16 December 2015, FRNSW responded to an Automatic Fire Alarm activation to the Sydney desalination plant, Sir Joseph Banks Drive, Kurnell. This alarm activation was due to the impact of storm activity and was the first notification to FRNSW of an emergency situation at Kurnell.

Nature of emergency: A tornado is a violent rotating column of air that is in contact with both land and a cloud, and is typically shaped as funnels. The narrow end of the funnel touches the earth and is often encircled by debris. Most tornadoes have wind speeds of less than 180 km/h and are approximately 80 metres wide. They travel a few kilometres before dissipating. In extreme cases, wind speeds can exceed 480 km/h and the funnel can span more than three kilometres across.

These mega tornadoes can stay on the ground for up to 50 kilometres. Tornado damage tends toward convergent damage consistent with rotating winds. Tornado strength is measured on the Fujita F-scale, developed in 1971 by Dr Ted Fujita of the University of Chicago, rating a tornado's strength from F0-F5.

The Bureau of Meteorology reported a supercell thunderstorm had impacted the southern Sydney township of Kurnell. Peak wind gusts of 213km/h (the highest ever recorded in NSW) were recorded at the Bureau's automatic weather station located at Kurnell. NSW Severe Weather Forecaster Michael Logan reported an F-2 tornado impacted Kurnell along a narrow 150m wide path (An F-2 tornado is located within the mid-range of the Fujita F-scale). A second storm containing peak wind gusts of 111km/h impacted Kurnell at 1300 hours. As a result of the impact of the tornado, severe storm damage occurred to the township of Kurnell. Approximately 35 houses received severe damage and

a further 250 houses received damage to varying degrees. Storm damage included roofs being torn from buildings, debris suspended in powerlines, trucks and boats overturned, powerlines and electrical infrastructure brought down, trees uprooted, large branches blocking roads and windows blown out. A large section of the Sydney desalination plant, part of the Caltex fuel storage terminal and the Discovery Industrial Estate industrial park received major damage. A number of people received injuries due to the tornado's impact. In addition to wind and hail damage, areas of localised flooding occurred due to the sudden heavy rainfall.

Path of the tornado: A powerful supercell thunderstorm was detected tracking north over the sea along the east coast towards Sydney. The storm cell entered the entrance to Port Hacking and continued to travel north. The tornado formed and made landfall on the beach at Bate Bay, before crossing bushland (part of the Kamay Botany Bay National Park) and travelling north for a further 2km, before directly impacting the Sydney desalination plant. The tornado then crossed Sir Joseph Banks Drive and impacted the southern side of the Caltex fuel storage terminal and continued to travel north directly impacting the Discovery Industrial Estate at 18-28 Sir Joseph Banks Drive. The tornado continued to travel north, directly impacting the Kurnell electricity zone substation then entering the residential

section of Kurnell, impacting houses on Tasman, Bridges, Torres and Dampier Streets and Prince Charles Parade, before entering Botany Bay, losing strength and diminishing. The tornado was approximately 150 metres wide and travelled for a distance of approximately four kilometres across land on the Kurnell peninsula.

FRNSW response: Pumpers 21 (Kogarah), 26 (Mascot), 28 (Marrickville), 29 (Arncliffe), 30 (Lidcombe), 64 (Lakemba), 90 (Menai), Runner 1 (City of Sydney), Strike Team Pumpers 1, 2, 3 and 4 (Alexandria Training College), Rescue Pumpers 54 (Cronulla) and 20 (Hurstville), Aerial Pumper 45 (Miranda), Heavy Rescue 20, Tanker 90 (Menai), Hazmat Pumper 13 (Alexandria), Heavy Hazmat 13, USAR-1, Incident Control Vehicle Bravo and Duty Commander MS2 (Kogarah).

In addition to the above response on the day of the incident, an additional 42 pumpers and specialist appliances and numerous senior/specialist officers attended the incident over the following 48 hours to undertake storm recovery operations.

Additional services in attendance: Ambulance Service of NSW, NSW Police, NSW State Emergency Service, NSW Rural Fire Service, Electricity Authority, Gas Authority, local council and Roads and Maritime Services.

Initial FRNSW response: Shortly prior to the formation of the tornado, a supercell thunderstorm producing

large hailstones, heavy rain and high wind impacted the township of Kurnell, resulting in the activation of several Automatic Fire Alarms. The first AFA activation occurred at 1027 hours, resulting in Rescue Pumper 54, Aerial Pumper 45 and the Rural Fire Service being assigned to the call at the Sydney desalination plant.

At 1029 hours, a second Automatic Fire Alarm activated at Kurnell, at the Caltex fuel storage terminal (formerly the Caltex oil refinery), resulting in Pumper 21, Rescue Pumper 20 and the Rural Fire Service being assigned to this fire call. Following activation of this AFA, numerous AFAs began to activate in the Kurnell area.

First signs of a severe storm: At the time Rescue Pumper 54 was leaving the station, firefighters observed light hail falling (54 Station is about 6km as the crow flies from Kurnell). The sky went very dark, low hanging clouds were observed and a short time later power was lost in the Cronulla area. As Rescue Pumper 54 continued towards the fire call, the sky continued to darken and heavy rain began to fall, getting heavier the further the appliance travelled along Captain Cook Drive, until large hailstones started falling and severe wind gusts began to impact the appliance.

Aerial Pumper 45, under the command of SO Paul Robinson, was travelling along Captain Cook Drive when they were impacted by golf ball size hail, torrential rain and severe wind gusts.



Rescue Pumper 54 was the first FRNSW appliance to arrive at Bridges Street, Kurnell, directly in the tornado's path, followed by further FRNSW crews.



Iron roof sheets were blown off many houses, often landing in contact with downed powerlines. Firefighters went house to house checking on the welfare of residents.

First call of assistance to Kurnell: At 1038 hours, FRNSW Fire Communications received a call from the Police RCO, reporting a woman and child were trapped inside a house at Bridges Street, Kurnell, due to a large tree that had fallen onto a house, causing the roof to collapse as the result of a severe storm. At this time, Rescue Pumper 54, under the command of SO Stephen Shields, was responding to the AFA at Kurnell and was continuing along Captain Cook Drive. FireComs diverted Rescue Pumper 54 to the reported house collapse at Bridges Street, Kurnell. USAR-1 (Urban Search and Rescue -1), USAR 4 Team Leader Rescue SO Clayton Abel and Duty Commander Georges River Inspector Glen Moran were also assigned to this incident.

A short time after the initial call advising of a person trapped in a partially collapsed structure at Bridges Street, FRNSW Fire Communications began to receive further calls reporting possible further structural collapses at Kurnell in addition to various other emergency situations (powerlines down, flooding, trees down etc.), due to the impact of a severe storm cell. It was becoming apparent a major emergency was unfolding at Kurnell. Additional FRNSW resources were responded to Kurnell, consisting of Pumps 26, 28, 29, 30, 64, 90 and Runner 1, Rescue Pumper 20, Heavy Rescue 20, Tanker 90 and Incident Control Vehicle Bravo. An Incident Management Team was also responded as well as a Task Force of Rescue

Instructors from the Training College with 4WD vehicles and chainsaws.

As Rescue Pumper 54 travelled along Captain Cook Drive, firefighters continued to encounter hail and torrential rain, blocked traffic in both directions and numerous fallen trees. As firefighters approached Kurnell, they observed a distinctive swathe of fallen trees, damage and debris, consistent with the path of a tornado. On the outskirts of Kurnell, at the intersection of Captain Cook Drive and Sir Joseph Banks Drive, high and low voltage powerlines had come down across Captain Cook Drive, blocking the road into Kurnell. This was the only access road in to the affected (and now isolated) peninsula.

Expanding emergency: At 1046 hours, FRNSW received a call for assistance from the Caltex fuel storage terminal, where staff were reporting the facility had been damaged by a severe storm (including loss of a roof). Staff further reported an emergency was being declared and site operations were being moved to a secure location at the Caltex Emergency Operations Centre. Pumper 29, Heavy Rescue 20 and the Rural Fire Service were responded to the fuel storage terminal to provide assistance.

Access to Kurnell blocked: At the location where powerlines were blocking the road, several other emergency service vehicles from the Police, Ambulance and State Emergency Service were also stopped. Rescue Pumper 54 sent an urgent message to

FireComs, requesting the attendance of the electricity authority as they were blocked by fallen powerlines and could not proceed further. All members of the emergency services present held a roadside conference and stated that numerous calls for assistance were now being received for Kurnell, in particular reports of persons trapped inside buildings damaged by the storm and access needed to be gained urgently. Firefighters checked the fallen powerlines with the voltage detector and no current was detected. The lines were checked again five minutes later and still no voltage was detected. One emergency vehicle had already traversed over the powerlines several minutes prior to the arrival of Rescue Pumper 54 at that location and the lines appeared not to be live. Due to the urgency of the situation being reported at Kurnell and possible significant threat to life, firefighters agreed to traverse the fallen powerlines, followed by members of the other emergency services. The lines were checked again with the voltage detector and no voltage could be detected. Slowly and cautiously, Rescue Pumper 54 drove over the powerlines, which gave no indication of being live, followed by other emergency vehicles. Note: the Officer-in-Charge of Rescue Pumper 54 did not take the decision lightly to traverse the fallen powerlines; SO Shields stated the lines were repeatedly checked with voltage detectors and the decision to travel over the fallen lines was only made following



Firefighters searched beneath numerous elements of structural debris for possible storm victims. In this view, a dislodged roof is located between two houses.



Firefighters go house to house along Torres Street, conducting searches, welfare checks and implementing evacuations following impact of the tornado. The second storm containing 111km/h winds is about 15 minutes away.



The force of the tornado demolished this 1.4m high brick wall.

extensive consultation with members of other services, where it was established an urgent and significant life-threatening emergency existed at Kurnell.

First FRNSW crews arrive at Kurnell:

Firefighters aboard Rescue Pumper 54 continued to travel along Captain Cook Drive, driving past the Kurnell electricity substation and observed the roof had been blown off and the substation was substantially damaged (it was later ascertained a major electrical short within the sub-station had occurred and all electricity was dead).

Upon arrival in Bridges Street, firefighters found a scene of significant damage, due to the impact of the tornado. Numerous hazardous conditions also existed. A large number of houses along Bridges Street were in various states of damage. Many houses had lost roofs. A large amount of debris was strewn on the ground or partially suspended on structures, fences or in trees, including structural timbers, large sections of metal sheeting, sharp metallic material torn from structures and various other forms of debris. Brick walls had been knocked down, boats overturned, glass windows blown out, gas cylinders torn from mountings and blown across streets and into houses, cars impacted by flying debris and large sections of roof tiles were removed from houses. Displaced iron sheets were located on roofs, in powerlines, in trees and on the ground. Numerous powerlines had come down

and were located on the road, the ground, houses, cars, and fences or intertwined with metal sheeting and other conductive materials. At this time, confirmation had not been received the power was off. Large trees were pulled from the ground and upright trees were stripped of large branches and leaves.

Rescue Pumper 54 went to the call address in Bridges Street, where the local Rural Fire Service was in attendance. Rescue Pumper 54 Firefighters made investigations and confirmed there were no people trapped within the structure. Firefighters then commenced search and rescue operations, travelling on foot, going from door to door along both sides of the street, determining the occupancy status of each house and checking that all people were okay. As each house was checked, firefighters tagged each property with a strip of FRNSW barrier tape at the letterbox, signifying all people were safe and accounted for. Most people firefighters spoke to were in states of shock, confusion and disbelief at the impact of the tornado; however the presence of the firefighters was reassuring for residents.

FRNSW tornado response operations expanded:

Duty Commander Georges River Inspector Glen Moran arrived in Bridges Street and assumed the role of FRNSW Commander. Inspector Moran established a command point known as Kurnell Command and established an incident communications channel. Inspector Moran identified four major

streets that had been impacted by the tornado (Bridges, Tasman, Torres and Dampier Streets) which were then designated as Sectors. As FRNSW resources arrived at the command point, they were dispatched to designated streets to conduct search and rescue operations via house-to-house doorknocks to confirm the safety and welfare of residents, conduct searches of large storm debris and partially collapsed structures to ensure no people were trapped and to assess the structural stability of tornado-impacted houses.

Information of second storm approaching:

At about this time, Inspector Moran received information of the formation of a second large storm cell containing severe wind due to impact Kurnell within the hour. This situation would be extremely dangerous, because of the large amount of debris, in particular iron sheets, which were loose and would most likely become airborne. Many houses had already been weakened by the tornado and could potentially be in danger of collapse if impacted by a second strong wind storm. An evacuation centre was established at the local Kurnell RFS fire station. Evacuation of all people within the heavily damaged tornado impacted streets became an urgent priority. Inspector Moran directed firefighters to carry out search and rescue operations as quickly as possible and to evacuate all residents from the storm-impacted streets. Firefighters



Numerous iron sheet roofs were torn from houses by the force of the tornado, landing hundreds of metres away, often entangling in powerlines.

were directed to place barrier tape around the letterbox of each house after it had been searched.

Firefighters aboard Pumpers 26, 28, 30, 90 and Runner 1 and Rescue Pumpers 20 and 54 and Tanker 90, went from house to house, conducting doorknocks to check on the safety and welfare of residents and to investigate for any people who may have been trapped beneath debris. Firefighters informed residents a second severe storm was approaching and recommended they go to the evacuation centre. Most people accepted this advice and went to the evacuation centre to wait for the second storm to pass. Sector Commanders were designated for each sector in which FRNSW crews were operating. During this operation, firefighters acted with extreme caution, as the electricity authority could not provide confirmation electricity was isolated (numerous powerlines had fallen and were on the ground, in contact with houses and in contact with large pieces of iron sheeting and other metallic debris and the entire area was wet). Inspector Moran stated firefighters showed significant courage, conducting search operations in a highly hazardous environment, not knowing whether fallen powerlines were live or dead.

Pumper 28, under the command of SO Jeff Lay went to Torres and Tasman Streets, to investigate the safety and welfare of residents. Firefighters came across an elderly lady on the ground at

the front of a house in Tasman Street who had collapsed, was having trouble breathing and had sustained a deep cut to her leg. Firefighters commenced oxygen therapy and administered first aid until arrival of Ambulance. The patient was transported to hospital, having suffered a suspected heart attack. Pumper 28 firefighters continued to go door-to-door in Tasman Street, checking on the welfare of people impacted by the tornado, assessing whether any people needed further assistance and evacuating people from partially collapsed/seriously damaged houses.

USAR-1 and USAR-4 arrived at the command point and SO Abel liaised with Inspector Moran. All reports being received from sectors indicated no people were trapped in structural collapse situations and therefore there was no longer a requirement for urban search and rescue. A reconnaissance of the area was conducted by USAR crews to determine the level of damage. A report was received of the likelihood of further severe storms impacting Sydney. USAR-1 was redeployed back to the Rescue base, in the event the collapse rescue unit was required to be redeployed due to the pending severe storm impacts.

Police were able to quickly establish road blocks at the entrance to Kurnell, preventing entry of unauthorised people into the hazard area, reducing the likelihood of further harm to non-emergency persons. Police also patrolled storm-impacted streets.

Operations at Discovery Industrial Estate Industrial Park: Pumper 21, under the command of SO Bryan Garvey was attempting to reach the Caltex fuel storage terminal (where an AFA had activated), however could only get as far as Sir Joseph Banks Drive, because of fallen trees and powerlines, completely blocking the road. An industrial park, known as the Discovery Industrial Estate, consisting of 30 two-level factory units, located at 18-28 Sir Joseph Banks Drive, was directly in the tornado's path and had been substantially damaged. Pumper 21 was located adjacent to this industrial park and went to the site to make investigations. Firefighters found factory windows blown in, the roofs blown off the buildings, large sections of iron sheeting and other debris strewn across the ground and structures in states of partial collapse. A medium size delivery truck had blown over onto its side, crushing a car. SO Garvey established a command point at the industrial park and sent a message requesting the assistance of a second pumper, to assist firefighters conduct search operations to ensure all people at the site were safe. The industrial park became a sector, known as "Discovery Sector" under the command of Sector Commander SO Garvey. In the process of carrying out a search, firefighters located a female staff member from a factory unit who had sustained lacerations to her leg after being hit by shards of flying glass. Firefighters treated this

person until arrival of Ambulance. Firefighters from 20, 21 and 64 stations conducted searches and a rapid damage assessment of the impacted structures, ensuring no people were trapped inside damaged buildings or located under any of the storm debris. The owner of the car beneath the truck was located and confirmed the vehicle was parked and unoccupied when the truck was blown onto it. Due to the highly unsafe nature of the factory units, firefighters evacuated 100 people from the site.

Staff and students at Kurnell

Public School protected: Following completion of duties at the Sir Joseph Banks industrial park, Pumper 21 went to the Kurnell Public School, where 170 students and approximately 20 adults were located. Ambulance and Police were also located at the school. SO Garvey ensured the school remained secure until the impact of the second storm front had passed and all people remained safe. SO Garvey was then placed in charge of FRNSW operations within Torres Street, known as “Torres Street” Sector.

Operations at Caltex fuel storage terminal: Pumper 29 and Heavy Rescue 20 were initially responded to the Caltex fuel storage terminal to reports the facility had lost a roof and an emergency had been declared. The facility had been directly in the tornado’s path (Caltex workers saw the tornado funnel coming and immediately took shelter). Heavy

Rescue 20 (operated by Firefighters Gerrard Brady and Darren Lydom) arrived on scene and were directed to the Caltex Emergency Operations Centre, where an emergency meeting was taking place. The terminal manager informed firefighters the sudden rain deluge associated with the storm cell had caused the bunded area around the storage tank farm to fill up with rainwater and was within 100mm of overflowing. This water could not be pumped out, because the power outage that was affecting the Kurnell area was preventing the electrically-powered pumps from operating to remove the excess water. Any overflow could result in a spill of contaminated water containing hydrocarbon material into the surrounding area, presenting an explosion risk. Management staff advised if this were to happen, a significant evacuation of Kurnell would be required.

Rescue 20 firefighters sent a **RED** message at 1121 hours requesting the urgent attendance of Hazmat and the Duty Commander. Pumper 29, under the command of SO Chris Benjamin arrived on scene a short time later and also met with terminal management who were having an emergency meeting. The terminal became a sector, known as “Caltex Sector” and SO Benjamin became the Sector Commander. Hazmat Pumper 13 and Heavy Hazmat 13 responded to the fuel storage terminal. Firefighters placed AreaRAE monitors at strategic points

around the site to conduct atmospheric monitoring. Hazmat crews were also using four-headed gas detectors to monitor the atmosphere. These instruments did not detect atmospheric conditions within the explosive range nor was hydrogen sulphide detected. Hazmat firefighters worked with Caltex staff to construct an area of bunding to filter and capture any hydrocarbon material if the separator overflowed. An overflow of the bunded area subsequently occurred due to further rain (a second severe storm containing heavy rain impacted Kurnell at 1300 hours), however the recently constructed bunding captured and prevented the release of hydrocarbon material from the Caltex site. Firefighters remained on scene for a further six hours, continuing to conduct atmospheric monitoring and continuing to monitor the waste water treatment plant, ensuring no further overflow occurred.

No inspection of the facility had been conducted to determine damage caused by the tornado. Rescue 20 and Pumper 29 firefighters investigated the site and observed that several buildings including a research laboratory had been completely destroyed. Firefighters determined no spill of hazardous materials had occurred on the site.

Transfer of command: Zone Commander Georges River Superintendent Paul Bailey responded to Kurnell and command of the incident was transferred to Superintendent Bailey.



Incoming crews report to the Command Point for tasking.



Pumper 21 firefighters discovered a truck blown onto a car at the Discover Industrial Estate, fortunately the car was parked and unoccupied

Inspector Moran was appointed Operations Officer.

Impact of second storm front: The second storm cell impacted Kurnell at about 1300 hours, consisting of 111km/h peak wind speeds and heavy rain. Large quantities of debris, including iron sheeting displaced by the tornado, were picked up and became airborne. By this time, evacuations had been completed. Prior to the storm impacting, a number of residents sheltered in the safety of FRNSW appliances. A number of residents were too frail to move and a decision was made for these people to remain in their houses; firefighters remained in their houses with them until the storm had passed. The crew of Runner 1 rescued a golden retriever dog, which they relocated to safety. As the storm began to impact, Inspector Moran directed all firefighters to take safe refuge within fire appliances, until after the second storm had passed. Rescue Pumper 54 was detailed as the Rapid Intervention Team, tasked with conducting a general patrol and remaining available to come to the assistance of any crews who experienced an emergency/distress situation. At the time the second storm cell impacted, the streets were completely empty of all people.

Following impact of the second storm, firefighters again conducted further search and rescue operations of the

area impacted by the storm, consisting of house to house doorknocks to ensure all residents remained safe. Firefighters conducted searches of partially collapsed and badly damaged structures, ensuring no people were trapped. Rescue Pumper 20 firefighters located a balcony at the front of a house in Tasman Street, in danger of imminent collapse, which they secured and made safe with provision of structural support.

Operations at desalination plant: Aerial Pumper 45, under the command of SO Paul Robinson, was initially responded to an AFA activation at the Sydney desalination plant. A large amount of debris, including fallen trees and other materials was blocking the road, preventing access. The electricity authority arrived on scene and confirmed the fallen powerlines were dead and it was safe to travel over them. Firefighters removed a large amount of debris from the road, enabling the appliance to reach the desalination plant, which had been directly in the path of the tornado. Damage to this facility was substantial. The roofs on all buildings had been destroyed (including the roof above a 220m x 75m section of the plant), large sections of steel structure had been pulled from the ground and torn apart and almost every part of the facility had sustained serious damage. Firefighters attended to several workers at the plant who had sustained injuries, including one person who had sustained injuries

as the result of being drawn through a window by the pressure of the tornado. The Ambulance had followed Aerial Pumper 45 to the plant and provided treatment to the injured workers. Rural Fire Service volunteers were conducting a search along the road side and the exterior of the site for any further injured people. The desalination plant became a sector (known as "Desal Sector") under the command of Sector Commander SO Robinson. All instrumentation at the site indicated dangerous goods stored on site were secure. The crew of Aerial Pumper 45, Team Leader Hazmat Inspector Duncan White, members of Hazmat HART (Hazmat Advisory Response Team) and the plant engineering manager then conducted an inspection of the desalination plant, to physically confirm no hazardous materials had spilled. This inspection identified that no spill of hazardous materials at the site occurred.

Rapid damage assessments: Following the passage of the second storm front, FRNSW deployed rapid damage assessment (RDA) teams to the affected area, to assess the extent and level of damage. A damage assessment cell was established at Kurnell RFS to coordinate RDA operations, staffed by SFs John Stokes and Richard Wilson, SO Clayton Abel and Chief Superintendent John Denny. The RDA teams were drawn from Category 2 USAR practitioners operating from on shift rescue stations



Duty Commander Georges River Inspector Glenn Moran, the initial FRNSW Commander; established a Command Point, Sectors and Sector Commanders, resulted in operations that safely achieved all incident objectives.



FRNSW crews accompany the engineering manager of the Sydney desalination plant, conducting an assessment of tornado impact to onsite hazardous materials.



Pressure created from the tornado pushed this floor to ceiling frame window back into the house.

working that day and rescue instructors from Alexandria. The RDA teams were deployed to the storm-affected streets, going from house to house to conduct rapid damage assessments.

FRNSW Aviation Officer Senior Firefighter Anthony Wallgate was aboard the Westpac helicopter Lifesaver 1 and was tasked with conducting aerial reconnaissance of the affected area (Lifesaver 1 had just refuelled following an aerial assessment of the Sydney eastern suburbs and Bondi Junction Westfield shopping centre, which had just been impacted by a severe storm event and partial collapse of the shopping centre ceiling had occurred, requiring the evacuation of 10,000 people). Lifesaver 1 flew an extensive search pattern over Kurnell, obtaining photographs of the tornado-impacted area, which were then transmitted to the damage assessment cell. The aerial reconnaissance provided a complete overview of the incident, clearly defining the incident perimeter and for the first time identifying the full extent of damage to facilities including the desalination plant. The ground rapid damage assessment teams conducted assessments of numerous sites and in conjunction with the aerial reconnaissance, enabled an incident plan to be developed for the following day. In particular, the afternoon ground assessment identified a significant number of structures

containing friable asbestos material that had been disturbed by the storm impact. Remediation of the asbestos quickly became a high priority for FRNSW before any further clean-up or reconstruction of the storm-affected areas could commence.

FRNSW operations Day Two:

On Thursday 17 December 2015, the main priority of FRNSW operations was asbestos remediation. A total of 26 FRNSW appliances (including 12 pumpers, 4 hazmat appliances, 4 rescue appliances, 4 aerial appliances, USAR-1 and ICV Bravo) and 14 senior/specialist officers were staged at Kurnell. Two strike teams were formed: Strike Team Charlie, deployed for Hazmat operations and Strike Team Delta, deployed for continued storm recovery operations. Rescue Pumpers 20 and 63, Heavy Rescues 63 and 75 and Heavy Hazmat 77, each carrying USAR Category 2 practitioners, were deployed for continued rapid damage assessment duties. By the end of the second day, over 300 sites had been visited by FRNSW rapid assessment teams and remediation had been completed at all sites where the presence of disturbed friable asbestos had been identified.

Containment of the friable asbestos was an essential task that had to be completed before any of the numerous insurance assessors, contractors, builders, trades people and other repair

staff could enter the storm-affected area to commence restorative works on the storm-impacted buildings.

Following mitigation of the asbestos hazard, FRNSW crews continued to deploy to Kurnell over the following days to provide ongoing support to the SES, carrying out general storm recovery operations.

Notes

- 1 Firefighters responding into Kurnell were confronted with areas of devastation, uncertainty, many hazardous conditions and an unknown and potentially significant life risk. At scenes of unfolding major emergencies, the actions of the first arriving emergency responders are critical, laying the platform for the major operations that will follow. During the initial life-threatening phase of the Kurnell emergency, firefighters showed courage, resourcefulness and determination, conducting operations with diligence and professionalism.
- 2 Following the life-threatening phase of the emergency, the work performed by FRNSW firefighters was critical, remediating the friable asbestos hazard. Until this work was completed, no other storm recovery operations could commence.
- 3 Firefighters went from house to house, inspecting the stability of impacted structures and searching



Senior Firefighter Anthony Wallgate provides Chief Superintendent John Denny with aerial images taken from the helicopter survey of the storm-affected area.

- beneath partially collapsed buildings, large elements of displaced debris and damaged structures, ensuring no people were trapped or injured. Firefighters attended to a number of injured people until arrival of Ambulance. After primary searches were rapidly completed, more thorough secondary searches were subsequently conducted, including front and rear yards, motor vehicles, along footpaths, sides of roads, beneath fallen trees, within areas of vegetation and any location where potential victims could have been located.
- 4 Firefighters operated a very simple but effective method of marking houses that had been investigated and searched, by tagging each property at the letterbox with a strip of FRNSW barrier tape, signifying searches were complete and occupants found to be safe and/or evacuated, preventing unnecessary duplication. This is critical at a time when resources are limited and also ensures no houses are missed.
 - 5 From the arrival of the first FRNSW appliance into Kurnell, a command structure was established and then built out as additional resources arrived on scene, via the establishment of a command post, sectors and sector commanders (a total of eight sectors were established). Although the incident was spread over a large geographical area, with varying emergency situations at different locations, requiring differing resource/operational requirements and the presence of a large number of resources, the incident command structure provided the FRNSW Commander with an effective and manageable span of control, increased levels of fireground accountability, more efficient use of incident resources, improved communications and greater situational awareness. This ultimately resulted in greater safety for all firefighters operating at the incident and enabled all incident objectives to be met.
 - 6 Hazardous situations were cordoned off and secured with barrier tape by first responding crews, minimising the risk of exposure to hazards to firefighters, emergency responders and residents.
 - 7 A combination of reports from first responding FRNSW appliances, rapid damage assessment teams and aerial reconnaissance enabled the damage zone to be defined, increasing situational awareness and providing the planning cell with critical data to set incident objectives and deploy appropriate levels of the correct resources to the storm impacted area. Availability of a helicopter was crucial.
 - 8 Establishment of a unified command post at the Kurnell RFS station ensured all agencies were operating in accordance with a common operating plan, in a coordinated, effective and safe manner. FRNSW worked closely with all agencies including State Emergency Service, Police, Ambulance, Rural Fire Service, Gas Authority, Electricity Authority and organisations such as Caltex and Sydney desalination plant. Note: This close working relationship existed just as strongly in the field as at the command post level.
 - 9 Firefighters responding to the initial Automatic Fire Alarm activations reported large hailstones (golf ball size), dark greenish sky and dark low hanging clouds. According to the US National Oceanic and Atmospheric Administration (NOAA), such signs are indicative of a supercell thunderstorm which is well established and probably has a rotating updraft, capable of forming a tornado.
 - 10 In many respects, the impact of the second severe storm was as hazardous as the tornado, due to the large quantity of loose materials (in particular iron sheeting) that were capable of becoming airborne and becoming dangerous projectiles. Structures weakened by the tornado were now in danger of collapse when impacted by strong winds, heavy rainfall and hail.

- 11 Severe storm events may cause major electricity outages, which in turn may result in major facilities losing power, leading to emergency situations requiring FRNSW intervention.
- 12 Severe storm impacts can cause installed fire protection systems to be damaged or rendered inoperable. The tornado impact severely damaged part of the fire mains at the desalination plant, rendering it inoperable. When responding to fire situations in storm-affected areas, firefighters should take into consideration that installed fire protection equipment could be damaged and should not necessarily be relied upon.
- 13 FRNSW tankers, rescue appliances and qualified chainsaw operators were a significant asset to the tornado response, particularly being able to clear roadways of fallen trees for the passage of emergency vehicles.
- 14 The major benefits of the numerous exercises and familiarisation visits by FRNSW to critical infrastructure facilities in the Kurnell area and the excellent relationships formed with site management came to fruition on the occasions of the emergencies at the Caltex fuel storage terminal and desalination plant. This pre-incident preparation ensured all parties were familiar with the emergency procedures that had to be enacted to manage the crisis at each high hazard

facility, enabling key objectives to be achieved safely, preventing a worsening of the situation.

- 15 Operations in the aftermath of severe storms are layered with hidden dangers. Hazardous conditions include fallen powerlines, damaged electrical infrastructure, gas leaks, hazardous material spills, unstable structures/collapse risk, sharp material associated with storm debris, smashed windows and material that could become airborne during further storm events. Post-storm operations can be fatiguing and exhausting. When a hazardous condition is identified, it is important to notify all people of this hazard, providing all firefighters with greater levels of situational awareness. Firefighters at Kurnell conducted operations in accordance with FRNSW SOGs and safety strategies, conducting ongoing risk assessments and continuous size-up, thus enabling crews to maintain strong situational awareness. Firefighters wore appropriate levels of PPC for tasks being carried out and used training, knowledge and equipment to undertake operations safely. As a result of this strong adherence to safety and despite the hazardous environment being operated in, all firefighters remained safe and no serious injuries to firefighters were reported.

- 16 The tornado hit completely without warning. Even Bureau of Meteorology forecasters were surprised at the formation of a supercell thunderstorm in the morning.
- 17 The FRNSW Commander obtained updated weather information which was re-broadcast to firefighters at the incident, ensuring all crews maintained full situational awareness. This information was critical, due to the impact of a second severe storm, ensuring all residents were able to seek safe shelter and FRNSW crews were in locations of safe refuge when the storm impacted.
- 18 This incident started with response to an automatic fire alarm; as has been seen many times before, when the bells go off, you can never be sure of exactly what you are responding to.
- 19 Severe weather events can often result in access roads being blocked by fallen powerlines, flooded roads, debris, trees and traffic gridlock, causing significant delays in response.
- 20 Quite naturally, residents at Kurnell were in states of shock, bewilderment and disbelief immediately following the impact of the tornado. The early presence of FRNSW crews was a welcome sight for residents,



The operations cell, processing data gathered from the rapid damage assessment teams and the aerial survey.



Concrete blocks torn from walls at the Kurnell Discovery Industrial Estate.

providing reassurance and support at a time of great confusion, fear and panic for many people. All firefighters displayed genuine care, concern and compassion to the residents of Kurnell, greatly easing the apprehension and distress many were feeling and giving the residents confidence. This made a difference.

21 On the second day of FRNSW operations, Premier Mike Baird and our Minister David Elliott visited the storm-impacted area to personally thank members of all emergency agencies for their excellent work, as did the Governor of NSW on Saturday 19 December 2015.

22 In his fortnightly newsletter issued on 23 December 2015, Commissioner Mullins expressed his appreciation to FRNSW crews for their work at Kurnell, stating: *"I also personally wish to congratulate everyone involved for their dedication and quick response. Everyone concerned, including residents and community leaders, were aware that assessing and containing the asbestos was critical in allowing recovery operations and this was completed in a truly professional manner."*

23 Tornadoes are one of the most powerful and destructive forces in nature, resulting in significant destruction to property, severe threat to human life and major disruption to the community. On 16 December 2015 and over subsequent days, FRNSW firefighters met the challenges of the Kurnell tornado with resourcefulness, discipline and determination. The professional response of firefighters ensured the life-threatening phase of the emergency was rapidly and efficiently controlled, through systematic and deliberate deployment of resources into the most heavily affected streets, and search and rescue operations immediately carried out, despite the numerous hazards present. Equally proficient was the response to the friable asbestos hazard, where firefighters systematically went from house to house to remediate the hazard, enabling full-scale recovery operations to then get underway. FRNSW crews continued to provide ongoing support to the State Emergency Service during the storm recovery phase of the operation, for as long as was necessary. Response to the Kurnell tornado once again proved that no matter what the emergency, fire crews will respond with resourcefulness, diligence and professionalism. **END**

MINISTER THANKS EMERGENCY SERVICES FOR THEIR EFFORTS

At 1537 hours on 16 December, the NSW Minister for Emergency Services David Elliott sent the following message of thanks.

"Thank you to the emergency services workers who have protected and assisted the community during today's wild weather. These were extremely dangerous circumstances and left some properties severely damaged.

"The NSW State Emergency Service (NSW SES) is responding to about 440 requests for assistance across Sydney, mostly in Kurnell, Maroubra, Port Botany and Bondi.

"At Kurnell, Fire & Rescue NSW has contained residual oily water that has overflowed from stormwater pits at the Caltex facility and is continuing to monitor the situation.

"Summer is one of the busiest times of year for emergency services and they will continue to monitor thunderstorm activity."



The tornado severely damaged 30 factory units within the Kurnell Discovery Industrial Estate.



The view that confronted first arriving firefighters from 34, 47 and 62 stations. The fire is fully developed and is spreading rapidly. Photo Courtesy SO Richard Lucas.

MILPERRA 4TH ALARM CAR STACKER FIRE

Firefighters control fierce 4th Alarm Milperra elevated car storage rack fire.

Incident summary: Firefighters responded to a fire involving motor vehicles alight within a three-level elevated car storage rack. Entry to the site was delayed due to heavily fortified security gates and fencing, allowing the fire to expand and increase in size and intensity. A combination of the highly volatile materials involved in motor vehicle construction and the storage arrangement of motor vehicles on elevated racking (discussed following) resulted in intense fire conditions and rapid fire spread. Numerous surrounding exposures, consisting of further elevated storage racks containing motor vehicles located in close proximity to the fire, were being impacted by high levels of radiant heat and under imminent threat of fire spread. No water supplies were located on the site and the location of the fire was remote to the closest street hydrants. Intense fire activity resulted in collapse of the steel storage racking, presenting firefighters with significant hazards. Fire activity was further intensified when numerous fuel tanks ruptured, pouring hundreds of litres of petrol into the fire and creating a running flammable liquid fire that threatened

further exposures. Although there were 3,500 cars stored on site, fire was contained to the storage rack of origin. Extensive use of compressed air foam systems (CAFS) was made at this fire, to great effect. Motor vehicle fires within elevated storage rack facilities produce unique fire characteristics (in particular rapid early fire development and very fast fire spread), resulting in unusual hazardous conditions and difficulties. Storage of motor vehicles within elevated storage facilities is becoming a growing worldwide trend, due to increasing issues associated with space deficiencies and population expansion within high density urban environments. This fire demonstrates the types of challenges firefighters are likely to be confronted with at these types of fire scenarios.

Incident type: Elevated car storage rack fire.

Time, date and place of call: 0550 hours on Thursday 6 January 2016, motor vehicle auction storage yard, Nancy Ellis Leebold Drive, Milperra.

FRNSW response: Pumpers 34 (Riverwood), 64 (Lakemba), 48 (Mortdale) and 52 (Campsie), CAFS Pumper 31 (Busby), Rescue Pumpers 8 (Liverpool)

and 62 (Bankstown), Aerial Pumpers 47 (Revesby) and 7 (Horningssea Park), Ladder Platforms 21 (Kogarah) and 27 (Parramatta), Hazmat Pumpers 85 (Chester Hill) and 13 (Alexandria), Heavy Hazmat 85, Heavy Rescues 8 and 20 (Hurstville), CAFS Tankers 93 (Narellan) and 98 (Cranebrook), Tanker 90 (Menai), Logistics Support Vehicle 1 (City of Sydney), Incident Control Vehicle Bravo and Rehabilitation Pod 1.

Duty Commanders ME3 (Ashfield), MS2 (Georges River) and MW2 (Parramatta) and Zone Commander ME3 (Superintendent Adam Dewbury) and Zone Commander MW2 (Superintendent Sel Mathias), Fleet Operations Officer SO Troy Kempnich, Manager Community Engagement Unit Superintendent Tom Cooper, Fire Investigation and Research Unit 1 SO Michael Forbes, Team Leader Hazmat Inspector Duncan White, Capability Manager Firefighting and Operational Research Officer.

Additional agencies/services in attendance: NSW Police, Ambulance Service of NSW, Gas authority and Electricity authority.

Fireground description: The fire structure consisted of elevated motor



A carefully coordinated attack. Ladder Platform 21 protects Bravo Exposure with an aerial stream as CAFS Tanker 93 directly attacks the fire with the front CAFS monitor.



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vehicle storage racking, three levels high, 45m x 10m, formed of lightweight C Channel structural steel construction, facilitating storage of 108 motor vehicles (at the time of the fire, the racking was filled to capacity). The racking was located within a storage site associated with the motor vehicle auction industry. The site stored between 2,000 and 4,000 motor vehicles. At the time of the fire, there were 3,500 motor vehicles on site. The storage rack involved in fire was separated from similar storage racks to the north, south and west by 8.0m. These racks were filled to capacity with motor vehicles.

The site was secured by 2.0m high electric fences and three electrically operated steel gates. The site was not fitted with any installed firefighting systems. The closest hydrants consisted of supply hydrants fitted to an AS2419.2 booster assembly, located at adjoining premises, 350m from the fire.

Characteristics of motor vehicles involved in fire: Materials contained within motor vehicles typically consist of acetyls, acrylics, polyurethane foams, polyvinyl chloride, plastics, synthetic rubbers, adhesives, hydrocarbon-based materials and other synthetic products. Under fire conditions, these materials create intense fire behaviour, producing high heat release rates (2.5 to 5 megawatts), extreme radiant heat, significant flaming activity and

temperatures in excess of 1,000°C. The involvement of these materials in fire results in the production of heavy concentrations of pressurised smoke and super-heated convection gases, promoting extreme fire events including rapid fire progression and fire gas ignitions. Fire activity can result in rupturing of fuel tanks and fuel lines, causing fuel to spill, creating flammable liquid fires further increasing fire intensity (burn temperature of petrol is 945°C). Exposure to intense heat of sealed and pressurised motor vehicle components such as tailshafts and suspension struts can result in explosions occurring.

Characteristics of fire impact to elevated motor vehicle storage racks: The elevated motor vehicle storage racking at the subject fire were formed of lightweight C channel steel construction. Loading was placed on the steel racking from stored motor vehicles. Structural steel begins to lose tensile strength at around 300°C. At this temperature, the steel will begin to soften. Significant loss of strength rapidly occurs after 400°C. At about 550°C, steel will lose half its loadbearing capacity. At about 1,000°C, steel will only have about 10% or less of its loadbearing capacity.

Characteristics of motor vehicles involved in fire located on elevated storage racks: Vehicles at the site were stored on elevated storage racking. In

addition to the ordinary characteristics usually associated with motor vehicles in fire, characteristics of motor vehicles involved in fire located on elevated storage racks are unique. Early fire growth, flame propagation and fire development is much more rapid for vehicles stored in elevated racking. The open space between motor vehicles stored adjacent to each other on the racking acts as a flue, creating a drafting effect, drawing air vertically through the racking and increasing the rate of vertical fire spread. The elevated storage arrangement facilitates accelerated vertical fire spread, due to very rapid flame propagation. In comparison to an ordinary car fire, motor vehicles involved in fire stored on elevated storage racking result in higher convective heat release rates, in-rack gas temperatures, in-rack gas velocities and in-rack flame heights (fire growth and fire heat release rates double at each level of racking). These conditions result in very rapid vertical fire spread and increased rates of horizontal fire spread. Rate of combustion (and therefore fire intensity) is further increased, due to increased aeration (due to vehicles stored on elevated racking) and therefore increased oxygen supply to the fire.

Weather at time of fire: Southerly wind at 19km/h, gusting to 29km/h, temperature 21.1°C, relative humidity 86%, cloud 8/8 and mean sea level

pressure 1012.8 hPa, recorded at the Bureau of Meteorology Bankstown airfield automatic weather station. Moderate levels of rain fell continuously throughout firefighting operations.

Initial call and response: At 0550 hours on Wednesday 6 January 2016, FRNSW received a '000' call reporting smoke in the vicinity of an industrial complex at Marigold Street, Milperra. Aerial Pumper 47 and Pumper 34 were initially assigned to the call. Additional information was received that it was believed a car was alight at this location. En route to the call, the crew of Aerial Pumper 47 observed a plume of light smoke from Milperra Road.

First FRNSW appliance arrives on scene: Aerial Pumper 47, under the command of SO James Davies, was the first appliance to arrive on scene, SO Davies assumed the role of Incident Commander and a command point known as Milperra Command was established. Firefighters observed a light smoke plume coming from the vicinity of Pickles Auctions. Initial attempts to gain access from Woorang Street were blocked by a heavily fortified steel security gate and fence. Aerial Pumper 47 then relocated to Nancy Ellis Leebold Drive, where the entrance to the site was located. This entrance was secured with an electrically operated steel gate. Pumper 34, under the command of SO Garry Brown arrived on scene. Firefighters used a power saw to cut through the gate, enabling access to be gained to the

site. After travelling for approximately 20 metres, firefighters were again confronted with another fortified steel security gate, preventing further access. This gate was part of an electric fence system and was energised. At this time, the smoke plume had intensified and a large column of thick black smoke was now being produced (although the actual fire was not yet visible). The response was then increased to a 2nd Alarm. A member of staff advised he had disabled the electric fence, however the gate remained locked. Wearing electrical gloves as a precaution, firefighters cut the lock to this gate, enabling entry to be made. After travelling for approximately 150 metres through the site, firefighters were able to see approximately 12 cars located on racking at the eastern end of the site heavily involved in fire. Fire was spreading rapidly through the racking, from west to east.

Response increased to 4th Alarm: Incident Commander SO James Davies increased the response to a 4th Alarm at 0630 hours, after gaining access to the site and conducting a rapid size-up. SO Davies stated the main considerations for assigning a 4th Alarm were:

- the expanding nature and size of the fire
- lack of water supply
- the labour intensive nature of firefighting operations.

Attempts to cut off fire spread: A 70mm attack line was deployed from Aerial Pumper 47 by firefighters wearing SCBA

and an attempt was made to establish a cut-off of the now rapidly expanding fire. Cars at the western end of the racking were heavily involved in fire, producing fierce flaming activity and a large plume of black smoke. Motor vehicle fuel tanks began to rupture, spilling petrol into the fire. Numerous small explosions were occurring and high pressure venting noises were coming from the fire. Fire was now spreading rapidly through the racking in an easterly direction, producing intense radiant heat and threatening numerous cars in the exposure rack located 8 metres to the north (Bravo Side Exposure). The priority was to stop the fire spreading to the second rack now under threat.

Water supply established: Water supply was a critical issue. Aerial Pumper 47 firefighters engaged in fire attack while Pumper 34 firefighters attempted to establish a water supply. SO Brown (appointed Water Relay Officer by the IC) located two supply hydrants fitted to an AS2419.1 booster assembly on Woorang Street and supply lines were connected to Pumper 34. Firefighters then began to establish a water relay to Aerial Pumper 47. Rescue Pumper 62 arrived on scene and supplied Aerial Pumper 47 with water from the RP62 appliance tank. At the same time as firefighters from Pumper 34 were laying hose towards the fire, Rescue Pumper 62 firefighters began to lay hose back towards Pumper 34, assisted by Pumper 64 firefighters. Firefighters met halfway, enabling



From Delta Sector SCBA crew from Rescue Pumper 8 deploy a CAFS stream onto the edge of the fire, establishing a cut-off.



Firefighters prepare to place the first line in operation, attempting to control the rapidly spreading fire and stop it from spreading to further storage racks. Photo Courtesy SO Richard Lucas.

the first supply line to be established between Pumper 34 (at the hydrant) and Rescue Pumper 62 (supplying water to Aerial Pumper 47). Once the first line was secured, firefighters then established a second supply line, increasing water supplies.

Firefighters attempt to control spread of expanding fire: With what little water was available (from the appliance tank), Aerial Pumper 47 firefighters were working hard to stop the fire spreading to the second storage rack located to the north (Bravo Side Exposure), directing the 70mm attack stream onto the heavily pyrolysing motor vehicles located along the western end of the storage rack. Rescue Pumper 62 SO Richard Lucas was appointed Fire Attack Commander by the IC. Firefighters alternated the 70mm attack stream between protecting the heavily threatened exposure rack to the north and direct fire attack on the involved motor vehicles, attempting to control and reduce fire intensity. At the same time as appliance water supply began to run out, water began to come through the relay, enabling the attack to be maintained; water supply was secured at a critical time, with numerous vehicles within racking on the Bravo side exposure being impacted heavily by fierce radiant heat from the fully involved motor vehicles within the involved storage rack and just moments away from full ignition. Establishment of a secure water supply enabled firefighters to deliver a large cooling deluge stream onto the

threatened vehicles within the Bravo Side Exposure that was highly effective, preventing ignition of vehicles within this exposure.

Collapse zone established: The severity of fire intensity resulted in a section of the steel storage rack losing tensile strength, softening and completely collapsing. Aware of the dangers this situation presented, SO Lucas established a collapse zone around the storage rack.

Fire attack increased: Once the water supply was secured, firefighters were able to place a second 70mm attack line into operation, operated by Rescue Pumper 62 firefighters. The second 70mm stream was used to conduct direct attack onto the burning cars within the storage rack, while the first 70mm stream continued to alternate between direct fire attack and protection of the Bravo Exposure side.

Running fuel fire contained: The intensity of the fire caused vehicle fuel tanks to rupture, resulting in the release of large quantities of burning fuel onto the concrete hard stand area to the south of the vehicle racking. This fuel ignited and a running fuel fire developed, spreading towards the Delta Side Exposure storage racking (filled to capacity with motor vehicles). Under the direction of the fire attack Commander, the 70mm attack line deployed by Aerial Pumper 47 firefighters was redeployed to the southern side of the involved storage racking. Firefighters used a spray pattern

directed along the concrete hardstand surface in a sweeping motion, to push the burning fuel away from Delta Exposure and extinguish the running fuel fire. The running fuel fire had come to within one metre of the Delta Exposure racking when it was deflected and extinguished.

At about this time, a heavy rain storm began to pass overhead, causing a torrent of water to pour onto the fireground for the next hour, drenching firefighters, firefighting equipment and the area of operations. This heavy rainfall had little effect on the fire, instead providing firefighters with challenging operating conditions.

Transfer of command: Duty Commander ME3 Inspector Les Gorey attended the fireground and following a handover briefing, command was transferred to Inspector Gorey and SO Davies appointed Operations Officer.

Expansion of fire: Fuelled by the volatile fuel load of the stored motor vehicles within the elevated storage racking, fire continued to spread along the racking in an easterly direction. On numerous occasions, ruptured fuel tanks resulted in the sudden release of petrol onto the fire, resulting in significant escalations in fire activity. The fire continued to burn fiercely, producing large flames, high heat release rates and a large column of thick black smoke. Numerous explosions occurred, involving sealed pressurised vessels within the involved motor vehicles (such as suspension struts and tailshafts).



Combined hand line and front monitor attack from CAFS Tanker 93, which resulted in rapid fire knockdown.



Incident Commander Inspector Les Gorey (centre) confers with Operations Officer SO James Davies (right) and Fleet Officer SO Troy Kempnich (left).



Major collapse of the elevated storage racking due to impact of heat onto the structural steel forming the racking.

A change in wind direction resulted in flames blowing horizontally, from south to north, towards the Bravo Side Exposure at the eastern end.

Compressed air foam system operations: CAFS Pumper 31, under the command of SO Paul Lynch, was deployed to the Delta Side of the fire to conduct a CAFS attack on the fire. Rescue Pumper 8, under the command of SO Russell Goldsmith, supplied water to CAFS Pumper 31 with water from the RP8 onboard tank, until a water supply from the relay reached CP31. Firefighters deployed a 70mm line from CAFS Pumper 31 to the proximity of the fire, connected to a one into two breaching and reducer, supplying two 38mm CAFS attack lines fitted with smooth bore nozzles. Firefighters from 31, 64 and 8 stations wearing SCBA conducted a direct attack on the fire from the eastern end of the Delta Side of the building. Foam was pumped at 550 KPa set at 0.5% medium solution by CP31 pump operator SF Mohammad Haddad. Firefighters reported the foam attack was highly effective, significantly knocking the fire down. Firefighters applied a protective layer of CAFS foam over the surfaces of non-involved cars located on the racking, in the fire's path. Fire did not spread to these vehicles. One problem identified by firefighters was the accidental application of water streams onto the foam layer, due to over-spray from other sectors

on the fireground, resulting in the CAFS layer being broken up, diminishing its effectiveness.

Expansion of fireground command structure: As additional senior officers arrived at the fireground, the incident command structure was expanded, providing the Incident Commander with a greater span of control, increased levels of fireground accountability and greater situational awareness, ultimately resulting in greater safety for all firefighters operating at the fireground. The expanded command structure was as follows:

Incident Commander: Duty Commander ME3 Inspector Les Gorey

Safety Officer: OIC RP8 SO Russell Goldsmith

Operations Officer: OIC AP47 SO James Davies

Alpha Sector Commander: OIC RP62 SO Richard Lucas

Bravo Sector Commander: Duty Commander MW2 Inspector Kernin Lambert

Delta Sector Commander: Duty Commander MS2 Inspector Dave Polson
Staging Officer: OIC Hazmat Pumper 85 SO Scott Donohoe

Hazmat Commander: Team Leader Hazmat Inspector Duncan White

Senior Adviser to the IC: Zone Commander ME3 Superintendent Adam Dewbury

Senior Adviser to the IC: Zone Commander MW2 Superintendent Sel Mathias

Media Officer: Superintendent Tom Cooper

Water Relay Officer: OIC Pumper 34 SO Garry Brown

Foam Attack Commander: OIC Pumper 31 SO Paul Lynch.

Aerial operations: Ladder Platform 21 was directed to Bravo Sector, to increase protection of Bravo Exposure, which was now threatened due to an increase in fire intensity associated with a change in wind direction. The aerial appliance enabled a protection stream to be operated, without the danger of placing hose crews in proximity to the collapse zone. The 70mm hand-line previously deployed to protect Bravo Exposure was shut down and connected to the Ladder Platform. Ladder Platform 21, operated by SF David Baigent working in the aerial cage, provided an aerial cooling deluge along the southern side of exposed motor vehicles within the storage racking (Bravo Exposure), which continued to be severely impacted by radiant heat, due to intense fire activity from burning motor vehicles within the involved storage rack. The aerial operator was able to provide key observations to the IC of the location of fire involvement and effectiveness of extinguishment operations from the elevated vantage point of the aerial cage.



Fire attack at the eastern end of Delta Sector: Note: fire has not spread to vehicles with CAFS foam covering.

CAFS attack expanded: Bulk CAFS Tanker 93 was placed into operation from Bravo Sector, directing a CAFS stream through the front remote monitor of the appliance onto the fire within the elevated storage racks. OIC CAFS Tanker 93 Firefighter Rod Morris reported that the foam was proportioned at 0.4%, set at full wet application because of the wind (the foam was being projected into a cross-wind and slight head wind) and a stack tip fitted to the monitor. FF Morris stated the foam was able to be projected about 40 metres and was significantly knocking down a lot of fire. The significant foam projection of the appliance enabled fire attack to be conducted from a safe area well outside of the hazardous collapse zone. FF Morris advised it was advantageous to operate with a spotter when projecting the foam, as it was difficult to see where the foam was going from the appliance. In addition to the appliance monitor stream, firefighters also deployed a 38mm CAFS handline from CAFS Tanker 93 to complete extinguishment of small pockets of fire that continued to burn.

Hazmat operations: Firefighters from Hazmat 85 monitored water run-off in various sectors. No contaminated water was identified running into drains or water courses.

Fire brought under control: Firefighters had now established fire attack on all sides of the involved car storage racking and all exposures

were protected. The combined CAFS hand-line attack and appliance monitor attack rapidly knocked the fire down, with all visible signs of fire extinguished at approximately 0800 hours. No fire extension to exposures occurred. 92 cars within the main fire area were severely damaged by fire. 52 cars located on Exposures Bravo and Delta racking were damaged by radiant heat. 16 cars within the racking involved in fire were protected by firefighters.

Following extinguishment, FIRU attended the scene to undertake cause and origin investigations. A fire duty remained on scene for a short time, before the scene was handed back to site management.

Notes:

- 1 Ordinarily, motor vehicle fires result in fire behaviour that produces high heat release rates, significant flame activity, high levels of radiant heat and large volumes of acrid thick black smoke, due to the volatile materials involved in motor vehicle construction.
- 2 Motor vehicles involved in fire located on elevated storage racking are subject to unique fire behaviour characteristics that include early rapid fire development, very rapid vertical fire spread and fast horizontal fire spread. Vertical fire growth rates within racking are exponential. Other fire behaviour characteristics such

as heat release rates, flaming activity and superheated fire gas production are much greater among motor vehicles stored on elevated racking than encountered in ordinary car fire situations.

- 3 Vertical fire spread to motor vehicles located on middle and upper levels of storage racking can lead to rupturing of fuel tanks and fuel lines, causing fuel to spill. Spilled fuel can either pour into the fire, increasing fire intensity or spill onto the ground, creating running flammable liquid fires that in turn can result in fire spread to additional exposures. The possible danger of LPG-fuelled vehicles and explosion risk must also be assumed.
- 4 The uncontrolled release of petrol (due to rupturing motor vehicle fuel tanks) at Milperra resulted in a running surface fuel fire, across the concrete hardstand area towards further exposures. Firefighters were able to effectively control this fire with a 70mm hose-line, set on a spray pattern and used to "sweep" the burning fuel away from the exposure. This operation was also an effective extinguishing medium; Water from the spray pattern produced steam when it came into contact with the burning fuel, excluding oxygen from fuel in the combustion zone and leading to extinguishment.

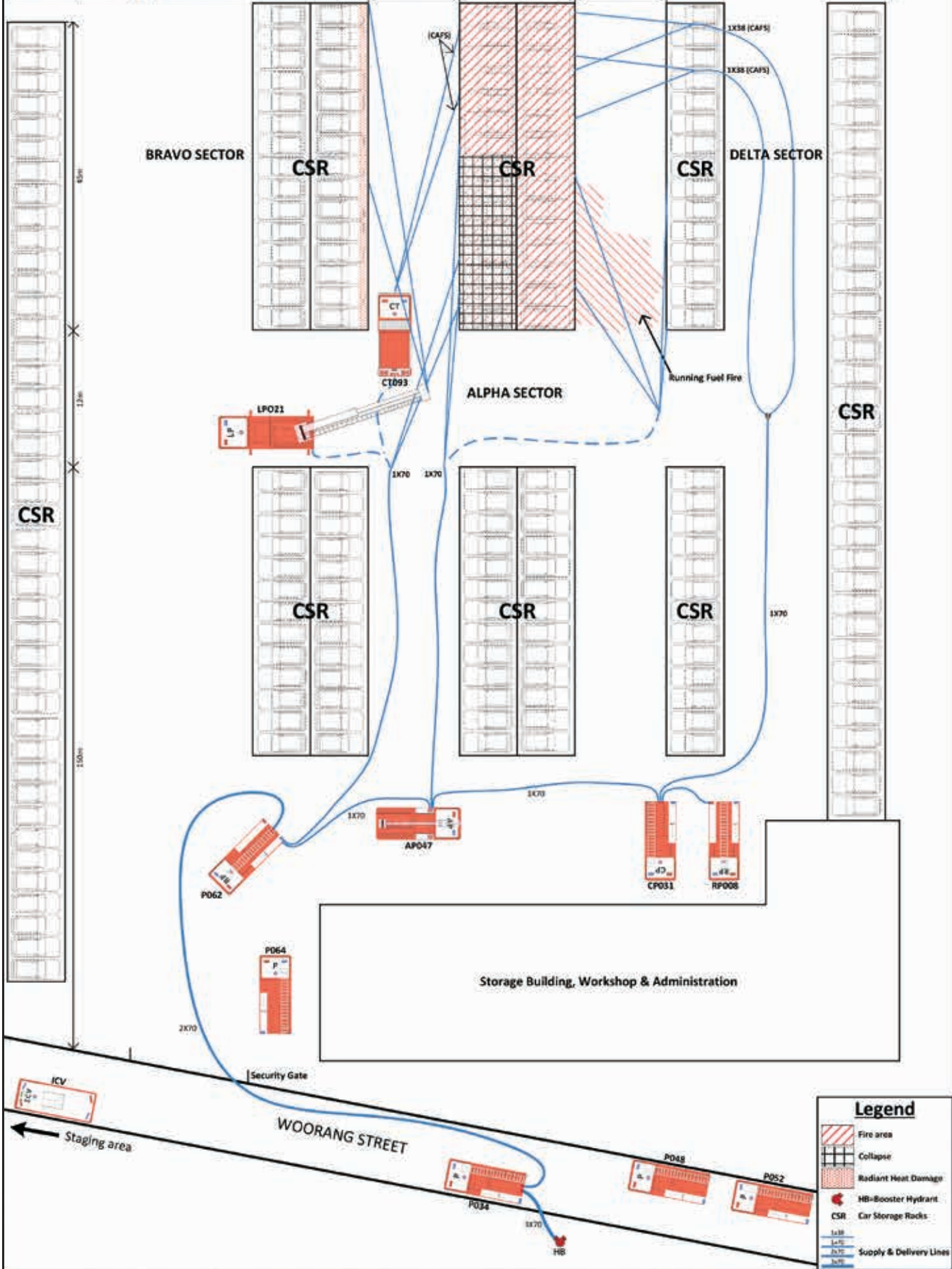


Bravo Sector fire attack, by SCBA crews operating a 70mm attack line.

- 5 Exposure to intense heat of sealed and pressurised motor vehicle components such as tailshafts and suspension struts can result in explosions occurring. Operating large diameter hose-lines will enable firefighters to remain at the maximum distance to the hazard, due to the greater projection of these lines.
- 6 The unprotected structural steel used to form elevated storage racking is extremely vulnerable to the impact of heat, resulting in the steel softening, losing its tensile strength and collapsing. In the event that failure of the racking occurs, toppling of stored motor vehicles onto the ground below is possible. The temperatures produced by burning motor vehicles are much higher than the temperature at which steel begins to lose its loadbearing strength.
- 7 At Milperra, the load being carried by the elevated racking contributed to failure of the steel when softened by exposure to heat. The structural steel within the racking began to lose strength when exposed to temperatures exceeding 300°C; the temperature of the burning vehicles exceeded 1,000°C. Firefighters were aware of the collapse hazards associated with the elevated storage racking and immediately established collapse exclusion zones. Initial firefighting was undertaken with 70mm lines, providing a longer projection of water and enabling firefighters to operate safely at greater distances from the collapse zones.
- 8 First arriving firefighters recognised the danger presented by the high levels of radiant heat being produced by burning motor vehicles and the impact this was having on nearby exposures. Rather than direct what limited water supplies were available onto the fully involved motor vehicles, firefighters directed a deluge of water onto the motor vehicles being heavily impacted by radiant heat. This tactic successfully prevented ignition of threatened vehicles, containing the fire and preventing fire spread to exposures.
- 9 The compressed air foam systems (CAFS) attack was highly successful, both at fire control/extinguishment and protecting non-involved motor vehicles in the fire's path. A further advantage of the CAFS operation was the ability of the CAFS attack to be maintained with minimal water supply, at a time when severe water shortages were being experienced. Firefighters operating the CAFS attack stressed the importance of ensuring that when a CAFS layer is applied to burning material, care should be taken to ensure water streams do not unintentionally break up the foam layer, reducing its effectiveness.
- 10 The fire behaviour characteristics outlined above indicate the most effective attack on elevated motor vehicle storage rack fires is to commence fire attack of vehicles burning at ground level then progressively working upwards to vehicles located on the upper levels of the rack. Extinguishment is most effective when the vertical fire spread component of fire burning within the elevated racking can be stopped.
- 11 A growing world-wide trend is the concept of Mechanical Parking Facilities. These facilities involve motor vehicles being stored in elevated storage racking, as part of a solution to problems being experienced in urban areas of high density population, where there is insufficient space for conventional motor vehicle storage. Although not identical to the situation encountered at Milperra, similar fire behaviour characteristics, hazardous conditions and operating difficulties can be expected at these types of fires by firefighters.
- 12 Observations from the aerial operator were relayed via the Sector Commander to the Incident Controller, providing key information concerning location of the fire, fire spread, effectiveness of extinguishment operation and potential safety issues. Aerial operators are a significant source of information for the IC.
- 13 Firefighters fought this fire with skill, resourcefulness and determination, resulting in the fire being safely contained and extinguished, with all exposures protected. **END**



Motor Vehicle Storage Rack Fire (4th Alarm)
 Woorang St, Milperra
 6th January, 2016
 Design by: Inspector Kernin Lambert
 Drawing by: Glenn Miller





The first attack line goes onto the fire; a 70mm line is placed in operation down the boarding house hallway to slow the fire's forward advance.

LAKEMBA 4TH ALARM BOARDING HOUSE FIRE

4th Alarm required to control Lakemba boarding house fire.

Incident summary: On the afternoon of 30 January 2016, a series of destructive thunderstorms began to pass over the Greater Sydney Area. As a result of these storms, FRNSW was called to hundreds of emergency incidents within the first hours, stretching resources to capacity. At the height of the storm, FRNSW was called to reports of a boarding house fire at Lakemba. First arriving FRNSW appliances found the 100-year-old building heavily involved in fire. Initial attempts to confirm the occupancy status of the building were unsuccessful and firefighters commenced operations believing a significant life risk may exist. Fanned by strong winds, fire activity within the 100-year-old timber building was fierce and intense, producing large flames, intense radiant heat, quantities of airborne burning materials and a large smoke plume, resulting in exposures being impacted by fire. Initial firefighting operations were directed at preservation of life of any people who may have been trapped inside the building, until it was confirmed the building had been vacated

just two weeks prior to the fire, and a defensive strategy was then adopted to protect nearby exposures being heavily impacted. Firefighters fought this fierce fire with resourcefulness and determination.

Incident type: Boarding house fire (disused).

Time, date and place of call: 1722 hours on Saturday 30 January 2016.

FRNSW response: Pumpers 22 (Leichhardt), 27 (Parramatta), 49 (Cabramatta), 26 (Mascot), 34 (Riverwood), 48 (Mortdale), Rescue Pumpers 15 (Burwood) and 54 (Cronulla), Aerial Pumpers 47 (Revesby) and 7 (Horningssea Park), Ladder Platforms 21 (Kogarah), 27 (Parramatta) and 1 (City of Sydney), Heavy Rescue 1, Hazmat Pumper 77 (St Marys), Heavy Hazmat 13 (Alexandria), MCC Alpha, Logistics Support Vehicle 1 and Rehabilitation pod 1.

Duty Commanders ME3 (Ashfield), MS2 (Georges River) and MW2 (Parramatta), Zone Commander MS1 (Illawarra) Superintendent Geoff Roach, Manager Fire Investigation and Research Unit Superintendent Jeremy Fewtrell, Assistant Director Public

Affairs Mr Andrew Parsons, Manager Hazmat Superintendent Paul Johnston, Community Engagement Unit 2 SF Paula Raat, Fleet Operations Officer, Manager Equipment, Research and Development, Commissioner Greg Mullins and Commissioner's Staff Officer Chief Superintendent Wayne Phillips.

In addition to above, a further six FRNSW appliances responded to the incident for relief and fire duty purposes.

Additional agencies/services in attendance: NSW Police, Ambulance Service of NSW, Gas authority and Electricity authority.

Fireground description: The fire building was single level, 20m x 40m, weather-board clad, timber frame and iron sheet roof (with complex roof forms). The building was constructed in 1915 and was originally used as a war veteran's rehabilitation hospital until 1980, when it was converted into a 10-room boarding house. Two weeks prior to the fire, the building became vacant after being sold. Gas and electricity services were still connected, the building remained furnished and there was little to indicate the building was no longer occupied.



The scene that confronted first arriving firefighters; fire development is advanced, completely enveloping the building in smoke



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The building was fitted with a return veranda at the front and is topped by a prominent pediment/gable. The roof was fitted with decorated terracotta ridge capping. The building had a bull's eye window as well as casement windows with small coloured glass margin panes. A large accumulation of abandoned materials was located beneath, within and at the rear of the fire building, increasing the fire load. A 1.6m high timber paling fence was located between the fire building and Exposure Delta. The building was not fitted with any installed fire detection or suppression systems.

The following exposures were located in proximity to the fire building;

- Bravo Exposure was a two-level residential house, 20m x 10m, brick and tile construction located 8m to the north of the fire building. A number of second-level glass windows faced the fire building.
- Charlie Exposure 1 was a single-level laundry building, 5m x 10m, timber and weatherboard construction, located three metres to the east of the fire building.
- Charlie Exposure 2 was a two-level town house complex, 80m x 15m, brick construction and tile roof, located 8m to the east of the fire building.
- Delta Exposure was a single-level residential house, 15m x 10m, cement

sheet clad and tile roof construction located 1.2m to the south of the fire building.

Weather at time of fire: South-easterly winds at 24km/h, gusting to 80km/h, temperature 30.4°C, relative humidity 60%, 33.6mm of rain and mean sea level pressure 1002.7 hPa, recorded at the Bureau of Meteorology Bankstown Airport automatic weather station (approximately 8.5km from the fire building) at 1500 hours.

At about 1600 hours, the first of three severe lines of thunderstorms began to impact the entire Greater Sydney Area. One of these storm cells was described by the Bureau of Meteorology as "very dangerous". Lightning, heavy rain and hail accompanied these thunderstorms, as well wind gusts up to 98km/h (recorded at Badgerys Creek) and changes in wind direction from west to south-east. Throughout firefighting operations, a number of severe thunderstorms passed over the fireground, producing lightning, heavy rain and wind squalls.

Situation prior to FRNSW arriving on scene: At about 1600 hours on the day of the subject fire, Sydney began to be impacted by a series of fierce thunderstorm cells, resulting in heavy rain, large hail, flash flooding, lightning strikes and gusty winds. At some locations, 40mm of rain fell in less

than 15 minutes and wind gusts of 98 km/h were recorded. Approximately 58,000 homes received power outages. Immediately after this storm began to impact, FRNSW was called to a large number of storm related calls that included the activation of numerous automatic fire alarms across all parts of the Greater Sydney Area, fallen trees, persons trapped in floodwaters, building collapses, powerlines brought down, motor vehicle accidents and flooding of structures. (A significant storm cell impact causing numerous people to be trapped in motor cars and requiring the response of a large number of FRNSW resources occurred around the Lidcombe area, less than five kilometres from the Lakemba fire, drawing a significant number of resources from this area.) Almost every FRNSW fire appliance was responding to calls for emergency assistance; many more calls were backed up as FireCom operators were prioritising the most urgent calls requiring immediate assistance from less urgent calls that could wait until resources became available. Responses were delayed due to sudden road closures caused by flash flooding, fallen trees, fallen powerlines and heavy traffic conditions. Responding firefighters

came across numerous motor vehicles containing persons trapped within floodwaters and stopped to provide assistance. At the height of this fierce storm, the first of numerous '000' calls began to be received reporting a building fire in Lakemba.

Note: on the day of the Lakemba fire, FRNSW had responded to a number of structure fires, prior to being called to the subject fire. The most serious of these was a 3rd Alarm multiple level terrace house fire at Surry Hills on that morning, requiring the response of many inner city stations.

Initial call and response: As stated above, when the first of numerous '000' calls began to be taken reporting a building fire at Quigg Street, Lakemba, most FRNSW resources within the Greater Sydney Area were already committed to emergency calls. Several '000' callers were reporting the building was believed to be a boarding house. Pumper 22, Rescue 1 and Rescue Pumper 15 were initially assigned to the call.

First FRNSW crews arrive on scene: Duty Commander Inner West had been responding to reports of a building fire in the adjoining suburb of Belfield and was almost on scene at that call when reports of a possible boarding house fire were received. The Belfield fire turned out to be minor in nature and Duty

Commander Inner West then responded to the Lakemba fire. Almost immediately, a large plume of black smoke was visible, at a distance of about two kilometres from the reported fire. Due to the quantity of smoke visible, Duty Commander Inner West sent a **RED** message at 1731 hours while en route, requesting the response of a 2nd Alarm.

At 1733 hours, Duty Commander Inner West arrived on scene and found large volumes of dark grey smoke pouring from the roof of the fire building. The building was completely obscured by the heavy smoke plume, which was venting out through the roof gables, doors and window surrounds under high pressure and rolling down to ground level across the face of the structure. A police car and two uniformed officers were in attendance. Duty Commander Inner West sent a **RED** arrival message, reporting a large structure of unknown dimensions was heavily involved in fire and confirming the attendance of a 2nd Alarm while investigations were being made.

A large group of bystanders had gathered on the opposite side of the street. Flames were now starting to break through the roof of the building towards the rear. Heavy smoke and flames were venting towards Bravo Exposure, which was completely obscured by smoke. A police officer informed Duty Commander Inner West

the fire building was a boarding house and it was not known whether there were any people trapped inside. Police then commenced talking to the assembled bystanders in an attempt to determine whether any of them had exited from the building or had knowledge of people who might still be remaining within the building. With information that indicated a potentially serious life risk existed, Duty Commander Inner West sent the following **RED** message at 1734 hours;

"FIRECOMS, DUTY COMMANDER INNER WEST RED! RED! RED! INFORMATION FROM POLICE, THE BUILDING IS A BOARDING HOUSE. FIRE IS NOW THROUGH THE ROOF. IT IS NOT KNOWN WHETHER THERE ARE ANY PERSONS TRAPPED INSIDE. INCREASE THE RESPONSE TO A THIRD ALARM."

Bystanders stated they did not know whether there was anyone still inside the building at the time of the fire. Duty Commander Inner West was unable to conduct a 360° size-up, due to the heavy smoke condition that existed at the Bravo side of the building. Access via the Delta side was prevented by Delta Exposure.

The rear half of the structure appeared to be heavily involved in fire. Fire was now progressing rapidly forward to the front of the building, flames were venting through the roof at the rear of the structure and the fire was being pushed by a strong gusty



It was very difficult for first arriving firefighters to conduct size-up, due to the heavy smoke condition that covered the building.



Firefighters reposition a 70mm line to provide protection of Delta Exposure being heavily impacted by flames from the fire building.

wind. Believing the building would now become completely unsurvivable in a matter of minutes, Duty Commander Inner West donned full structural PPC and forced entry through the front door of the building, in an attempt to conduct a rapid primary search and to look for signs of occupancy within the building. The door was pressing outwards against the door casing (due to the internal pressure created by the fire), the door window glass was black and extremely hot, and large volumes of thick smoke were pouring out of the gap between the door and the door casing under high pressure. The door was forced open and a short time later, a small backdraft explosion occurred, blowing out glass from the door onto the ground. Entry into the building was made at floor level. Along the interior hallway, a heavy dark grey turbulent fast-moving smoke layer had lowered to about 80cm from floor level and was continuing to lower, venting from the building. Conditions were extremely hot. A rapid primary search, consisting of the area behind the door, the front left and right rooms and an area of the hallway found no people present, although some signs of occupancy were observed (a book shelf with books, chairs, sofas, bed and wardrobe within one of the rooms). Progress along the hallway was stopped due to burning material dropping onto the floor. Fire was burning

overhead within the smoke layer. Fire could be seen beginning to come down the hallway. As best as could be seen, the hallway was clear of people. This search lasted less than two minutes and was terminated due to the rapidly deteriorating conditions.

Based on the available information, the Incident Commander formulated an Incident Action Plan that assumed a life risk may still exist within the building and that all efforts would be directed at attempting to save lives. At that time, the Incident Commander's objectives were to conduct a fire attack that would delay fire extension towards the front of the building and improve conditions within the unburnt forward section of the structure, extending survivability of anyone who may have still been inside the building in the non-involved front rooms until it was possible to conduct a search and rescue operation. At this time, a Command Point was established, known as *Lakemba Command*.

First attack line placed into operation: Pumper 22, under the command of SO Chris Gates, arrived on scene, at 1737 hours. Based on initial size-up and incident objectives, the Incident Commander ordered S022 to commence fire attack with a 70mm attack line from an external position, through the front door of the building, directing the attack stream down the

hallway towards the fire progressing forward. The purpose of this attack was to:

- slow the advancing fire
- make the non-involved part of the building as survivable as possible for any people who may remain trapped
- place a hose stream between the fire and any saveable people who may remain trapped inside the building.

Pumper 22 firefighters wearing SCBA quickly placed a 70mm attack line into operation, directing the attack stream into the doorway and down the hallway, towards the advancing fire. An advantage of the 70mm stream was its effectiveness, due to the limited number of firefighters on scene at this time. A complication of this attack was the position of an electricity supply line going from the power pole to the building point of attachment, which was in close proximity to the front door where firefighters were operating (Note: smoke was so thick, the power line became lost in the smoke and it was not possible to see where the point of attachment was). A powerline fall zone was established and strictly enforced. A message was sent to FireComs, informing all incoming crews of this hazard and a request was made for the urgent attendance of the electricity authority. The location of this exclusion zone due to the electrical line fall hazard



Firefighters protect Delta Exposure being heavily impacted by flames from the fire building; interior crews were working within the exposure, controlling fire burning in the roof.



Firefighters operate a defensive line, protecting Delta Exposure.



Firefighters access the roof space of Delta Exposure to control fire burning in the roof.

obstructed the ability of firefighters to attack the fire from the best position. Despite this obstruction, firefighters conducted a determined attack and were experiencing some success in stopping the fire's forward extension through the building. Exposure Delta, located close to the southern side of the building, was being heavily impacted by severe radiant heat being produced from the fire building. SO Gates directed a 38mm protective stream between the fire building and Exposure Delta, providing protection to the front half of Exposure Delta. Again, the location of overhead powerlines attached to Delta Exposure restricted the placement of this line.

Fire attack increased: Rescue Pumper 15, under the command of SO Kevin O'Connor, arrived on scene. SO O'Connor was appointed Bravo Sector Commander and ordered by the IC to commence protection of Bravo Exposure with a 70mm line and to alternate the attack between exposure protection and direct attack on the fire building. The large flames venting from the fire building and high levels of radiant heat being produced meant that a 70mm attack line would be most effective against an expanding fire of this size. Rescue Pumper 15 firefighters wearing SCBA deployed a 70mm line to the Bravo Sector and commenced exposure

protection of Bravo Exposure. Firefighters alternated the attack between a cooling deluge onto the side of the two-level residential house being heavily impacted by radiant heat and direct fire attack of the fire building through breached windows along the northern side of the structure. From Sector Bravo, firefighters observed the rear of the fire building was totally involved in fire, the roof had collapsed into the centre of the building, the timber floor was burning through and beginning to drop down and fire was beginning to spread into rooms at the front of the house. This information was reported via the Bravo Sector Commander to the IC.

Operations completely defensive: Fuelled by a heavy fire load of 100-year-old roof timbers, fire was now burning fiercely within the large roof space located over the structure and was rapidly progressing forward through this open void. Access to fire burning within the roof space was severely restricted by iron sheets covering the roof. Flames began to vent through the large forward roof gable at the front of the house, showing heavy fire involvement of the roof and indicating the likelihood of roof collapse was imminent. Fire had also entered rooms at the front of the house. A major roof collapse occurred at the

rear of the building and large flames began to vent from the rear and centre of the building. Sections of the roof were now starting to collapse at the front of the building.

At this time, Police informed the IC they could not definitely confirm that the building was occupied, nor could any of the bystanders or neighbours confirm knowledge of people trapped inside the building. At this time, the IC made a decision to switch firefighting operations to a completely defensive strategy, for the following reasons:

- all available information indicated the likelihood of any people still remaining inside the building was remote
- the fire conditions were not survivable for anyone still inside the building
- conditions were too dangerous (due to fire intensity and likelihood of major structural collapse) to risk an offensive interior operation.

The 70mm attack line that had been previously operating from Alpha Sector was re-positioned to enable a protective stream to be directed between the fire building and Exposure Delta, now being heavily impacted by fire. This line was able to be alternated between exposure protection and direct fire attack

At this time, no part of the Bravo Side of the fire building was visible and it was not possible to determine how



Ladder Platform 18 directs an aerial master stream onto the fire through the breached roof, reducing fire intensity significantly, enabling exposures to be secured.

close the fire building was to the Bravo Exposure. Strong winds were pushing large volumes of smoke, heavy flames and airborne burning materials towards Bravo Exposure. The exposure building was at increased risk, because a number of second-level windows were facing the fire building and being heavily impacted by high levels of radiant heat from the fire burning below.

Operations to protect Exposure

Delta: Smoke was now issuing from the tile roof of Delta Exposure indicating the exposure was alight (unseen and unknown to firefighters at this time, a burning 10-metre section of timber and weatherboard wall at the rear of the fire building on the Delta Side had completely detached from the fire building and collapsed onto the Delta Exposure, causing direct fire spread to the exposure, through windows and roof eaves). At 1745 hours, the IC increased the response to a 4th Alarm due to the involvement of Delta Exposure. The layout and construction of Delta Exposure prevented access from being gained to the rear yard of the exposure to conduct a 360 size-up and to determine the location and extent of the fire. The IC sent a message to FireComs advising that the next arriving appliance should immediately enter the fireground and go into operation to attack the fire burning

within Delta Exposure (this instruction was delivered via radio transmission, to give the incoming crew advanced notice of required tasking).

The next arriving appliance, Pumper 26, under the command of SO Bob Wallace, was directed to commence an interior offensive attack within Exposure Delta, which now had large volumes of smoke issuing from the roof. SO Wallace was appointed Delta Sector Commander. Firefighters wearing SCBA deployed a 38mm attack line into the Delta Exposure residential house. Firefighters found the external eaves, a rear bedroom and the dining room were alight and the roof at the rear of the house was alight and beginning to collapse. Firefighters conducted a full primary search of the building, ensuring no people remained within the structure. Rescue Pumper 54, under the command of SO Michael Bofinger arrived on scene shortly after Pumper 26 and the crew of RP54 were tasked to provide assistance to Pumper 26 firefighters. Rescue Pumper 54 firefighters advanced a second 38mm attack line into Delta Exposure to conduct fire attack. Firefighters working inside Delta Exposure did so under very oppressive conditions; heavy smoke condition filled the structure, visibility was poor, heat conditions were high and fire was spreading through hidden voids within the roof space. Delta Exposure was

constantly being impacted by fire from the main fire building.

At about this time, the first of several thunderstorm cells passed over the fireground, producing lightning strikes and large deluges of heavy rain. Wind squalls associated with the storms increased fire activity.

Aerial attack strategy: Large flames were venting through the roof of the fire building. The roof over the rear half of the building had collapsed, providing good access for an aerial stream. The IC's objectives were to control the fire and protect exposures, via an aerial master stream attack. The IC sent a message to FireComs, requesting the first arriving aerial appliance to immediately enter the fireground to position and set up for an aerial attack at the front of the building. Ladder Platform 21 arrived on scene and in accordance with the IC's directions, set up in Alpha Sector at the front of the building and prepared to go into operation. Space had been left for the aerial at the front of the building, enabling Ladder Platform 21 to position at the best possible location to conduct an aerial attack.

Water relay established: Aware the operation of the aerial would quickly cause water supplies from the 100mm Quigg Street main to be over-run, the IC directed next arriving pumpers to go to the north of the fireground and

establish a water relay to supply the aerial. Pumper 49, under the command of SO Carl Franklin, reported that by using the recently installed appliance mobile data terminal (MDT), his crew was able to quickly locate a 375mm main in Haldon Street, from which they obtained water. A water relay (consisting of twin lines) was established, consisting of Pumper 49 (base pumper), Aerial Pumper 7 and Aerial Pumper 47, under the control of Water Relay Officer SO Carl Franklin. Aerial Pumper 47, under the command of SO Mark Franklin, pumped water to Ladder Platform 21. Following establishment of the water relay, SO Mark Franklin was appointed Alpha Sector Commander. Pumper 34 firefighters assisted to get water into the aerial appliance.

Aerial operations: Ladder Platform 21, operated by Firefighters Rick Heyhoe (aerial pulpit operator) and Dave Phillips (platform cage operator) commenced aerial operations from Sector Alpha. Water for the aerial was supplied from the Haldon Street water relay, ensuring the limited water supplies

being used by firefighters from the Quigg Street main were not being diminished in any way. Water from the relay reached the aerial almost as soon as the aerial was in position and ready to operate, enabling the aerial to go into operation very quickly. Firefighter Phillips reported that from ground level the roof appeared intact, however once the aerial cage was elevated above the roof ridge line, it was clear the roof had collapsed above the rear half of the building, enabling good access for the aerial stream directly onto the fire. Firefighter Phillips stated that because they had been able to position the appliance in the best possible location, they were able to achieve good coverage of the whole fire building with the aerial stream (indicating the importance of leaving room at the front of the building for the aerial appliance). Firefighter Phillips could see firefighters on hose-lines operating in proximity to the sides of the building and was very careful to ensure the aerial stream was directed well away from their locations, ensuring firefighters on the ground were not endangered by flying debris

produced by the impact of the aerial stream. Firefighter Phillips was able to see Delta Exposure beginning to ignite at the rear of the building and directed the aerial stream onto the fire area, knocking the fire down at this location. It was necessary for Firefighter Phillips to wear an SCBA mask and extension line for the entire time he was operating, due to the thick smoke plume which was blowing intermittently in the direction of the aerial cage. Water pressure for the aerial was very good and the aerial stream was very effective at achieving fire control. A significant diminishing of fire activity began to occur once the aerial stream was operating.

Fire attack expanded: Pumper 34 firefighters, under the command of SO Daniel Bourne, advanced a 38mm attack line towards the front of the fire building, conducting direct fire attack from Alpha Sector. Firefighters made a determined attack, advancing as far as the veranda of the building, however heavy internal fire conditions, internal roof collapse and arcing powerlines at the point of attachment immediately above the



First arriving Pumper 22 Firefighter Cody Bardsley was kept busy supplying water to fire attack lines going onto the fireground. Cody performed faultlessly; not a bad effort for his second day as a qualified pump operator.



doorway prevented entry into the building from being made.

Rescue Pumper 15 firefighters advanced a 38mm attack line to the Charlie Side, at the Charlie/Delta corner, enabling a side flank attack to be conducted on the southern side of the fire building, at the eastern end. Firefighters observed the side timber wall of the fire building had collapsed onto Exposure Delta, causing fire spread to the exposure. Similarly, the timber fence at the side of the fire building was alight, causing fire to spread into Exposure Delta, igniting the eaves and internal roof timbers. The large opening within the side of the fire building, created by the collapse of the Delta side wall enabled flames to vent from the fire building and directly impact Exposure Delta. Firefighters directed the 38mm attack stream onto the burning collapsed wall, side timber fence, side roof eaves and roof timbers, effecting extinguishment. Firefighters continued to direct the attack stream onto the fire burning within the fire building impacting Exposure Delta, causing this fire activity to diminish.

Ignition of gas mains: A gas main located inside the fire building near the Alpha/Delta corner ignited, causing the front room of the fire building at this location to become heavily involved in fire and the release of fierce flames towards Delta Exposure (early attempts to isolate gas supply were unsuccessful, due to arcing powerlines and severe fire activity in close proximity to the gas service valves). This room was used as a reception/foyer, containing a number of polyurethane sofas, resulting in fierce fire activity. Pumper 34 firefighters under the command of SO Bourne, assisted by Pumper 48 firefighters under the command of SO Wayne Challinor, undertook protection of Delta Exposure with a 70mm stream, directed along the northern wall of Delta Exposure, being heavily impacted by severe radiant heat. Firefighters also used this line to undertake direct attack into the involved room. Interior crews operating inside Delta Exposure were temporarily withdrawn, until the severe conditions associated with fire activity in the front room could be controlled. The

gas authority subsequently attended the scene and had to excavate mains at the street to isolate gas supply.

Firefighting operations continue: Duty Commander Georges River Inspector Craig Easy arrived at the fireground and was appointed Delta Sector Commander. Duty Commander Parramatta Inspector Rob Harley arrived at the fireground and was appointed Operations Officer. Rescue 1 Firefighters Paul Sharratt and Huw Jones were tasked with assisting the interior attack within Delta Exposure. Rescue 1 firefighters pulled sections of ceiling with ceiling hooks and conducted direct fire attack on fire spreading through the roof. The roof fire was complicated by the changing structure of the roof, which had been constructed in a number of different sections (flat and pitched roofs) as house extensions were added over the years. Firefighters from Rescue 1 and 26, 34 and 54 Stations were successful in cutting off fire spread within the roof, before it reached the larger pitched roof covering the front half of the building. Firefighters placed an external ladder against the house and removed tiles,



From a defensive position firefighters alternate a 70mm stream between direct fire attack and protection of Delta Exposure.



Commissioner Greg Mullins, Chief Superintendent Wayne Phillips and Inspector Craig Easy at the Command Point.

enabling a spray to be directed into the roof space, extinguishing hot spots within the burning roof timbers.

Heavy Hazmat 13 firefighters established SCBA servicing and cylinder replenishment. Electricity authority operators attended the scene and disconnected power to the fire building and Delta Exposure at the pole.

Confirmation building not occupied: At 1833 hours, police informed the IC they had managed to contact the building owner, who informed police the building had been vacated two weeks prior to the fire and was not occupied.

Commissioner attends fireground: Commissioner Mullins attended the fireground and was given a full briefing of firefighting operations by the Incident Commander and members of the command team. Commissioner Mullins conducted a tour of the fireground and witnessed firsthand the determined efforts that been made by firefighters to control the fire and protect the exposures that were under threat and the difficult conditions under which the fire was being fought. The Commissioner provided a detailed briefing to the assembled members of the media present.

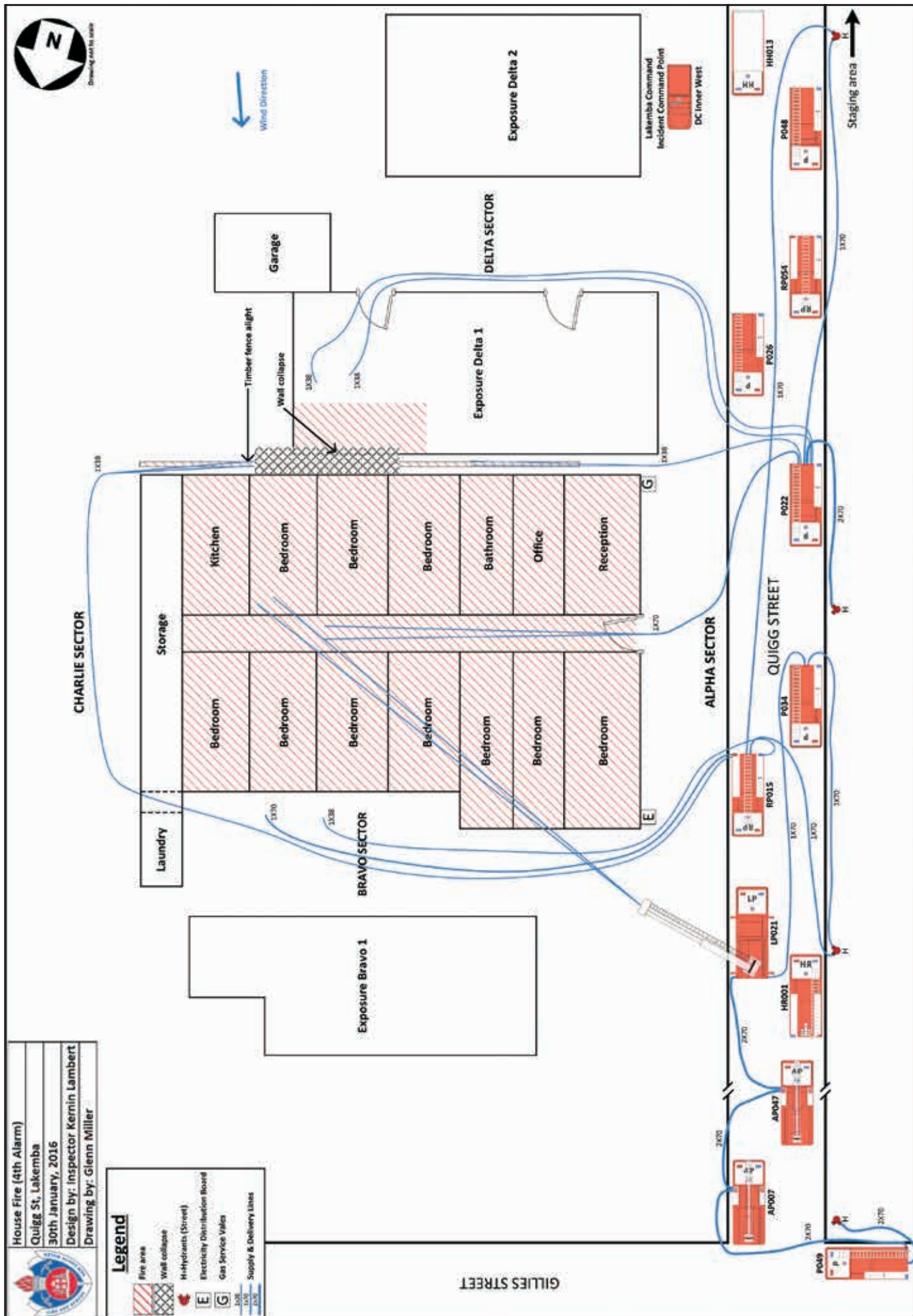
Fire brought under control: The aerial attack caused significant diminishing of fire activity and the threat of further fire spread to exposures had subsided. Aerial operator Firefighter Dave Phillips had been carefully observing progression of a number of thunderstorm cells during the time Ladder Platform 21 was in operation, although none had been close to the fireground. At about 1835 hours, an approaching lightning storm resulted in the aerial being shut down.

Working in conjunction with the aerial attack, firefighters operating hose lines had been able to attack the main fire from all sides, effectively bringing the fire under control and preventing fire spread to further exposures. Similarly, firefighters operating within Delta Exposure had largely completed extinguishment of fire, resulting in 75% of the exposure and contents being saved. At 1900 hours, firefighting operations switched to salvage and overhaul mode. A fire duty remained in place throughout the evening and overnight. Fire Investigation and Research Unit crews attended the scene the next day, working with Police Forensic Group crime scene examiners to undertake cause and origin investigations.

Notes

- 1 In situations of urgent competing priorities and limited resources, size-up is critical, identifying incident critical factors, enabling incident objectives and priorities to be established and ensuring operations are conducted safely and to maximum effect.
- 2 In the initial phase of the Lakemba boarding house fire, based on the available information, firefighters conducted operations in accordance with the existence of a serious life risk. Accordingly, deployment of a 70mm hose stream ensured the non-involved part of the building remained as survivable as possible for any saveable people who may have remained trapped. This stream also delayed progression of the fire. Placement of the large volume hose line down the hallway enabled a protective hose stream to be placed between the fire and any people who may have remained trapped in the front rooms of the building, increasing survivability.
- 3 The process of continuous size-up resulted in a switch of strategies from offensive to defensive, ensuring firefighters were no longer placed unnecessarily in situations of potential harm. Size-up commences the moment the alarm of fire is received and does not stop until the last appliance leaves the fireground. The decision to switch to a completely defensive attack is not one to be taken lightly; the IC must balance the likelihood of saveable people remaining inside a structure versus the dangers posed to firefighters conducting an offensive attack when conditions become too dangerous for interior operations to continue.
- 4 Large flames, intense radiant heat and quantities of airborne burning materials were being produced from the heavily involved fire building, threatening surrounding exposures. Once it was identified a major breach of the roof had occurred, the most effective method to reduce fire intensity and protect surrounding exposures was by placing an aerial appliance into operation, enabling an aerial master stream attack to be undertaken. This attack was extremely effective, due to:
 - skill of the aerial operators
 - adequate space being left at the front of the fire building enabling the aerial appliance to position, set up and go into operation
 - establishment of a water relay, dedicated to supplying water to the aerial appliance.
- 5 Placement of hoselines is the key to successful fire containment. Firefighters identified exposures most at risk and progressively placed defensive lines at positions that enabled those exposures most seriously at risk to be protected first. Defensive coverage was increased as more resources arrived at the fireground. These operations protected threatened exposures and contained fire spread.
- 6 A significant challenge to the protection of Delta Exposure was the continuous fire activity that impacted the side of Delta Exposure, at a location that was initially inaccessible to firefighters. Firefighters conducting interior offensive operations within Delta Exposure worked under oppressive and difficult circumstances (particularly as Delta Exposure was continuously being impacted by fire burning within the main fire building). These efforts resulted in a large percentage of the Delta Exposure being saved.
- 7 The recently installed appliance mobile data terminals enabled firefighters to quickly identify a 375mm main, providing the mains source for the water relay supplying the aerial appliance. This application of the MDT was critical to the success of aerial operations.
- 8 Well done to the pump operator of first arriving Pumper 22, Firefighter Cody Bardsley. In addition to the usual pressures associated with being the first arriving pump operator at a fire of this magnitude, Pumper 22 supplied most of the attack lines going onto the fireground; Not a bad effort for Cody's second day as a qualified pump operator!
- 9 Once again Murphy's Law prevailed ("what can go wrong, will go wrong"). This fire broke out at the height of a severe storm impact, at a time when almost every FRNSW appliance within the Greater Sydney Area was committed to emergency operations.
- 10 Congratulations to all crews for hard work, determination, skilful operations and a job well done.

END



House Fire (4th Alarm)
 Quigg St, Lakemba
 30th January, 2016
 Design by: Inspector Kernin Lambert
 Drawing by: Glenn Miller

Legend

- Fire area
- Wall collapse
- H-Hydrants (Street)
- Electricity Distribution Board
- Gas Service Valves
- Supply & Delivery Lines

3x28
 3x38
 3x70
 3x100
 3x150
 3x200



EDUCATION & TRAINING – A BLUEPRINT FOR THE FUTURE

Acting Director Education & Training, Assistant Commissioner Graeme Finney recently sat down with the Media & Communications Unit (MCU) to chat about his plans for the Directorate. Assistant Commissioner Finney was recruited by the Commissioner to the role following a decorated 28-year career with the Australian Army where he held the rank of Brigadier.

MCU: What are the key priorities for Education & Training in 2016?

GF: The first key issue is about people. At the moment within Education & Training (E&T), we have a gap between our establishment and assets on the ground of approximately 25%. That means there is additional workload on the existing trainers and we have had to rely on operational staff to augment training requirements. Part of the solution to this is offering a work environment where people can grow professionally, be supported and enjoy their work. We have now advertised all vacant positions in E&T and pleasingly, I expect to fill these roles in the short term.

I received a challenging but achievable task list from the Commissioner when I arrived here on 17 November 2015 and we have been steadily working to progress his key areas of interest. We have instituted a review of Retained training (the terms of reference has been drawn up and the initial planning conference has been done), accreditation processes are about to be signed off, and we are undertaking a review of leadership and management training as part of our core curriculum. Managing the transition arrangements at Alexandria will remain a key priority as we plan for the realisation of a new 'state of the art' academy in 2018.

MCU: Have you made any significant changes within the Directorate since your appointment?

GF: It's early days and I am conscious of not taking military approaches and placing them over FRNSW culture. But one issue I am keen to progress is a 'back to basics' approach, focussed on values-based leadership. Key to this are our recruits – I think that if you can engage early and in the right way, much of the rest takes care of itself. I am keen to reinforce standards, esprit de corps/camaraderie, (self) discipline and professionalism as part of training. Perhaps the most enjoyable aspect of this has been our Wednesday morning parades! My thanks to our Recruit Instructor team for enabling this.

Another area of focus has been on engaging with our stakeholders,

invigorating the conversation with operational commands to make sure we understand the needs of the workforce. Consequently E&T has agreed to change its mission – reinforcing the need to act 'in support' of FRNSW, in order to deliver the skills, knowledge and attributes required of our people, to enable them to work effectively and safely.

MCU: What do you consider are the Directorate's strengths and weaknesses?

GF: Again, I've got to put it back to people. We've got great staff here. I look across the board at our instructors and our support/development staff, whether here at Alexandria or out in the regions, they are simply superb. They work long hours, maintain themselves professionally, and are very effective at delivering those skills, knowledge and attributes to the right people at the right time.

What are our weaknesses? Again I go back to my first answer. My concern at the moment is that we don't have enough people to do the job that we need to do. While that will change, in the short term we will need to carefully plan and prioritise what we do and when we do it – in support of operational needs!

MCU: Generally speaking, how have you found the transition to FRNSW?

GF: Outstanding! Why is that? Without wanting to sound like a broken record, it's because of the people I have had the opportunity to meet over the last three months. I've found the people within FRNSW are not dissimilar to those I've encountered over the 28 years I spent in the military – both in barracks and on operations. There is the same professionalism, the same enthusiasm, the same professional mastery. I look at the outputs – whether on the fireground or assisting in MVAs or any range of other incidents / issues – and I see highly skilled people who have the needs of the community at the forefront of their mind

all the time. It's about serving the people of NSW and I find that absolutely outstanding. Those are the parallels I've really enjoyed between my service in the military and at FRNSW.

MCU: What keeps you personally motivated? Do you have a philosophy you live by?

GF: Over the years, I have found that my 'command philosophy' has motivated me and the way in which I operate: 1) know your job and do it well; 2) Act professionally and with pride; 3) Act safely. It is what I ask of myself and those around me.

I also have a philosophy on leadership. I think leaders should lead by example; they should not expect others to do something they are not prepared to do; they should seek to put the team first; and most importantly, they should set the standard. These themes were drilled into me at Duntroon and I have always sought to live by them.

Of course, in many ways, this discussion is all about values. It is interesting to note that the values of FRNSW are not dissimilar to the values of the Australian Army (courage, initiative, respect and teamwork). Those values motivated me for 28 years – I guess it is not surprising that I am now motivated and excited by my current role and the organisation I belong to – one that I keen to learn more about. **END**

EDUCATION & TRAINING DIRECTORATE MISSION STATEMENT

Support FRNSW staff to acquire, develop and maintain the skills, knowledge and attributes to do their job safely and well. For more information about the program, visit www.humanitarianleaders.org.

FRNSW PRESENTS CHEQUE FOR \$80,000 TO WESTMEAD HOSPITAL'S BURNS UNIT



Supt Ian Krimmer and local fire crews present FRNSW's donation to Westmead Children's Hospital staff



A bandaged bear rides in FRNSW's mini Responder 1 appliance

On Friday 6 November 2015, the Children's Hospital at Westmead conducted its annual Radiothon to celebrate its 20th anniversary and to raise money for sick children. The Children's Hospital relocated from Camperdown 20 years ago to begin a new era of paediatric health care in Sydney's West. It now treats nearly 80,000 children every year.

As a longstanding supporter of the Hospital's Burns Unit, FRNSW participated in the Radiothon, with 57 Wentworthville and 27 Parramatta crews attending on the day. Supt Ian Krimmer also presented a cheque for \$80,000 to the Burns Unit on behalf of FRNSW firefighters.

FRNSW has raised more than \$3.3 million for the Burns Unit over the last 31 years. Much of this money has come from voluntary \$1-a-week payroll deductions. In addition, firefighters organise many other fundraising activities include an annual charity bike ride. The money raised by FRNSW is critical to the running of the Burns Unit, and among other things, has funded cutting-edge treatment equipment. **END**

NEWCASTLE FIREFIGHTERS BALL DONATION HELPS BURNS VICTIMS



Chief Supt David Felton (centre) at presentation of FRNSW's donation to John Hunter Children's Hospital

On 10 December 2015 the Newcastle Firefighters Ball Committee visited John Hunter Children's Hospital to present a donation of \$25,250. These much-needed funds are being used by the Hospital's Burns Unit to assist children and families impacted by trauma, heartache and pain associated with initial and ongoing treatment of children suffering from burns.

The money this year was raised from funds raised at the Newcastle Firefighters Ball, from major sponsors who generously donated prizes for auction on the night, and from ongoing firefighter fortnightly contributions from their pay.

Area Commander Metro North Chief Supt David Felton said the Newcastle Firefighters Ball had been privileged to donate \$330,300 to John Hunter Children's Hospital since the ball's inception.

"In addition, a further \$103,500 has been donated to Kidsafe Hunter and KIDS Foundation to assist burns survivors in their recovery, bringing the grand total to \$433,800," said Chief Supt Felton.

END

THE FIREFIGHTER, THE BLACK DOG AND THE COMMISSIONER'S SAFETY AWARD



Firefighter Peter Kirwan wasn't aware he was depressed. His family and friends had noticed changes in his behaviour but despite being anxious and on edge, for Peter, it was business as usual. It was only when he got in his car after work one afternoon, became distressed and couldn't drive further than the corner that he realised he needed help.

Thus began the slow road to recovery which led to Peter winning the 2015 Commissioner's Safety Award for his commitment to promoting mental health issues within FRNSW and providing his very personal story for the 'The Firefighter Who Fought Depression' video.

Peter wrote the story five years ago as a case study for another FRNSW project. "Writing the video was initially part of my psychological counselling," he said. "The Black Dog Institute became interested, so I continued working on the story with a clinical psychologist and the Black Dog artistic director. After a great deal of thought, I decided to put my name to

the video because I know people don't want to talk about depression. There's a big stigma attached to mental illness, but I wanted to put my hand up and say: 'Yep that happened to me'."


For Peter, the video has been a major achievement and played a large part in his rehabilitation. "The video gets the conversation started, and if people are more aware of depression it makes it more acceptable. Discussion leads to understanding and then empowerment. I believe this brings about recovery," he said.

Despite the 'incredible' support he received from FRNSW, and his mission to have mental health conditions

recognised, Peter almost withdrew the video from the award process. Fortunately he had a change of heart, and the video was submitted for the Commissioner's Safety Award.

Dr Sam Harvey, Senior Lecturer in Workplace Mental Health at the University of New South Wales and a Research Fellow at the Black Dog Institute, was a guest speaker at the Award Ceremony. Dr Harvey was discussing the project with Peter and suggested the video be released on Facebook and YouTube. "The response was amazing," said Peter. "The video had 122,000 views in three months and the video and images have been used and shared time and time again.

There have been comments from all over the world from organisations such as the local RFS to fire services in the UK and USA as well as mental health advocacy groups. It's just fantastic!"



FRNSW Facebook

May 2016

- Congratulations to Peter Kirwan and Black Dog Institute & Matthew Johnstone. Peter you are right it's not a life sentence however for a while that head of ours is telling us it is. What you have done is told us 'you are not alone' and there is help, and sometimes that help is in places and people that you (well me anyway) did not realise are only too willing to help. Again thanks.
- What a fantastic video. So honest upfront & covers all. How important it is to have rapport with physicians ... keep trying new ones until you feel comfortable. Nice work!!
- Inspirational I'm sure it took a lot of courage but it will help so many, well done.
- This is an extremely powerful message, not only for firefighters, but for every person who may encounter depression and not realise it.
- Depression can affect anyone, anywhere, any occupation, any time. Be courageous and seek help if this is you. You will reclaim your life and your family will get you back.
- Those of us who serve/served our communities as a firefighter or EMT want to think we are above needing help ourselves. But, when it comes down to it, we are just as human as those we serve.
- While this video comes to us from a brother firefighter in Australia, it hits home no matter where we live or what community we serve. There is no shame in seeking help when the load gets to be too much for us to carry alone.
- Great clip, absolutely brilliant.

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Peter overcame anxiety and depression with the aid of medication and counselling. He says he received considerable understanding and support from FRNSW. "I discovered that people did understand – and care! That makes a great deal of difference."

Following his recovery, Peter went from strength to strength, engaging in volunteer work for the Black Dog Institute. His focus is on public education presenting and distributing educational material to community groups, workplaces and industry.

Peter has continued with his FRNSW career and won a Churchill Fellowship to research motor vehicle rescue. **END**

POST-TRAUMATIC STRESS DISORDER – YOU CAN RECOVER

"Post-traumatic stress disorder (PTSD) can occur after someone has been through, or witnessed a traumatic event ... Firefighters may be exposed to repeated trauma or the aftermath of traumatic events." (Book foreword)



It's important to remember that mental illness is treatable and that recovery is achievable.

Advisor Nathan Jones. The guide was produced in collaboration with firefighters diagnosed with PTSD and Phoenix Australia, the Centre for Post-traumatic Mental Health, a University of Melbourne affiliate. The resource provides comprehensive information about PTSD and how to identify it.

It contains advice for family members and colleagues who play an important part in the recovery process. The guide details how to get help and how and where to access further resources. Topics include medication, relationships, counselling and a frequently asked questions section. Importantly, the overwhelming message is that PTSD is not the end of the career road. With help and support, you CAN recover.

A Pro-active Approach to PTSD seminar was held to launch the book which is soon to be distributed to the homes of all firefighters. In his address, Commissioner Greg Mullins stressed the importance of being able to talk about the sometimes serious effects of work on firefighters' wellbeing. "PTSD is normal people having normal reactions to abnormal situations," he said. "I encourage you to talk to those around you so that together we can let people know that recovery from mental illness is possible."

FRNSW Wellbeing Coordinator Mark Dobson believes firefighters are amazingly good at looking after others, but not always great at looking after themselves. "It's important to remember that mental illness is treatable and that recovery is achievable. Most people will recover with the support of family and friends," he said. **END**

Many emergency service workers experience some degree of psychological distress following a traumatic event. For some, the symptoms may intensify and/or persist over time, impacting on mental health. It is estimated that one in 10 emergency workers suffers from posttraumatic stress disorder (PTSD), although the actual number is believed to be higher.

While there are a number of psychological and pharmacological treatments known to reduce PTSD symptoms, research shows that employers play a vital role in providing support and return to work planning. "Some people think a diagnosis of PTSD means an end to their career with FRNSW," said Andrew McGarity, Manager Injury Management. "However, with appropriate treatment and recovery nothing could be further from the truth."

To provide employees with comprehensive information about PTSD a new resource, *Recovery after Trauma – A Guide for Firefighters with Posttraumatic Stress Disorder* was developed by FRNSW Return to Work

IT'S TIME TO REALARM



Firefighter explains to a member of the public how to 'ReAlarm'

VIEW VIDEO AT
fire.nsw.gov.au/frnews

OR



SCAN CODE TO
 WATCH NOW



1 May 2016 marks the 10-year anniversary of the introduction of NSW legislation to ensure all residential buildings have at least one working smoke alarm per floor.

As smoke alarms can be affected by dust, insects, humidity and age, manufacturers advise replacing them every 10 years to ensure they remain in working order. That means millions of smoke alarms across the State are now reaching their 'best before date'.

For this reason, it is critical that FRNSW changes its smoke alarm awareness messaging to the public.

"Rather than the annual 'change your smoke alarm battery' messaging, in 2016 FRNSW will educate the community about the 10-year lifespan of smoke alarms," said Manager Community Engagement Unit, Superintendent Mick Ollerenshaw.

"We have to motivate people to replace their older smoke alarms with new photo-electric smoke alarms (the only type now recommended by Australian fire services) while, of course, still ensuring they know how to maintain them properly."

Although the audience is all NSW households, the campaign is targeting those who are more likely to be unconcerned and/or unaware of the importance of a working smoke alarm.

Using the Mosaic marketing segmentation tool, FRNSW has identified the top 10 groups with a higher propensity of house fires and therefore a higher likelihood of being injured in a house fire. These top ten Mosaic groups have been categorised into two broad audience types – young and multicultural, and battlers and blue collar workers – which represent 21% of households in NSW and 37% of all household fires.

With this in mind, a simple, striking campaign concept of 'ReAlarm your home against fire' has been designed to encourage these targeted groups to act upon the information provided.

The 'ReAlarm' Smoke Alarm Awareness campaign commenced at the beginning of April to replace the usual 'change your clock, change your smoke alarm battery' messaging at the end of daylight saving.

Campaign activity including radio ads, paid social media (promoted) posts, shared social media content and posters, will then increase throughout May, with paid external advertising commencing on 26 April.

"Ultimately we are calling on people with smoke alarms that are over 10 years old, or those who are uncertain of their age, to replace them with photo-electric smoke alarms before the end of May 2016," said Supt Ollerenshaw.

To help educate the public about photo-electric alarms, the Media & Communications Unit has filmed a video news release showing a firefighter giving advice about buying a smoke alarm at a local Bunnings store. In addition, a community service announcement comprising short videos filmed by firefighters (look out for more details on the intranet) will be released later in May.

The campaign will be supported by a number of public relations events and activities including a media launch (early May), a Mother's Day public competition and engagement with industry bodies and multicultural community groups.

For firefighters, the key is to capitalise on the influence they have with their local

community and lead by example. Have you ReAlarmed? Do you have photo-electric alarms in your house? Have you checked on your friends and family members?

The campaign will also be supported State-wide by Bunnings (see more information about Bunnings activities on the intranet). Local Bunnings stores and other community organisations (e.g. RSL clubs) are an ideal way to get out of the station and get the message across face to face.

For more information visit the intranet toolkit (*Toolkits* → *Operational* → *Community Safety* → *Smoke Alarm Awareness Campaign*) or contact the FRNSW Community Engagement Unit. Also refer back cover for ReAlarm poster.

END

WHY PHOTOELECTRIC ALARMS?

Photoelectric alarms are more advanced and are widely regarded as being superior to ionisation alarms in most circumstances. They respond faster than other alarms to most fire types and are less likely to cause false alarms. Studies have shown that photoelectric alarms are more effective at detecting smouldering fires, which are the types of fires most likely to result in home fire deaths: Photoelectric smoke alarms are also less likely than ionisation alarms to go off when people are cooking, or using the shower, which prompts many people to disable them.

PRIMARY SCHOOL CHILDREN LEARN ABOUT BUSHFIRE SAFETY



Commissioner Mullins addresses Turramurra North Public assembly at the book launch

On 11 February, Commissioner Greg Mullins attended the launch of a book on bushfire safety written, illustrated and produced by Year 3 students from Turramurra North Public School.

In the aftermath of the tragic October 2013 Winmalee fires, the Turramurra schoolchildren became concerned about how bushfire impacted on communities, so they met up with Blue Mountains residents, and the idea for the book flowed from that encounter. The children researched bushfire safety, and then put together the book to inform other children and their parents.

At the book's launch, Commissioner Mullins spoke to a special school assembly of parents, teachers and students and media, describing his own experiences in fighting bushfires. Fire crews from 37 Gordon and the CAFS Tanker from 61 Lane Cove also attended and spoke to the children. FRNSW funding will enable copies of the book to be placed in every primary school library in NSW.

"A big part of our job at Fire & Rescue NSW is to educate the community about fire safety," Commissioner Mullins said. "That includes ensuring families who live in urban communities close to bushland are prepared for bushfires. The best fire education starts with children, cultivating a life-long awareness of safety, prevention and preparedness." ■■■ **END**



Mervyn Hayden (left) and his father Harold (right) outside Botany Fire Station

RINGING THE CHANGES: A STORY OF A DIFFERENT TIME

Story by Jack Mentha from information supplied by Kirsty Hayden

Artifacts from the past can take us on a trip through time, as was the case when Kirsty Hayden sent FRNSW a photo of her father and grandfather as volunteer firefighters in 1959, and told how a bell was used to inform them of an emergency.

In 2016 firefighters have a large range of state-of-the-art technology at their disposal. One example of this is ADASHI First Responder mobile data terminals (MDTs) which provide maps, aerial imagery, weather feeds, navigation, chemical data sheets, hydrant locations and many other services all in one device. This means that firefighters don't have to wait for radio congestion, but can update or change the status of their crew instantly, and have access to a large range of information at their fingertips.

However, back in 1959, Mervyn and Harold Hayden, two volunteer firefighters at Botany Fire Station, didn't have all this technology. They only had a phone line that ran from their house to the fire station with a bell attached above the front door. If the volunteers were needed, the bell, which sounded like a telephone, would ring.

"If my father wasn't home, my mother and I would ignore the bell," Kirsty recalls. "Many times, visitors would ask why we weren't answering the phone. We would have to explain that we didn't have a phone and that it was the fire alarm."

Harold was a champion distance runner when he was younger as well as a founding member of the Botany Harriers Club; he even had a street named after him in Botany after his death. Mervyn was a carpenter by trade, however he worked with his father in local tanneries up until his retirement in 1985.

Mervyn and his family lived for three years with no bathroom, toilet or hot water, as he built his house working around his job and firefighting duties. It is the house his daughter still lives in today.

Although the bell was eventually removed after volunteer firefighters were no longer needed, the outline remains above the front door. It serves as a reminder of days before hi-tech MDTs and before the urbanisation of Botany which meant permanent firefighters were needed. ■■■ **END**



Anjelica from Bankstown with young helper



Bangalow crew excavate an infested hydrant

HYDRANT HERO CAMPAIGN

In February the cry went out: Firefighters need your help! Become a Hydrant Hero!

FRNSW firefighters urged residents and businesses to find the water hydrant on the footpath and street closest to their home or place of work and check its condition.

Anyone could become a 'Hydrant Hero' in their street in just three simple steps:

1. Find your closest water hydrant
2. Clear around the hydrant and ensure it is clearly marked and accessible.
3. If maintenance or marking is required, report it to your local fire station, council or water authority.

Operation Cold Snap showed what amazing influence FRNSW firefighters have when they actively engage the public in fire safety in their local communities. The Hydrant Hero Campaign mobilised that influence once again and to great effect around a subject crucial to operations. Firefighters across NSW motivated their local communities to start taking fire safety seriously and to act to improve operational readiness in their street.

Knowing the location of hydrants and having unobstructed access to their water supply is critical to saving lives and property, as every firefighter knows. But care of hydrants can't rest with firefighters alone; water authorities, councils and community members all have a responsibility to play a part in hydrant upkeep. However most people just don't know that.

In a fire emergency, precious minutes can be lost if firefighters are hindered by hidden or obstructed hydrants, particularly at night. The Hydrant Hero campaign was designed to make the community aware of hydrants and to take action. The campaign chose a reverse psychology tagline: instead of firefighters being heroes to the community, community members would become heroes to firefighters. The response was overwhelmingly positive from firefighters and the public alike.

As Commissioner Mullins says, "every firefighter knows our most fundamental tool is water". From a grassroots level,

it was firefighters who came up with the initial ideas about how to enlist the community to help with the care and maintenance of hydrants. Deputy Captain Mellissa Madden and her team in Bangalow had run a community engagement program where people adopted their hydrants. She saw its success and suggested through the Commissioner's Participative Council that similar programs could be rolled out across the State. SF Justin Clarke from Regentville also put together comprehensive information about hydrants that formed the basis of a new educational website.

To get results, firefighters were asked to run their own local campaigns, to get the message out there, and keep it out there in a sustained effort over February. Resources for firefighters were loaded to a one-stop Hydrant Hero intranet toolkit complete with media release template and links to the new website, promotional video and photos for local media to download.




VIEW VIDEO AT
fire.nsw.gov.au/frnews
OR

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Museum Hydrant Heroes Kristine and Cameron

HYDRANT HERO ACTIVITY REPORT FROM 240 BRUNSWICK HEADS

Sent in by Retained Firefighter Martin Jones

We have been very active patrolling the streets in our area to raise awareness about the location and condition of local hydrants.

While we discovered a number of overgrown and neglected hydrants in backstreets and less populated areas, we also located a surprising number of poorly-maintained hydrants in the most visible places.

One hydrant just across the street from the station has just recently been asphalted over during roadworks so that it is completely inaccessible. Another was located out the front of one of the best and most well-kept houses on the main street and was completely grown over. A third hydrant on the crest of the hill in Ocean Shores was also in a high traffic area and directly opposite a new land development. It was not only overgrown with grass, but completely filled with dirt and clay and took several minutes to clear out. In each case, we informed owners and onlookers about the importance of locating and maintaining these hydrants to great interest. Very few were aware of either the location or the function of their nearest hydrants, but all appreciated that it is crucial for the fire brigade to gain quick access to them.

Our findings have been that some of the worst condition hydrants might be right under our noses in the best-maintained main streets and that the Hydrant Heroes campaign is a much-needed and effective public awareness program.

HYDRANT HERO ACTIVITY REPORT FROM 213 BANGALOW

Sent in by Deputy Captain Melissa Madden

Here are some interesting statistics from our hydrant inspections night. We had two groups, two trucks at both ends of town. One group completed 31 inspections, the other 22. Of 53 hydrants checked:

- 16 were clearly visible and free of ants
- 18 required re-marking with the spray can and 8 triangles were re-marked
- 37 required clearing of ants and mud taking from 4-8 minutes each.

We estimated, based on last night, that it would take another 8 hours to do the whole town. Bangalow is only a village; I wonder what happens in larger centres?

At the same time, the Media & Communications Unit (MCU) ran a social media competition to prompt people to become Hydrant Heroes. Many residents sent in photos of themselves with their hydrant, or 'before and after' photos showing how their hydrant had been cleared. The photos started a groundswell on social media.

Entries went into the running to win a high-visibility limited edition T-shirt, a Museum of Fire gift pack full of collectibles and a family pass to the Museum of Fire, Penrith.

The promotional video, which was conceived and produced in-house by MCU, was posted and shared on FRNSW's YouTube, Facebook and Twitter sites, and then re-shared across numerous social networks, fire station Facebook pages, the CFU website and online media outlets.

Web pages devoted to hydrant information and covering all aspects of the campaign were also created in-house by MCU and drove a significant spike in traffic.

460 The Entrance submitted the very first Hydrant Hero from North Entrance, Mr O'Brian. He and other competition entries were posted to Facebook throughout the campaign. The conversation generated using hashtag #HydrantFRNSW snowballed to the point

where FRNSW Hydrant Hero campaign quickly topped search engines on the web (test it by Googling "hydrant hero"). The statistics from social media highlighted that the message was getting out. Our Facebook and YouTube messages reached more than 150,000 people.

Hydrant Hero started as a firefighter-generated campaign and new ideas kept flowing in. SO Andrew Barrett and D Platoon at 94 Kellyville and Minmi Fire Station put up a message on their noticeboards, leading other fire stations to do the same. SO Dale Wade-Ferrell from Katoomba suggested an email banner for the end of all FRNSW emails, which was developed to load into FRNSW emails.

CFUs got involved checking hydrants and increasing our social media reach by over 5,000. Staff from Sydney Water also offered support and sent in updated depot contact lists that have been added to the firefighter toolkits. There has been interest in duplicating the campaign from firefighters in Spain, Brazil and Kenya. From such a successful model, this may not be a one-off for NSW either, as an annual Hydrant Hero campaign is being discussed for next year, with a multi-agency involvement. **END**



Fire Investigation and Research Unit conduct a series of controlled test burns


VIEW VIDEO AT
fire.nsw.gov.au/frnews
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KEEPING THE HOMELESS FIRE-SAFE

An incident where a homeless person was pulled from a burning self-erected shelter set City of Sydney firefighters thinking. They realised there is a lost community of people at high risk of suffering fire-related incidents, but they are completely off the grid as far as fire safety is concerned. This group is the homeless.

The rescued homeless man, who was lucky to escape with his life, had burns to his arms, and was taken to hospital for treatment and overnight observation. Jump forward to when he was discharged; there was no one to care for him and nowhere for him to go, except back on the streets. He was straight back to the conditions and behaviours that could see him soon suffer a fire-related incident again.

After this incident, City of Sydney B Platoon found themselves asking questions. During the colder months or in bad weather, where do homeless people cook? Where do they sleep? How do they keep warm? Tents cities and squats typically don't have smoke alarms. Often derelict buildings are recorded as vacant when they may be used by homeless people. Clearly, there are implications in this for responding firefighters and

unwitting inhabitants, all of whom may be at risk. There are no easy answers.

It takes just one proactive platoon to make a difference. So City of Sydney B Platoon teamed up with City of Sydney Council's Homeless Unit to form a working group looking into ways of helping the homeless.

The project was headed up by SF Paul Sharratt and SO Tony Waller, and was supported at Zone level. They enlisted the help of the Fire Investigation and Research Unit (FIRU) and Media & Communications Unit (MCU) to conduct a series of controlled test burns. They studied the dangers of cooking and heating inside tents, of pitching multiple tents too close together, and of lighting campfires too close to dwellings. During the test burns they measured temperature and atmosphere, yielding scientific data about speed of fire development and tenability. Documentary

photo and video evidence was gathered for use in fire safety materials.

The project has taken a many-pronged approach. SF Sharratt and SO Waller presented recently to case workers to

FIRE RISKS FOR THE HOMELESS

Living conditions for homeless people often have no fire safeguards, with no protection offered by adherence to building codes or legislation. They are more likely to experience psychological problems, or struggle with drug or alcohol abuse. These can result in risky behaviours, and limit their mobility and hamper their escape. Typically homeless people have limited access to communications for public warnings or fire safety education, and are generally isolated from the community they live in.

further enable workers to identify and act on fire safety concerns. There are plans to develop a training package for charity and outreach workers to educate them in fire safety. Other platoons have since participated in training with Council Outreach Workers. FRNSW City of Sydney crews will conduct joint outreach exercises with the council's Homelessness Unit, hoping to break down barriers and present a multi-agency approach to care that might become a model for other fire stations. Finally, a flow of information has been established between the council and FRNSW which will support data capture on premises with an unexpected life risk and allow FRNSW to provide that information to responding crews.

The findings from the test burns are relevant to all campers and holidaymakers, and may be dual-purposed for tailoring safety messages to these groups. With Scouts and other avid tent-using groups in mind, what began as a duty of care project aimed at a radically marginalised few may end up also benefiting a much larger segment of the community.

With the change of season approaching, a timely street count to assess the level of homelessness in the inner city was conducted at the end of February. This will assist in planning for the level of services and multi-agency approach required over the coming colder months. **END**

OUTCOMES OF THE TEST BURNS ARE AS FOLLOWS

- Exposure to temperatures above 160°C at head height require medical attention.
- Airway burns develop fully up to 24 hours later; and if not properly treated, death can occur.
- The contents inside tents directly influence fire intensity.
- People under the influence of any substance or impairment are at an elevated risk of harm when using tents.
- When people sleep, so does their nose - "industrial nose" affects everyone and is compounded by alcohol, drugs and even fatigue. A sleeping person is unlikely to smell smoke.

Future aims

- Roll out a training package to firefighters.
- Continue the relationship between FRNSW and City of Sydney Council, facilitating data capture.
- Develop further relationships with charities and outreach agencies to streamline group work for safety and efficiency.
- Monitor and review the program to develop a model for other areas and at-risk groups.



Tent burn in progress



Examining the result of the burn



Redfern firefighters with the 'film crew' from Disability Services Australia



ROAD SAFETY AND VOCATIONAL TRAINING WITH DISABILITY SERVICES AUSTRALIA

Transport for NSW data reveals that pedestrian deaths have risen more than 25% over the past three years. Last year, 61 pedestrians were killed on the State's roads – an increase of almost 50% compared with the previous year. In the first six weeks of this year, already nine pedestrians had been killed.

This surprising and alarming spike in statistics is a compelling reason to develop road safety strategies for pedestrians. It sparked action from one concerned agency, Disability Services Australia (DSA) who turned to FRNSW for help. DSA realised the need to emphasise basic road safety for specific groups in their care including Culturally and Linguistically Diverse (CALD), disability, youth groups and schools, with a clear emphasis on pedestrian safety. They wanted highly respected community members to share their experiences of being on the road and FRNSW firefighters from Redfern Fire Station A Platoon were only too happy to be involved.

The aim was to deliver a 5-10 minute video highlighting road safety concerns and simple strategies on increasing pedestrian safety and reducing pedestrian accidents. This would include social trends, the increased use of multimedia devices as a contributing factor for pedestrian/road accidents, and community attitudes to pedestrian safety. The video is to be used throughout DSA to educate people with a disability about pedestrian safety.

But who would tell the story, and who would make the story? Well, that is a story in itself!

Firefighters were asked to feature in the video and explain road safety from

the perspective of their experience on the roads, the accidents they have responded to and things to avoid. Alongside them, a group of young adults with various physical or mental disabilities turned up ready to star in and direct the action. These inspiring young people wanted to do something real for their peers and were getting some on-the-job training in new skills at the same time. Not only did they star in the video with the firefighters and hone their interview skills, but they had off-screen production roles as well. Production tasks such as assisting with camera, recording audio, holding the boom and cue cards were all eagerly attempted by the crew visiting Redfern Fire Station.

GLADESVILLE DREAMING BIG ON THE DISNEY CHANNEL



DSA young graduates learn about firefighting and film-making

It was an important transition time for this group of youths who all have their own personal challenges to manage. Having now graduated from special needs schools, they were faced with finding their feet as independent contributing adults in the community. It was inspiring to see DSA use projects like this to both educate and upskill these youth who grew in confidence as they used the tools and tried things out for themselves.

For FRNSW, being involved with this project was an absolute pleasure, with these unique characters bringing a ray of sunlight into the otherwise grey rainy day at Redfern and delivering safety education outcomes as well. The Redfern firefighters were positive, accommodating and supportive. SO Scott Henderson and FF Jessica Sullivan fronted the cameras and gave some great road safety advice. They talked about common trends with car accidents such as the prevalence of texting or talking on the phone, visibility at night, and road conditions that may increase risk to pedestrians like wet or dry roads. They also described incidents that they had attended involving pedestrians and highlighted behaviours that would have prevented these accidents.

But their job didn't finish there. Once the serious business of filmmaking was done, the firefighters invited their visitors to swap hats, literally, and put on firefighting helmets, squirt a bit of water around, and sit in the driver's seat of a fire appliance. It brought big smiles all around and possibly a few more dreams of being firefighters! **END**



Gladesville firefighters guest star on the Hanging with Adam and Ash show

In March, 23 Stn Gladesville firefighters Robin Weckert and Melissa Hamilton took time out of their usual schedules to inspire the next generation as special guests on the Disney Channel's *Hanging with Adam and Ash* show.

SO Weckert and FF Hamilton featured on the show's regular 'When I Grow Up' segment to give youngsters tips about becoming a firefighter, including studying hard and staying fit and active.

On the show, which aired on 4 March, the firefighters talked about the diversity of their roles and the importance of having a working smoke alarm. They demonstrated a team carry with one of the presenters and headed out of the studio to use the fire hose and test the appliance lights and sirens.

While on set, SO Weckert and FF Hamilton also filmed a segment called 'Dream Big' to share advice with young females trying to achieve their dreams in traditionally male-dominated jobs.

To view the segment visit disneychannel.disney.com.au/when-i-grow-up-firefighters. **END**

 **VIEW VIDEO AT**
fire.nsw.gov.au/frnews

OR

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FRNSW increasingly attracts people from a range of backgrounds



TAKING REAL STEPS TOWARDS A DIVERSE AND INCLUSIVE FRNSW

It is easy to talk about diversity at FRNSW and the need to become a more diverse workforce, but to truly advocate for and promote diversity, tangible actions are required.

At the end of 2015 a new Diversity Unit was created, with two new positions, a Diversity Coordinator and an Aboriginal Diversity Officer, to support, facilitate, develop and promote diversity and inclusion within FRNSW. These positions have been filled by Sonja Braidner and Craig Aldridge respectively, both of whom bring with them a wealth of experience and knowledge in the field.

Sonja's previous roles include Senior EEO Consultant at the WA Department of Public Sector Standards and joint Chair of the (former) National Sorry Day Committee. She has also headed up inclusion and diversity at Singtel/Optus before working at Sydney University. She is a current member of the Australian Human Resources Institute's Inclusion and Diversity Reference Panel.

Craig is a Yuin man from Bega on the south coast of NSW. His extended family lines run back to the Gamilaraay (Kamilaroi) lands in northwest NSW. Craig spent 13 years at the Department of Juvenile Justice working in juvenile detention centres and with clients in the community. He also worked on strategies dealing with the over-representation of Aboriginal young people in custody.

The team is committed to further embedding the principles and outcomes of diversity and inclusive leadership across FRNSW. To do this, Sonja says it is important to meet and get to know staff across all levels and in all areas of FRNSW.

"We will always be accessible to staff, and people are welcome to contact myself or Craig with any thoughts or questions in relation to diversity and inclusion.

"Diversity and unconscious bias impacts all of us, and becoming more mindful of the way we lead and interact with others will assist in creating an inclusive service. Organisations that embrace diversity are more innovative, community/customer reflective and agile.

"That said, I believe the diversity Holy Grail is "inclusion". An inclusive organisation does not use diversity for display purposes. It truly embraces it – and every person is valued for their unique perspectives and contributions."

Craig says in Australia today each and every community is as diverse and different as the next.

"We are all experts on who we are and where we come from. Acknowledging the differences and not being afraid to learn about it, allows us to work better with everyone." **END**



FRNSW's Diversity Unit Craigie Aldridge (left) and Sonja Braidner (right)

KEY AIMS OF THE DIVERSITY UNIT:

- Support and enhance the Indigenous Fire & Rescue Employment Strategy (IFARES)
- Develop a new Aboriginal Employment, Retention and Development Plan in consultation with staff to best fit the needs of current Aboriginal and Torres Strait Islander staff in line with the current NSW Public Sector Aboriginal Employment Strategy
- Support gender equity and access across all aspects of FRNSW including the next Permanent Firefighter recruitment campaign
- Promote and grow cultural diversity among FRNSW staff, reflective of the State's diverse communities
- Promote and grow the numbers of admin and trades staff with disabilities
- Support FRNSW staff to create diversity-based networks from which ideas can grow to drive innovation and build better inclusion in the workplace.

AUSTRALIAN EMERGENCY SERVICES UNITE TO INCREASE WORKFORCE DIVERSITY

To further reinforce the ongoing efforts of AFAC member agencies in striving to create a diverse workforce, Commissioner Mullins in his role as President of AFAC has released the following joint Statement on Workforce Diversity.

Together, all emergency services personnel can work to create a workforce and culture that is truly inclusive, and that reflects the diverse communities that they serve.

AFAC Statement on Workforce Diversity

Introduction

In acknowledgement of the unacceptably low levels of diversity, particularly in urban fire and rescue services, and approaching International Women's Day on 8 March 2016, AFAC Council has identified changes required to increase attraction, recruitment and inclusion levels across gender, racial and cultural diversity. This statement outlines a commitment to leverage best practice from across and outside our sector, to increase our national standing against this key element of workforce development and effectiveness.

AFAC member agencies acknowledge that:

- All AFAC member agencies are committed to increasing workforce diversity.
- Low levels of diversity can result in problematic organisational cultures, a lack of innovation and lateral thinking and resistance to positive change.
- Traditional approaches to attracting urban firefighters have been unsuccessful in developing workforces that reflect their communities, and new approaches are needed.
- Any efforts to increase diversity must include strong internal inclusion strategies, so that differences are welcomed and celebrated rather than resisted and feared.
- Diverse workforces:
 - better reflect the communities we serve
 - assist in better understanding and effectively dealing with community risks, as well as community capabilities
 - are a source of diverse skills and new ideas, which are essential to all phases of emergency and land management

- improve organisational culture through inclusion and more open communication, which in turn can enhance mental health and wellbeing.

AFAC CEOs, Commissioners, Chief Officers and Fire Managers:

- Acknowledge the progress made in all sectors of the industry but accept that much more needs to be done.
- Commit to diversity strategies that will not result in a lowering or compromising of performance or safety.
- Acknowledge that in order to build a more diverse workforce, strategies are needed to achieve a critical mass from varied backgrounds and genders.
- Acknowledge that without positive actions that are proactively implemented by industry leaders, there will be negligible progress.
- Agree to improving the internal cultures and behaviours within our organisations to be more supportive and inclusive of a more diverse group of people.
- Commit to understanding unconscious bias and addressing this within agencies.
- Commit to cooperatively developing and sharing best practice strategies to increase diversity.
- Welcome that diversity is a key theme of the annual AFAC Conference for the second successive year in 2016 and that it is being held in partnership with 'Women in Firefighting Australasia'.
- Task the Workforce Management Group with developing recommendations and commit to reviewing issues of diversity twice yearly when meeting as AFAC Council.

END





NSW Police Deputy Commissioner Catherine Burn speaks at FRNSW's International Women's Day event

INTERNATIONAL WOMEN'S DAY – FRNSW'S PLEDGE FOR PARITY

In celebration of International Women's Day in March, a special event was held at City of Sydney Fire Station.

On Friday 11 March, NSW Police Deputy Commissioner Catherine Burn APM was invited to FRNSW to share some of her experiences, and her thoughts on this year's International Women's Day theme 'Stepping Up for Gender Parity'.

In front of a packed audience, Ms Burn was introduced by Commissioner Greg Mullins, who took the opportunity to outline FRNSW's own 'Pledge for Parity'.

Reflecting on the 31 years since the first women joined FRNSW – and proved themselves immediately – Commissioner Mullins said his aim is to accelerate gender equity.

The Commissioner then announced that the 2016 Permanent Recruitment campaign will deliver equal numbers of males and females to the recruit classes.

"It will take 365 years to have parity if we keep going the way we are. However if we get our act together, women will apply. And we certainly don't need to drop standards to have women on the frontline."

In taking to the lectern, Deputy Commissioner Burn congratulated Commissioner Mullins on the announcement saying parity is about a bigger, broader picture of inclusion.

Deputy Commissioner Burn, who has worked in a diverse range of roles

at the NSW Police, spoke about starting out in the force at 19 years of age when she was often the first woman to join many areas. However she said that being a female often had a positive effect on the community she was serving.

"At Redfern LAC we worked with the Aboriginal women. They found a friend, an ally. We changed the face of Redfern"

For her community work, particularly with Aboriginal people in Redfern, Deputy Commissioner Burn was awarded the International Women's Day NSW Woman of the Year in 2007 for achievement.

Among her many experiences, Deputy Commissioner Burn talked about stepping up to act as Deputy



Sonja Braidner (left), Commissioner Mullins and Deputy Commissioner Catherine Burn (right)

 **VIEW VIDEO AT**
fire.nsw.gov.au/frnews

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Commissioner Corporate Services when it was an area she knew nothing about.

“As hard and challenging as it is, we have to do it. I’m so glad I took that role. You’ve got to step out.”

At Redfern LAC we worked with the Aboriginal women. They found a friend, an ally. We changed the face of Redfern

Regarding the ‘Pledge for Parity’, Deputy Commissioner Burn said we need to be talking about the how and not the why.

“We shouldn’t need to keep having the discussion about why. We’re way beyond that. In Australia we lead the world on the education of women but we’re second from the bottom in workforce participation.”

She closed by covering the steps being taken within the NSW Police – including the development of a ‘Women in Policing Strategic Plan’ – to increase equity.

For more details about the campaign, including a breakdown of the recruitment process and preparation guides for candidates, see the intranet and www.fire.nsw.gov.au/recruitment. ■■■ END

COMMISSIONER MULLINS ON BRINGING EQUITY TO THE TABLE

In the 2016 recruitment campaign, a number of changes will be made to level the playing field for all candidates.

The actual recruitment process will remain the same for everyone. There will definitely be no reduction in standards. To progress, everyone must meet minimum entry criteria, then complete psychometric testing, pass the Physical Aptitude Test (PAT), excel at a four panel interview and pass a medical assessment.

In recent years all applicants have been grouped together in one stream, with approximately 80% of the applications from male candidates. Through sheer weight of numbers this has disadvantaged female candidates who apply. Interestingly, if interviews were the first stage of recruitment, women generally do better than men. This highlights that a more holistic approach is fairer for all.

The 2016 campaign will see applicants being split into male and female streams. An equal number of the highest scoring male and female candidates will be moved forward from the online testing to the recruitment stages – the Physical Aptitude Test (PAT), interview and medical assessment.

This will enable us to fill the recruit firefighting roles (around 120) with an equal number of qualified men and women.

Experience from previous campaigns tells us that we could fill all 120 roles with suitable male candidates and we could fill all 120 roles with suitable female candidates. It is only fair therefore to have equity – it provides male and female candidates access to the same opportunity.

Equity is something that fits with our FRNSW Values – no individual should be disadvantaged through sheer weight of numbers or because of a process.

As I have always said, our standards are high and will remain that way for everyone. There is not and there will never be any lowering of standards to become a firefighter. There is no need to do so, as those women who are on the front line are testimony to the fact that both men and women can meet our exacting standards. As an organisation we want only the very best candidates, and as a firefighter I know what it means to want only the very best person on the back of the appliance with you.

We have consulted with the FBEU, who fully support FRNSW’s efforts to bring more women firefighters into fire stations across the State, and the NSW Government is in full support.

The 2016 recruitment campaign will open on 16 May.

FRNSW SHARES IN THE CELEBRATIONS AT MARDI GRAS



Commissioner Mullins at the head of Sydney's White Ribbon March


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fire.nsw.gov.au/frnews
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The FRNSW contingent dance their way along Oxford Street

FIREFIGHTERS SAY NO TO VIOLENCE AGAINST WOMEN

In November 2015, FRNSW again pledged support for White Ribbon Day with firefighters and trades and admin staff taking part in walks and community events across the State.

The annual national domestic violence prevention campaign aims to raise awareness among Australian men and boys about the role they can play to prevent violence against women. In 2015, the campaign pledged to make women's safety a man's issue too – with men encouraged to speak out and take an oath "to never commit, excuse or remain silent about violence against women".

Messages were placed on fire station noticeboards and white ribbons emblazoned on appliances and engine bay doors. FRNSW's support for White Ribbon Day was also strongly felt across social media with banners and posts shared among station pages and on the corporate profile.

In Region North 1, Superintendent David Gray was nominated as a White Ribbon Day ambassador thanks to his commitment to the campaign in previous years. Commissioner Mullins joined the Governor of NSW and the Police Commissioner in leading a march from Randwick to mark White Ribbon Day. **END**

On Saturday 5 March, a FRNSW fire appliance and around 80 firefighters, administration/trades staff and their friends and family fired up a capacity crowd in the 38th Sydney Gay & Lesbian Mardi Gras.

With FRNSW celebrating 11 years in the parade, participants donned turnout pants, brightly coloured FRNSW T-shirts and an array of flashing accessories to dance their way along Oxford Street.

For FRNSW, the 2016 party began at City of Sydney Fire Station where the colourful costumes were created and Commissioner Greg Mullins shared his most memorable Mardi Gras moments with the troops.

Acting Deputy Commissioner Mark Whybro said it was heartening to see so many people wanting to be involved.

"We can speak about diversity and inclusion but the proof is in our people actively embracing it. There can be no greater show of our commitment to acceptance than being part of the highly visible parade down Oxford Street.

"It's an exceptionally fun, larger than life event. We are always very well received by the crowds who have a way of making every participant feel like a celebrity!"

With the parade route along Oxford Street completely full by 8.30pm, each float was cheered by hundreds of thousands of spectators of all ages and backgrounds.

FRNSW was in good company with the Ambulance Service of NSW, NSWSES, NSWRFPS, NSW Police Force, the Australian Army and Navy all taking a united stand for diversity, inclusion and respect in the emergency services and defence forces.

Special thanks go to Program & Events Coordinator, Senior Firefighter Paula Raat, who organised FRNSW's 2016 entry. **END**



Work experience students practise their hose handling skills.

STUDENTS FACE FEARS AND DEVELOP LEADERSHIP IN PILOT WORK EXPERIENCE PROGRAM

A unique pilot work experience program for high school students was hosted late last year at Minmi Fire Station in the Newcastle region.

The program was attended by 10 students from seven high schools in Metro North 1, and was developed and run by Regional Training Officers SO Peter Messenger and SO Bronnie Mackintosh. In line with FRNSW's objectives to promote diversity and inclusion, the group included four females, two indigenous students and one from a non-English speaking background.

The students participated in a range of activities including fire science, search and rescue, urban fire behaviour and suppression, road crash rescue, basic life support, physical training and community engagement activities. They also undertook daily experiential learning

activities and self-awareness exercises aimed at developing personal and team leadership skills. The students were given workbook activities and were required to deliver a safety presentation to the group. Each morning the students had rollcall and physical training using a circuit of activities based on FRNSW's Physical Aptitude Test.

The principles of inclusion were reinforced within the planned activities by recognising interdependence on each other to successfully complete group challenges. SO Messenger presented a leadership session which incorporated personality styles and 'above the line' behaviours that reflect

FRNSW's values. Using social media, SO Mackintosh introduced the students to unconscious bias and the role of language in perpetuating gender and social stereotypes.

On the last day, Women and Firefighting Australasia sponsored the students and instructors in a high ropes adventure course at Blue Gum Hills. In addition to the technically hard black run which five students completed, one student faced his intense fear of heights by completing three of the courses. Encouraged by Inspector Andy Dunkin to "charge fear head-on", the student did an amazing job and was elated with his success. **END**



The new Windsor Station is better located to serve the community



NEW STATIONS, NEW BEGINNINGS

February marked the end of an era as Fairfield Fire Station was wound up after having been home to hundreds of firefighters for 93 years. Also winding up was Windsor Fire Station, which was built in 1915 and had passed its use-by date.

February also saw new beginnings as brand new fire stations were opened at Yennora and at South Windsor to cater for the ever-growing and changing population.

Major renovations were also unveiled at Pymont Fire Station after the heritage-listed station was given a remarkable makeover.

Pymont Fire Station

Harry the ghost made his presence known during construction but did not stop the \$2.748 million renovation of Pymont Fire Station, which was officially unveiled by Commissioner Greg Mullins, Shayne Mallard MLC and Sydney Lord Mayor Clover Moore on 13 February 2016.

A big street party was held to herald the unveiling with many serving and retired firefighters attending. The building, which was built in 1906, is listed on the City of Sydney Local Heritage Register; however the ageing facilities at the fire station were inadequate

and needed a major upgrade to meet standards and to conserve the heritage fabric of the building. The upgrade includes a renovated double engine bay and new kitchen, accommodation, bathrooms, gym and storage facilities.

A further \$2.95 million was spent on heritage conservation on the building, bringing it up to modern standards as well as providing two upper floors of office space areas, which had been disused and closed off for decades.

Windsor Fire Station

The new \$3.1 million Windsor Fire Station on Anderson Place, South Windsor, was opened on 22 February 2016. It replaces the old Windsor Fire Station at the corner of Fitzgerald and Union streets, which had become too cramped and outdated.

Commissioner Mullins told those gathered at the opening that relocating the fire station to South Windsor will deliver even better response times to the local community because the station will be in a more central position. The new location also eliminates the problems faced by firefighters who used to have to reverse the fire appliance from a narrow street into the engine bay.

The new station has a double fire engine bay, operations room and office, as well as meal room, training room, separate male and female amenities, fitness room and storage facilities. It also incorporates rainwater tanks, solar hot water systems and solar panels to help reduce the environmental and carbon footprints of the project.

Yennora Fire Station

The new \$3.3 million Yennora Fire Station replaces the smaller and outdated Fairfield Fire Station. It will improve response times by providing easier access to major roads in the area and eliminating the problems firefighters used to face negotiating heavy traffic in the Fairfield commercial district.

The new two-storey station is much bigger, with a double engine bay, operations room and office, as well as meal room, training room, bathrooms, gym and storage facilities. Like Windsor, Yennora also has rainwater tanks, solar hot water systems and solar panels.

END



The new Yennora Fire Station replaces the smaller outdated Fairfield Station



The heritage-listed Pyrmont Fire Station has received a major makeover



Inspecting the old bell



Minister David Elliott addresses guests at the Willoughby centenary

FIRE STATIONS CELEBRATE 100 YEARS OF SERVICE

The FRNSW calendar has been busy with station centenaries in recent months with no less than five fire stations celebrating this remarkable milestone.

The Museum of Fire, as FRNSW's heritage partner, added to the atmosphere at each of these events by providing historic fire engines.

Singleton

Singleton firefighters and community members joined Commissioner Greg Mullins and Upper Hunter MP Michael Johnsen to celebrate Singleton Fire Station's 100th anniversary on 3 November 2015. A fire brigade was first formed in Singleton in 1886 upon the arrival of a manual fire engine from Rumsey and Co. in New York. In the early days of the brigade, the 20 firefighters had to manually pump the handles of the fire engine to keep water flowing and relied on a continuous stream of water carts to maintain the water supply. Water was not always continuous, however, nor was the pump easy to operate. But the introduction of the town water supply in 1910 and motorised fire trucks greatly improved the brigade's capacity as did the fire station on Pitt St when it was first opened in 1915.

South Grafton

The Member for Clarence, Chris Gulaptis, joined Commissioner Greg Mullins and firefighters to celebrate South Grafton Fire Station's 100th anniversary on 13 November 2015. For the past 100 years, firefighters responded to major incidents from their Wharf St fire station. But the history of South Grafton firefighters started long before that,

with two voluntary brigades as early as 1890 providing protection for each side of the Clarence River. In April 1910 the South Grafton Volunteer Fire Brigade was formed to protect some 1,100 people on the south side of the river. They originally operated from a shed at the river end of Wharf Street, near what was known as Carneys Wharf, but it was not until November 1915 that a fire station was built and officially opened.

Willoughby

Minister for Emergency Services David Elliott, Member for Willoughby and NSW Treasurer Gladys Berejiklian, and Commissioner Greg Mullins gathered to mark Willoughby Fire Station's 100th anniversary on 25 November 2015. Commissioner Mullins, who has himself worked at the station, said firefighters had been protecting Willoughby and the surrounding communities since a volunteer brigade of six was formed in 1905. The brigade's first fire station was a rented cottage in Laurel St and was originally named 'East Willoughby'. By December 1915 land had been purchased on Laurel St and a new fire station built. Willoughby firefighters have responded to all sorts of emergencies, most notable being the devastating Luna Park ghost train fire in 1979, which was the source of much reminiscing during the anniversary celebration.

Glen Innes

Glenn Innes firefighters past and present joined Commissioner Greg Mullins and Northern Tablelands MP Adam Marshall to celebrate the 100th anniversary of the Bourke St Fire Station on 6 February 2016. A volunteer fire brigade was first formed in Glen Innes in 1888 but it wasn't until 1 February 1916 that the brigade moved into the fire station. Over the past 100 years, Glen Innes firefighters have responded to all manner of emergencies. This included a fire on 7 July 1965 at the Glen Eden Boys Home in freezing conditions, where it was so cold that the water used for firefighting formed icicles as it ran off the building!

Windsor

The opening of the new Windsor Fire Station coincided with its centenary on Monday 22 February 2016. Windsor Fire Station was built in 1915 at the corner of Fitzgerald and Union Sts. But the old station was past its use by date and was no longer suitable. The earliest reference to Windsor Fire Station comes from a Sydney Morning Herald article in 1863, describing how the newly formed Windsor Volunteer Brigade turned out for the town with their newly acquired appliance. The first voluntary Brigade was originally housed in a shed on Macquarie Street, rented from JW Chandler, an undertaker and Captain of the Windsor Volunteer Fire Brigade. The old station cost £71 to build and the brigade began operating from it on 1 July 1915. **END**

NEW HEAD OFFICE AND NEW WAYS OF WORKING



Siteworks at 1 Amarina showing progress on construction of the new building



 **VIEW VIDEO AT**
fire.nsw.gov.au/frnews

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The new Head Office building at 1 Amarina Greenacre is rapidly taking shape and will enable staff to work in new ways.

The builders have made great progress and are ahead of schedule with the first floor concrete floor installed at the time of writing (early March). With the progress on the new building, the new headquarters is expected to be ready in early 2017.

The new building will be an open light-filled modern office space, offering staff a new and exciting working environment with open collaborative work spaces. There will be a cafeteria as well as kitchen spaces, a large outdoor area and undercroft car parking. There will also be multiple meeting rooms equipped with the latest technology and catering for different group sizes, breakout areas, quiet spaces, and a range of sit and sit/stand desks. The innovative

design supports a new way of working allowing staff members to work flexibly around the office, choosing the work environment that suits the work they are doing on the day.

Staff will have the technology to support new ways of working – including laptops to provide the mobility to move freely around the building, supporting an organisational move towards activity based working (ABW). ABW provides a choice of settings catering for a variety of workplace activities – spaces are designed to allow for intense focused work, impromptu meetings or group discussions in breakout areas and formal meeting spaces.

Want to learn more about Activity Based working? Visit the 1 Amarina toolkit on the intranet to watch a short video clip or read about other organisations that have implemented an ABW environment. (*Intranet* → *Toolkit* → *Organisation wide* → *Property* → *1 Amarina*).

Over the coming months the project team will be working with staff and managers to prepare for the move – they'll be asking staff for more information to help them prepare as well.

How to keep informed? Join the Head Office Yammer group, visit the 1 Amarina toolkit on the intranet, contact your Ways of Working (WoW) group member or email the project team at 1Amarina@fire.nsw.gov.au. **END**



CRICKET: FRNSW 'GOES IN TO BAT' FOR CANCER RESEARCH

On Sunday 21 February, the 5th annual Emergency Services Mega Bash was held at Gwawley Oval, Taren Point. This inter-agency sporting event raised funds for bowel cancer in order to raise awareness, promote early diagnosis, and assist with further research to develop strategies that will save lives. Bowel cancer affects 1 in

12 Australians and is responsible for around 77 deaths per year.

The Mega Bash is a round robin cricket tournament between teams from police, emergency services and ambulance. On the day, Ambulance and Forensic Imaging (NSW Police) battled it out in the final with Forensic Imaging the eventual tournament winners after a determined effort. FRNSW played well,

securing third spot after beating the NSWRFSS following some friendly rivalry.

Special guest sportspeople in attendance included former Australian cricketers Michael Bevan and Simon Katich, NSW Waratahs players, Cronulla Sharks NRL players and former NRL stars. \$7,500 was raised on the day with proceeds donated to Bowel Cancer Australia. **END**

FRNSW AND NSWSES COMPETE IN MARATHON CRICKET

FRNSW's Cricket XI were invited back to participate in the Primary Club of Australia's T/12 Marathon Cricket event which was held once again at the magnificent Sydney Cricket Ground (SCG) in Moore Park.

The NSW State Emergency Service was challenged to also field a side in the event and take on the FRNSW team who were coming off a fine victory against the Minister's Office in 2015. With SES participation confirmed, the Emergency Service Challenge Cup fixture was locked in for 3 February 2016.

The FRNSW side was full of new faces, however the enjoyment of playing in a cricket match on the hallowed turf of the SCG well outweighed any nerves. When play commenced, FRNSW performed extremely well in both the bowling and fielding departments, scoring 91 runs from their allocated 12 overs. Six dismissals reduced that score to 66. In turn, the SES was restricted to 60 runs from 12 overs, and their score was then reduced to 27 due to the loss of eight wickets.

The Cup was awarded to FRNSW's Cricket XI on this occasion with all players performing admirably. However, the experience and enjoyment of participating in Marathon Cricket was shared by players from both teams. A memorable day on the iconic SCG is one that all players will remember for a very long time! **END**

AUSTRALASIAN POLICE AND EMERGENCY SERVICES GAMES

The next Australasian Police and Emergency Services (APES) Games will be held on the Sunshine Coast (Caloundra-Mooloolaba) from 8-15 October 2016. Eligible competitors are full-time and part-time employees, registered volunteers and retired personnel from eligible agencies in Australia, New Zealand, Papua New Guinea and the Pacific Islands. Information on the games is available on the website www.apandesgames.com.au.

The FRNSW Sports Association is supporting teams to attend these games and has already received interest for the following sports. Rugby League 9s, Rugby Union 7s, Soccer, Bowls, Golf and Swimming. Staff interested in participating in any of these or even other sports that are available should contact the Sports Association so they can be put into contact with the respective club. SportsAssoc@fire.nsw.gov.au.

The Games will be one of the great sporting events coming up on the emergency services sports calendar and FRNSW looks to be well-represented for an outstanding week of sports and fun.

END



In action on the bowling green

ERNSW BOWLS CLUB KEEP 'ON THE BALL'

Records indicate that the Bowls Club originally formed around 1984. SF Jim Bamford, father of current Treasurer Steve, was instrumental in forming the Club to compete at the 1st Australasian Titles at Brighton-Le-Sands in 1984.

Jim organised the Titles as a commemoration of the NSW Fire Brigades' centenary year. He also wanted to gather firefighters from all over Australia to compete at bowls as well as to forge friendships. This has been well and truly achieved with the Australasian Titles still going strong today. The Titles are generally held every 18 months and are hosted by different States, with South Australia hosting this event at Victor Harbour in April.

Over the years a number of Bowls Clubs – Randwick, Wests Leagues, Belfield, Greenacre, Toukley, Warilla, and Soldiers Point for the last six years – have hosted the FRNSW Club Championships. Up to 95 bowlers compete over a week of bowls which features all four disciplines such as singles, pairs, triples and fours. The Club's Committee is always exploring ways to further improve the tournament such as holding the State event in different country centres.

The standard of bowls has been exceptional with a number of the Club's bowlers not only achieving success at the Australasian Fire Services Titles but also at State level in Open competition. The Club has NSW State Representatives playing in its events which reflects the high standard of competition.

The Club's bowlers come from all over the State – from areas such as Wee Waa, Kyogle, Lithgow, Newcastle, Wollongong, Port Macquarie and Coffs Harbour, to name a few. It also has a strong Retained influence. Age is not a barrier: the Club's membership includes four octogenarians from Newcastle who have played the last five years!

Mark McGuire explained the Club's basic philosophy: "Our Bowls Club has an unwritten mission statement, and that is to get involved and enjoy yourself! This seems to be constantly achieved as indicated by our growing membership."

State Titles are held generally in the second week of October every year and are open to all firefighters or their relatives, regardless of whether they have played bowls before or not. No membership is payable, only an entry fee per event. A team of six players are selected after the State Titles to represent the Club in tournaments during the year. A recent addition to the Championships week is a day set aside as a fundraising day for a nominated charity.

Friday Furies is a regular monthly bowls event open to all firefighters. It is held at Toongabbie Bowls Club on the last Friday each month.

Club membership is open to all Permanent and Retained Firefighters, either current or retired, and their relatives. Anyone interested in joining should email mark.mcguire@fire.nsw.gov.au.

■ END



ERNSW RUGBY LEAGUE CLUB TAKES TO THE FIELD

Starting for the 7th year since its re-formation, the FRNSW Rugby League looks to have a great year ahead with plenty of games on offer and opportunity to show its talents as an emergency services team. The club since re-establishing itself, has fielded Opens and Masters teams, and this year is hoping to develop a women's side to play some exhibition games with the other two teams.

The Opens team is available for all interested players with the pinnacle game being played State of Origin style against the Queensland Fire & Rescue Team. In the past two meetings the Maroons have come out victors, but there is quiet confidence that this year the tables may turn. The game is usually played around July and is due to be held in Queensland this year. Leading up the Queensland games the Rugby League side has been asked to play against a touring UK Marine side in April, and will also play its usual assortment of games against the Navy, NSW Correctional Services and the City/Country game. With 9s being the flavour of the month, there are a few tournaments that have invited FRNSW to participate, all leading to a 9s competition in the Australian Police and Emergency Services Games in October. Those interested in being part of the Opens Rugby league team should email russel.menadue@fire.nsw.gov.au.

The Masters team is an over 35s team and caters for all players above that age group. The team plays in a competition about once a month at locations all around the metropolitan area and caters for players. These games are played in the best of spirit with the focus being on enjoying the game and sharing a few stories afterwards. The Masters side has played the lead-up games for the last two NSW v Queensland Firefighters Games, and plans to do so again this year as well as competing at the Australian Police and Emergency Services Games in October should there be a competition available to the side. Those interested in playing in the Masters Rugby League team for FRNSW should email grant.rice@fire.nsw.gov.au. ■ END



Commissioner Mullins, SF Melanie Rebane, Governor Hurley and Captain Mark Moroney

FIREFIGHTERS AWARDED FOR OUTSTANDING SERVICE

In the 2016 Australia Day honours, three FRNSW fire officers were awarded Australian Fire Service Medals for the exceptional levels of service and commitment they had demonstrated over many years.

Chief Superintendent Greg Wild was recognised for his 30 years of outstanding service in various roles included coordinating community fire safety initiatives, managing FRNSW's emergency planning and coordination unit, leading Task Forces to New Zealand in 2011 following the Christchurch earthquake and to Vanuatu in 2015 following Cyclone Pam, and managing emergency response arrangements in his current role of Assistant Director Operational Communications.

Wellington Captain Mark Moroney was recognised for his 30 years of dedicated service in leading emergency response, firefighter training, and fire safety education in the Wellington community, including involvement in establishing FRNSW's Wellington Regional Training Centre where he also works as manager.

Senior Firefighter Melanie Rebane, a firefighter for 13 years, was recognised for her dedication to improving fire safety for at-risk community groups, including seniors and people with disabilities. She has worked closely and collaboratively with other agencies in developing and delivering a number of key education programs to these groups as well as a smoke alarm subsidy scheme for the hearing impaired. **END**

ROSEMARY MILKINS RECOGNISED FOR LEADERSHIP AND REFORM ACHIEVEMENTS



Commissioner Mullins with Rosemary Milkins

FRNSW's Deputy Chief Executive Rosemary Milkins was awarded the Public Service Medal in the Australia Day honours in recognition of her many years of outstanding leadership and reform achievements in various senior public sector roles. Her distinguished career has included senior roles in the education and health portfolios, and major leadership positions at the Department of Premier and Cabinet and currently at FRNSW.

During her 10 years with the NSW Department of Health, Ms Milkins managed the Executive and Corporate Support Division where she led significant improvements to a range of administrative services including IT, payroll, procurement and human resources. As Assistant Director General, Public Sector Workforce, Department of Premier and Cabinet, she provided valuable advice on complex administrative and policy matters to assist various government agencies in transforming their structures and functions in response to changing expectations and fiscal circumstances. Since 2010 Ms Milkins has overseen the corporate functions of FRNSW, successfully leading a program of major organisational reform and change. **END**



Mark Dobson, Deputy Commissioner Jim Smith and Brendan Mott

RISK MANAGEMENT AWARDS RECOGNISE FRNSW ACHIEVEMENTS

In November, FRNSW was recognised in icare’s 2015 Treasury Managed Fund Awards which were established to recognise excellence and leadership in workforce risk management practices within the NSW public sector.

On behalf of FRNSW, Brendan Mott, Manager Health Promotion, accepted the award in the Process Innovation Category for the new FRNSW Physical Aptitude Test (PAT). This project involved comprehensive research into the demands of firefighting and the essential physical tasks involved, followed by simulation of these tasks by subject matter experts leading to development of a new highly validated PAT standard.

Mark Dobson, Wellbeing Coordinator was awarded in the Individual Risk Leadership Category. Over the last seven years, Mark has played a leading role in designing, developing and implementing key practical mental health programs in FRNSW across four main areas – awareness, prevention, response and support. This has included leading the Peer Support Team which facilitates the Critical Incident Support Program for firefighters following exposure to trauma. **END**

CAPTAIN CHRIS KANE NAMED MUSWELLBROOK CITIZEN OF THE YEAR



Captain Kane shows the award he received

392 Muswellbrook Captain Chris Kane was named Muswellbrook Shire 2016 Citizen of the Year at an Australia Day ceremony in Denman. Since joining the NSWFB in 1976, Captain Kane has responded to more than 4,600 calls, all while working full-time and raising a family. He has held his current position as Captain at Muswellbrook for the past 22 years. In addition, he has participated in numerous hours of community fire safety education, represented Muswellbrook at the State Firefighting Championships, won

gold on the international stage when participating in the World Firefighter Games, and been a constant inspiration for younger firefighters coming up through the ranks. **END**

THE PUBLIC SAYS THANKS

Heidi Tamlyn
16 November 2015

My mother was a passenger in a horrific car accident on 6 October 2015 in Carlingford, NSW. Led by Craig Easy, I understand a total of 17 Fire & Rescue team members were onsite with Police and Ambulance officers plus helicopter assistance.

Fire & Rescue were first on the scene and quickly worked to release the two women trapped in a car that had travelled at high speed into a house. It was a complex and highly dangerous rescue... My mother and her friend and driver, Shirley Gant, were in the car for over an hour as the car was cut apart to enable their safe rescue.

While my mother's injuries were extensive, her recovery has been a miracle thanks to the skill, dedication and bravery of the incredible team from Fire & Rescue. Mum survived a broken neck without damage to her spinal cord. She was also able to keep her right arm which had extensive lacerations (80+ stitches in forearm and hand) and breaks (pins and plates in two locations). It is obvious that the crew did absolutely everything right to save Mum's life and maximise her future quality of life.

After her ordeal, there is nothing my mother would enjoy more than to have the team involved in her rescue recognised and thanked for their selfless dedication and bravery which has ensured Mum and Shirley's survival.

R. A. Phillips
21 February 2016

To Culcairn Fire & Rescue

I am writing this letter in appreciation of Culcairn Fire & Rescue for their quick response and expertise in stabilising me after my stroke. Without their help I am sure I would not have survived. I cannot thank them enough for their wonderful care. We are indeed lucky in Culcairn to have them as our first response, such well trained professionals to care for us.



Kerrie Hugo
5 December 2015

Thank you so much to all the guys from Eastwood who came out at 1.30 am to my call of a cockatoo entangled in my hammock on top of the roof. Not only for taking my call seriously but for the quick response and professionalism. I am so relieved the cockatoo is OK. I have no idea how he managed to get himself into that predicament!!!!



Norm Hatch
1 January 2016

I want to thank the day crew at Riverwood Station who came out this afternoon and help get a large dog out of the storm water drain. Poor dog has been caught in there for nearly a week. We took him to RSPCA and they have checked him over and made contact with his owners....Happy New Year



Irina Sushkina
3 January 2016

Thank you to Narrabeen and Crows Nest fire and rescue crew for rescuing my son's foot trapped in his bike. Professional prompt service, wonderful firemen who calmed and rescued.



Diana Dammery
5 January 2016

I want to commend the Willoughby NSW crew on their brilliant service last night. Power went out to our apartment block in Willoughby around 4pm with a few rather loud bangs. The crew were here within minutes to assess the situation and rather than just leave, they stayed for two hours loaning a portable generator to an elderly resident who was on a respirator. And all this in bad weather. Great job everyone. Thank you. Please pass on our thanks to the team



Tanya Pitchforth
12 January 2016

To the team from Mona Vale fire station at a call out tonight in Avalon Dress Circle Road, you went above and beyond- inspiring one star struck three year old along the way- thanks all #hewantstobeafireman

RETIREMENT OF DEPUTY COMMISSIONER JIM SMITH AFSM

Deputy Commissioner Smith retired from FRNSW on 8 April this year. After 36 years of outstanding service, Jim made what was a very difficult decision for him – to leave an organisation that he loves and to which he had dedicated his working life.

Jim achieved a great deal during his career, and worked in many roles. These included many frontline operational roles in very busy stations, Zone and Area Commander positions, Fire Safety Inspector, Officer in Charge of Specialised

Sections including Bushfire/Natural Hazards, and Assistant Commissioner/ Director Community Safety. When Deputy Commissioner John Benson retired, Jim was the successful applicant from an outstanding field. He is highly respected both within and outside FRNSW, for example for the crucial role he played during the 2013 Blue Mountains bushfires. He also acted as Commissioner of the NSWSES for more than a year, providing outstanding principled, people-centred leadership during the most challenging period in its history.

Jim is hugely missed by all, and his departure is a huge loss. However he is now enjoying a well-earned retirement, knowing the legacy he has left the emergency services, the people of NSW, and FRNSW which is a better organisation thanks to his efforts. **END**

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FAREWELL AND THANKS TO THOSE RETIRING

Name	Fire station	Date retired
SF D Schrader	Sydney Comms Centre	11-Sep-15
DCapt G Summers	Inverell	18-Sep-15
RetF D Nunan	Wallerawang	25-Sep-15
DCapt R Felton	Kyogle	30-Sep-15
RetF J Tilse	Scone	30-Sep-15
RetF M Jackson	Delroy	2-Oct-15
Capt G Wheeler	Holbrook	2-Oct-15
QF C Jay	Bulli	2-Oct-15
SF M Silvia	Drummoyne	16-Oct-15
RetF W Sander	Cooma	23-Oct-15
SO R Gowans	Shellharbour	28-Oct-15
SO G Body	Mona Vale	30-Oct-15
SF P Bock	Hamlyn Terrace	31-Oct-15
Capt R Kilo	Henty	31-Oct-15
SF J Meakin	Wollongong	6-Nov-15
SF M Beauchamp	Regentville	6-Nov-15
RetF B Stone	Weston	6-Nov-15
Capt L Johnston	Lithgow	16-Nov-15
Capt S Bowler	Molong	17-Nov-15
SO M Craig	Tamworth	20-Nov-15
RetF J Bereza	Branxton	1-Dec-15
RetF P McGearey	Brunswick Heads	11-Dec-15
RetF C Bennett	Casino	13-Dec-15
QF W Young	Coffs Harbour	16-Dec-15
SF D Whitmore	Newcastle	18-Dec-15
RetF S Symons	Molong	18-Dec-15
SF L Murphy	CFU Program	22-Dec-15
RetF J Bartels-Waller	Holbrook	22-Dec-15
RetF L Eldridge	Crookwell	28-Dec-15
Capt J Powell	Helensburgh	4-Jan-16
RetF N Walsh	Merrylands	8-Jan-16

VALE: WITH GRATITUDE FOR SERVICE TO THE PEOPLE OF NSW

Name	Fire station	Date deceased
Retired DCapt P Searl	Singleton	Nov-15
Retired SO R Lee	Lidcombe	15-Nov-15
Retired Capt N Brooker	Yass	22-Nov-15
Retired Body Shop Team Leader J Rosanella		
Fleet Workshop	Greenacre	30-Nov-15
Retired RetF H Vegchel	Morpeth	Dec-15
Retired RetF G Thompson	Morpeth	Dec-15
Retired DCapt D Callender	Wallsend	Dec-15
Retired SF R Stanborough	Hunter area	2-Dec-15
Retired SO J Nadin		9-Dec-15
Retired SO L Fouracre		10-Dec-15
Retired RetF M Collier	Jerilderie	13-Dec-15
Retired Capt B Kingston	Woy Woy	17-Dec-15
Retired Capt E Chambers	Evans Head	27-Dec-15
RetF W Lowe	Stanmore	29-Dec-15
Retired RetF G Davey	Ballina	30-Dec-15
Retired FF I Graham	Broken Hill	31-Dec-15
Retired RetF E Tinker	Parkes and Glen Innes	Jan-16
Retired FF J Bowers	Drummoyne and Blacktown	1-Jan-16
RetF D Dunn	Walcha	4-Jan-16
Retired FF J Cox	Casino	12-Jan-16
Capt W Lenthall AFSM	Macksville	13-Jan-16
Retired SF T Monkley		28-Jan-16
Retired SO M Mell	C District	31-Jan-16
Retired SF E Fuller	Belmont	Feb-16
Retired RetF P McCleer	old Nelson Bay	2-Feb-16
Retired RetF N Wood	Culcairn	2-Feb-16
Retired RetF H Hollingsworth	Yass	3-Feb-16
Retired SF M Aitken		14-Feb-16
SF M Smith	Mayfield West	18-Feb-16

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