

FIRE & RESCUE NEWS

new name, new era, same commitment

January 2011



FIRE & RESCUE NSW

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Front cover: Launch of the 44m ladder platform at the south pylon of the Sydney Harbour Bridge

Photo: Jan Crombie-Brown

INTRODUCTION



Message from the Minister

The role of the NSW Fire Brigades, and as of 1 January 2011, Fire and Rescue NSW, has evolved considerably over the years. The job of a 21st century firefighter is varied and diverse. Today's firefighters offer expertise in areas ranging from fire investigation, firefighting, rescue, and dealing with hazardous materials incidents to providing advice on prevention and community preparedness. The skills of your workforce are recognised not just in NSW but nationally and internationally.

Firefighters are regarded as one of the most trusted and respected professions in the community. However to meet and maintain these high expectations, we should always look for areas where improvements can be made. To this end, the Director General of the Department of Premier and Cabinet has worked with the Commissioner in overseeing the development and implementation of reform initiatives. This partnership approach has helped to build an even healthier, safer and more effective organisation.

As the Minister responsible for emergency services I am keen to ensure that Fire and Rescue NSW builds on the hard-earned reputation developed over the last century by the NSWFB, and starts a new century of service on a firm footing of positive reforms.

Steve Whan MP

Minister for Emergency Services

The Commissioner writes

Welcome to our new flagship publication, *Fire & Rescue News*, and welcome to our new name – **Fire and Rescue NSW**. On 1 January this year we said goodbye to the name that had served us well for a century – the NSW Fire Brigades, and its predecessor from 1884, the Metropolitan Fire Brigade. It was time to adopt a name that reflects the diversity of our many roles in the community today, spanning prevention and response, and to adopt a more contemporary name that differentiates us from other agencies. It was also a very symbolic move that will help to focus us all on our new vision – a vision that is all about being the best. The best Fire and Rescue service, the best and safest emergency service in which to work and contribute, and as a result, the safest communities in Australia.

In contrast to previous official journals, *Fire & Rescue News* will focus more on information sharing and technical articles, and all members of the service are welcome to contribute.

Our first edition highlights why we have changed our name and look, the reforms we are undertaking, and how we are constantly reviewing and developing better ways to protect, serve and educate the community, with great success.

Maintaining an external service delivery focus is essential to our core business, but there are also times when we must look inwards to ensure that we are just as diligent about reviewing and improving how things are done inside the service, and last year delivered a timely reminder of that need.

In 2011, *Fire & Rescue News* will bring you updates on where we are up to with improving our structures, systems and processes to increase our efficiency and effectiveness, insights into developing our leadership skills, and I'll share my thoughts with you on how we are progressing.

As we start to write a new chapter in our proud history, it is important that we continue to display the same characteristics of commitment, courage



and leadership that we have been renowned for – both at and away from emergency scenes.

This journey is not optional, it is a must, and I'd like to take this opportunity to again thank all of you for contributing to our journey to make Fire and Rescue NSW the best.

Greg Mullins AFSM

Commissioner

FIRE AND RESCUE NSW

New name, new era, same commitment

Late last year our organisation took a significant step and updated the name of the NSW Fire Brigades to more accurately describe the services delivered to the community of NSW in the 21st century. On 1 January 2011, our name was officially changed to **Fire and Rescue NSW**.

This strategic change heralds a new era for our service, whose long history dates back to 1884, and signals a new way of thinking about who we are and where we are going as we move into our second century of service.

We will be focussing more on developing an organisation that is clearly committed to its people, where leadership is nurtured and developed, and where all staff have a mutual respect for each other.

2010 was a challenging year for the service, as we faced a series of criticisms and serious allegations. Responsibly dealing with the issues and dealing with all allegations swiftly was a key priority, and a strong commitment was made at all levels to begin the work of building a better service.

The Building a Better Brigade program, which started last year aimed to develop our workforce through more open and honest communication at all levels of the organisation.

The Respectful Workplace training, which was also rolled out statewide last year, was aimed at giving employees the skills and confidence to raise difficult issues with colleagues or managers, and then resolve them in a productive manner, at a local level wherever possible. Feedback from staff who have attended the training has been extremely positive.

In 2011 we will continue to build on last year's good work, developing safer and healthier workplaces, where all staff feel respected, supported and positive about their work environments,

whether it's at a fire station in Walgett or Darlinghurst, a zone office in Newcastle or the workshop at Greenacre.

To ensure the changes are real and lasting, every Fire and Rescue NSW employee will be required to always recognise and uphold our core organisational values:

- commitment to safety
- honesty and integrity
- respect
- courage and selflessness
- professionalism, and
- teamwork.

Commissioner Greg Mullins has repeatedly said that the vast majority of employees, right through from recruits to the senior management team, demonstrate these values on a daily basis.

"I believe that people who work for Fire and Rescue NSW do so because they are committed to making a contribution to the community, and for the most part consistently demonstrate these values in their work.

"On 1 January 2011, our name was officially changed to **Fire and Rescue NSW**"



Photo: Jan Crombie-Brown

“Establishing and maintaining a positive workplace culture is up to each and every one of us”

“The generosity of our employees in donating to the Burns Unit at the Westmead Children’s Hospital, providing support to colleagues or the thoughtful donation of gifts and food to the Salvation Army last Christmas, all demonstrate to me the selflessness and integrity of our staff,” said Commissioner Mullins.

“We have a strong history of helping the victims of fires and other emergencies with compassion and integrity. As we look to the future, we need to build on these traditional values to ensure we remain one of the community’s most trusted professions.

Establishing and maintaining a positive workplace culture is up to each and every one of us. By developing and using new skills combined with the same dedication and commitment that we have always demonstrated, we can build a service that will be acknowledged as the best.”

For more information about the future direction of Fire and Rescue NSW, visit the intranet.

“Our aim is to build and maintain safer and healthier workplaces and to constantly improve our service delivery”



Photo: Jan Crombie-Brown

Education and training overhauled



▲ Ms Gail Wykes, Director Education and Training

The new Education and Training directorate has embarked on the biggest overhaul of training delivery we have seen in 20 years.

Gail Wykes, a former NSW Education Department senior executive who has worked extensively in all areas of education, heads the new directorate.

In her most recent role as an education director, Ms Wykes oversaw 28 schools in the western Sydney area and led the professional development of 7000 staff in the Western Sydney region.

"I was looking for something else and a new challenge," she said.

"It's really interesting coming from an organisation where you have worked for 30 years to this one which is so different."

"But as I tell my former colleagues, I'm still in education. It's just it's not with schools anymore, it's with Fire and Rescue NSW."

"Adult education is wonderful. A lot of my time has been spent looking at that area and this new role is a great opportunity."

Ms Wykes said the aim of the directorate is to ensure that firefighters, administration and trades staff receive the ongoing training and development they need to be part of a diverse, skilled and adaptable workforce.

"People out there recognise that ongoing education and training is vital for Fire and Rescue NSW to move forward," she said.

"It's been 20 years since this area of the organisation has undergone a fundamental review, so this is a great opportunity to capitalise on best practice and tap into resources that are currently underused.

"It's also about finding out exactly what training we need to do and the best ways to deliver it."

A review in 2010 by consultants Noetic Solutions found the former Learning and Development structure did not optimise NSWFB resources, and recommended the creation of a new Education and Training directorate.

"Once the people are in place we will go through a consultation process with the rest of the staff, perhaps through a survey, to find out what skills and training they want and need to take them into the future," Ms Wykes said.

"Our vision will be based on the training and education issues and needs firefighters and other staff raise during that consultation, as well as our strategic planning around Fire and Rescue NSW's roles and capabilities."

The new directorate will also look at reviewing and realigning training and skills levels with ranks.

"There are vital skills that are taught in firefighters' basic training, but at the moment the means of obtaining additional skills varies," Ms Wykes said.

Ms Wykes said the directorate's aim is to ensure all staff across Fire and Rescue NSW have access to ongoing development and training to maintain and build skills.

"We want to ensure the right educational and training systems and processes to operate successfully in the 21st century"

"We want to ensure the right educational and training systems and processes are in place to deliver what our people and the organisation require to operate successfully in the 21st century," she said.

"The challenges ahead will include people wanting to do things differently to how they have done them in the past and, perhaps in some instances, they will need new skills to do that," she said.

Fire and Rescue NSW will also be seeking to improve leadership and management skills in order to create a more effective organisation that ably meets the many challenges and demands that face modern emergency services.

▼ Computer-based training is part of the new curriculum



Photos: Jan Crombie-Brown

Achieving a more diverse workforce

Photo: Jan Crombie-Brown

“As part of our workplace reform program, I encourage all our staff to learn about and understand the need for greater diversity in our workforce,” said Commissioner Mullins.

“We need to better reflect the communities that we serve so that we can better understand their issues and risks. Our organisation will be so much richer if we become more diverse, and our work for the community will be significantly enhanced.”

Fire and Rescue NSW’s *EEO Management Plan 2010 – 2012* is central to achieving greatest diversity. The Plan will help to facilitate the recruitment, participation and promotion of Equal Employment Opportunity (EEO) groups within the workforce, reflecting the NSW public sector’s commitment to developing a workplace culture that supports employment equity and diversity principles.

The EEO Management Plan is a high-level blueprint with a focus on strategies and performance indicators to enhance the employment and participation of women, Indigenous people and those from diverse cultural and linguistic backgrounds within the workforce. It aligns with the *Corporate Plan* in working towards goals to attract, retain and develop a diverse, skilled and adaptable workforce, and continuing to improve service delivery and develop capabilities to meet community needs.

“Fire and Rescue NSW needs to better reflect the communities that we serve”

Commissioner Mullins commended the plan. “Achieving greater diversity in our workforce has nothing to do with being *trendy* or *politically correct*, it’s about doing the right thing. About ensuring that men and women from all backgrounds and beliefs have just as much opportunity to be a firefighter as I did when I joined. The fact is that they haven’t in the past, and we need to work out why this is, remove any unnecessary barriers, and welcome people into the service.”



▲ L-R: Jason Hardy, Joseph Javillonar and Nicole Davis

“To make this plan work for Fire and Rescue NSW, it needs the active involvement in, and commitment to, the principles of EEO and workplace diversity from all employees,” concluded Commissioner Mullins.

Many of the strategies aimed at developing a more diverse workforce are already under way. A *Diversity Summit* was held at Parliament House in Sydney with 100 permanent and retained firefighters, administration, trades and technical staff. They discussed how to increase the diversity of the workforce, and particularly how to increase the number of women interested in a firefighting career.

Retained Firefighter Sissi Sawyer from Yass Fire Station said the summit was not only very informative but provided many insights as to how Fire and Rescue NSW could further diversify its workforce.

“The Summit was a terrific experience for me as a Retained Firefighter. Not only did I learn more about the operational side of Fire and Rescue NSW but also on how, through personal experience, we can encourage other women to consider a career as a firefighter.”

In July 2010, a Women in Firefighting Conference was held under the theme “Resurgence – Becoming Stronger”. Fire and Rescue NSW co-hosted the conference, with the Victorian Country Fire Authority and Women and Firefighting Australasia Inc. Secretary SF Cathryn Dorahy assisted in organising the event. One hundred and fifteen representatives from fire services around Australia attended.

SF Dorahy described how much the conference benefited those attending. “Personally I gained a lot from the conference delegates and the presenters, learning from their experiences ... this has given me further confidence and belief in my ability to progress and achieve the goals I have set for my career. This sentiment was echoed by many delegates ... all delegates welcomed the opportunity to network with other like-minded women in firefighting.”

Fire and Rescue NSW has developed employment strategies to attract more female applicants. We also appointed an Aboriginal Employment and Development project officer, Lisa Williams, to help develop a comprehensive Indigenous employment strategy.

The *EEO Management Plan* can be found in the Human Resources section of the intranet.

HEALTH & SAFETY

From fat to fit – staff *Waste the Waist!*

Did you know



More than 3.4 million Australians are affected by cardiovascular disease, which claims one life every 10 minutes? The biggest risk factor for this disease is abdominal obesity. More than 54% of Australian adults are either overweight or obese.

At the beginning of 2010, the Health and Fitness team introduced the *Waste the Waist* program, which aims to improve the cardiovascular profile of FRNSW employees and reduce the risk of both on and off-duty cardiac events, injury and illness.

The 12-week program encourages participants to monitor what and how much they eat on a daily basis and to increase the amount of exercise they undertake, with help from the website, which calculates kilojoules consumed compared to kilojoules expended.

More than 700 employees signed up for the first round of the 12-week *Waste the Waist* program. To make it interesting, participants could elect to compete for prizes as individuals, platoons, stations or sections. The winners were chosen based on overall lifestyle improvement, and incorporating sustainable, healthy practices into their daily routine.

Overall, participants collectively lost 1302 kilograms, the equivalent of more than 90 breathing apparatus sets and cylinders in weight, and lost 1435 centimetres off their waists, nearly half a length of hose. On average, those who took part lost 2.7% (or 2.6 kg) of their initial body weight, 2.9 cm from their waist and had an overall reduction in body mass index of 0.8.

F Platoon firefighters from 216 Bathurst were named the State Permanent Firefighter group winners, losing in excess of 30 kg. Retained Firefighter Mandy Law from the Raymond Terrace Brigade was awarded the top individual prize.

In a fantastic effort, Station Officer Peter Willard from 216 Bathurst lost more than 16kg and shed 11 cm from his waistline. He said the program was great for station morale.

“The program not only encouraged us to reach our individual goals but we really became supportive of helping others in the station to achieve their goals. Weight loss is hard at the best of times, but making a commitment and sharing it with your peers really helps you to stay focused and on-track.”

One of the most vital components of the program is the *Waste the Waist* website. It educates participants on how to achieve a negative energy balance (ie when energy used exceeds energy consumed) which is the premise for weight loss.

Participants in the program enter their daily food intake and exercise activities and the website then calculates the kilojoules consumed, and compares this to the kilojoules expended through physical activity. It also provides meal plans, a firefighter’s cookbook and information on how to read and understand food labels.

Analysis from the first competition showed that participants who entered food and exercise information into the website more than five times per week lost, on average, 6.9 cm from their waist compared to less than 1 cm for participants who entered information less than twice per week, for the duration of the program.

Superintendent Tom Cooper was one of the first people to try out the *Waste the Waist* pilot program and said he’s proof that it helps deliver real health benefits.

“The web program is really simple to use, particularly for working out how to manage your calorie intake, something I’d never given much thought to before.

As well as a 4 cm loss from my waist, my clothes fit better and I generally feel much healthier. I have worked hard to keep up the fitness and I am now as fit as I was when I first joined the organisation.”

The second round of the *Waste the Waist* program began on 13 September. For more information about *Waste the Waist*, visit the Health and Safety intranet site, or contact the Health and Fitness Officer for your area.



Photo: Jan Crombie-Brown

Keeping your cool with the Rehab Pod

Fire and Rescue NSW is the first fire agency in Australia to introduce an innovative Rehab Pod.

The Rehab Pod assists firefighters to reduce and avoid the effects of heat stress. There are two units available, at Greenacre, with fleet drivers maintained on an on-call basis to deploy the Pods in the Sydney Basin. Each unit contains an array of equipment including shades and chairs as well as medical and refreshment supplies.

“The Rehab Pod is designed to assist firefighters reduce the effects of heat stress”

Central to the effective operation of the Pod is the Kore Kooler™ rehabilitation chair, which features arms specially designed to hold ambient temperature water to quickly cool down firefighters on the fireground. There are 15 chairs per Pod.

Station Officer Kevin Smith was instrumental in introducing the Kore Kooler™ chair into the organisation following his experience during an international firefighter exchange to Canada, where he learnt firsthand about the chairs, even managing to bring a couple of samples back with him.

“When I was on exchange with the Ottawa Fire Services in 2007, I saw the chairs being deployed and thought they were an excellent idea. They can be used in any situation where there is a need to quickly reduce core body temperatures. The chairs are used in many Canadian and US Fire Departments. They are also used extensively in construction trades, commercial bakeries, the Canadian military and by sports teams looking to maintain performance and protect people from the effects of heat stress,” Kevin said.

“Defence Research and Development Canada, together with the Workplace Safety and Insurance Board Ontario, have undertaken studies

demonstrating that forearm immersion is the most effective way to reduce core body temperatures. The Kore Kooler™ chair offers active cooling, working a bit like the heat exchange unit on a radiator or air conditioner.”

Speaking at a recent information session, Chief Superintendent Gerry Byrne, Assistant Director Operational Logistics said the development of the Rehab Pod was a collaborative effort.

“We established the Rehabilitation Working Group in 2007 to ensure representation across the organisation,” he said.

Kore Kooler helps firefighter cool down ▼



Photo: Jan Crombie-Brown

“The Rehab Pod has been developed as a result of extensive consultation and inter-directorate cooperation. It continues to be refined and developed.”

The Fleet Workshop and Stores personnel were involved in fitting out the interior of the pod. Fleet Transport drivers deliver and collect the Rehab Pod to and from the incident ground. After an incident, the pod is checked and restocked by Logistics Support personnel from Greenacre.

The Rehab Pod was commissioned earlier this year and was deployed effectively at the Liverpool Council Chambers fire on 15 August. Superintendent Paul Bailey who attended the incident said that the new appliance was instrumental in allowing firefighters at the scene to recover quickly.

“The Rehab Pod was crucial to our incident response at the Liverpool Council fire, providing firefighters with a safe place of refuge, away from the fire with the appropriate sustenance, water and a place to cool down and recover.”

◀ Transportable Rehab Pod

Photo: Jan Crombie-Brown



PREVENTION & RECOVERY

Community safety campaigns move into top gear

2010 was an exciting year for community initiatives as we started to take a more sophisticated approach to how we developed and delivered campaigns and resources to help firefighters make their communities safer.

We embarked on a number of successful community fire prevention and education campaigns this year.

Among them were the usual suite of fire safety initiatives: Fire Prevention Week, Brigade Kids Day, Fire Station Open Day, Seniors Fire Safety and the Winter Fire Safety campaign.

On the back of robust research and analysis and with the support of our major community partners, we were able to develop two new important resources – Recovery Kits and the online Home Fire Safety Audit tool.

In 2010, through the Community Engagement and Development Unit (CEDU), we commissioned a research company, TNS, to look into community awareness and attitudes about fire safety in the home. TNS used focus groups, in-depth interviews and a survey of 385 NSW residents.

The research found that many people had become complacent about fire safety practices such as checking smoke alarm batteries and having home escape plans. Most didn't consider themselves and their own household at a high risk of fire. The research also identified alarming practices and attitudes toward fire safety in high-risk groups such as seniors and culturally and linguistically diverse (CALD) communities.

Seniors expressed a greater intent to try to 'put the fire out' during an incident and believed they had plenty of time to evacuate the house. They were also less likely to regularly check their smoke alarms. These research results were reflected in a high number

of elderly fire fatalities last winter.

CALD participants were less likely to have fire safety equipment in their home and were more likely to cook with oils and fats.

Time, effort and cost were all identified as barriers to people adopting fire safety behaviour but of biggest concern was a prevailing attitude that it 'won't happen to me'. Almost all the participants agreed that a fire safety awareness program was needed to jar them out of complacency.

“Research found that many people had become complacent about fire safety practices”

The 2010 Winter Home Fire Safety campaign, devised by the SMART advertising agency, was approved after undergoing a stringent peer review process. The aim of the campaign was to raise public awareness and understanding of fire prevention in the home, especially

among seniors, families with young children, CALD communities and lower socioeconomic groups. Its focus was on how a home fire can take hold in just minutes, but taking simple fire prevention steps takes only seconds.

Simple measures such as turning off the stove when you leave the kitchen, moving heaters away from flammable materials and checking power points weren't overloaded were highlighted, as well as advice on smoke alarms and a practised home evacuation plan, were promoted.

The campaign was launched on 31 May, with the key message 'A lot can happen in 3 minutes'.

CEDU Sponsorship Coordinator Chris Fish said FRNSW's major community partners, McDonald's and insurer GIO, helped provide firefighters with the resources to support the Winter Fire Safety campaign and other initiatives.

"It gives our firefighters the tools to go out and engage with the community in a professional way," he said.

Follow-up research to measure the success of the Winter Fire Safety campaign is under way. The findings from this will be compared to the earlier benchmark results from the TNS study.

"The research will look at how we ran the campaign and whether it got our messages through," Mr Fish said. "We can then use that information to refine what we need to do to strengthen campaigns."

CALD Coordinator David Weir spreads the safety message at Harmony Day ▼



Photo: Jan Crombie-Brown



Fire Prevention Week 2010: 'A lot can happen in 3 minutes'

Capturing the audience's attention is imperative to a successful campaign.

'A lot can happen in 3 minutes' was launched during Fire Prevention Week in May 2010 and was used as the core message throughout the Winter Fire Safety campaign. It was based on CSIRO research that found a house fire can take hold within three minutes.

The concept was put to focus groups for evaluation and discussion prior to the advertising campaign proposal being submitted for peer review. The overall reaction from participants was positive, with many surprised at the short time it takes for a fire to take hold.

They also felt the concept captured people's attention and effectively highlighted that while a house fire took only three minutes to take hold, it took even less time to prevent it.

"I was surprised it took only three minutes, so this was constantly going through my mind," a focus group participant said.

"I kind of know about prevention," said another participant, "but I would prefer to see potential consequences."

All stations were urged to promote the key campaign message - the fire safety precautions and the website www.3minutes.com.au throughout winter.

In the first two and a half months of the campaign the website had more than 8300 page visits.



◀ Top: Firefighter demonstrates use of fire extinguisher and fire safety blanket
Bottom: Fire safety messages for seniors – Stuart Wagstaff and Inspector Kim Simpson

Photos: Jan Crombie-Brown

Home Fire Safety Audit

One of the biggest success stories in community safety in 2010 was the launch of the online Home Fire Safety Audit, developed in partnership with insurer GIO. In the first month, the website received over 6200 visits.

The easy-to-use online audit guides families through various rooms in their homes, such as the kitchen, bedroom, laundry and garage, to identify key fire risks particular to their home and habits.

The website is not only a useful tool for householders, but also for Fire and Rescue NSW. We will be able to use anonymous data from the audit website to identify ongoing fire risks within particular communities which can be targeted in future community awareness campaigns.

Throughout the Winter Fire Safety campaign, members of the public were urged to spend 10 minutes to do the audit. Its launch received widespread coverage on national television, local radio and in newspapers. Local firefighters and CEDU staff also carried out fire safety blitzes at railway stations in the Sydney CBD, Ashfield and Newcastle and Hunter areas.

"Thousands of flyers promoting the new online Home Fire Safety Audit and key winter fire safety messages were distributed to commuters," Mr Fish said. "It was extremely successful. It shows how we can use our resources to carry out an effective community education campaign."

"Fire and Rescue NSW will be able to use anonymous data to identify ongoing fire risks which can be targeted in future community awareness campaigns"

FRNSW Recovery Kit

Helping NSW families and communities by responding to and putting out home fires is rewarding work but it can be difficult for firefighters to leave the scene when people are in distress.

Homeowners face a myriad of pressing issues after a fire, such as what needs to be retrieved or replaced; how to protect their home from weather, theft and vandalism; how to make an insurance claim and who to notify about the fire. All of this needs to be considered at an often traumatic time in their lives.

“FRNSW’s core operating principles are prevention, preparation, response and recovery,” said Acting Superintendent Mick Ollerenshaw, A/Manager of the Community Engagement and Development Unit (CEDU).

“We do the first three of these really well. However we realised there was an opportunity to do more when it came to helping with recovery.”

The Recovery Kit which was launched in 2010 is designed to address this need. This initiative, which addresses prevention as well as recovery, was developed as a direct result of firefighters’ requests for a resource that would provide additional support to fire-affected families after the fire is put out.

The Recovery Kit gives residents who have experienced a household fire something to use as a practical tool to assess their situation and to provide them with information on what to do next. An *After the Fire* brochure provides information to assist fire victims with recovery. A separate tear-off *How to Prevent Fires* information sheet can be distributed to neighbours and other bystanders in order to provide them with fire safety information.

Developed with GIO, the Recovery Kit is the first of its kind for Australian fire services, some of whom are following our lead. Copies of the kit have been distributed to all fire stations to be carried on each appliance.

L-R: Executive Manager GIO Marketing Michael Cook, and Assistant Commissioner Mark Brown, Director Greater Metropolitan Operations ▽



Photo: GIO Media

The New Zealand experience

Fire services around the world constantly face the challenge of finding more novel and innovative ways to engage the community in the promotion of home fire safety. The New Zealand Fire Service (NZFS) recently devised a variety of ‘real estate’ billboards, each advertising a ‘3 Bedroom Death Trap’ for sale.

“Without working smoke alarms, this picturesque home is a family killer,” one sign reads.

The billboards were erected in the front yards of 20 houses belonging to NZFS staff in Auckland and Wellington. They featured external photographs of the specific homes and generic internal shots.

“The interest these signs generated was unbelievable, with many locals and neighbours stopping to read and comment on it,” NZFS Communications Manager Scott Sargentina said.

“While television is still a primary channel for us to advertise in, messaging on buses, billboards, bus shelters, street posters and ‘real estate’ signs outside homes is becoming more and more important. We’ll be using more and more of these outdoor opportunities to continue to ram the messages home.”

“Without working smoke alarms, this picturesque home is a family killer”

A billboard advertisement for a '3 Bedroom Death Trap'. At the top left, a red banner says 'LAST DAYS'. The billboard is divided into several sections: a large photo of a modern house with a pool, a smaller photo of the house from a different angle, and two photos of the interior showing a living room and a bedroom. Below the photos, the text reads: '3 BEDROOM DEATH TRAP', 'Without working smoke alarms, this spacious home is a family killer. Fast asleep in your bed, you'll never notice the deadly, poisonous smoke filling your bedroom, ensuite and lungs. You'll simply die without waking. Unless you have working photoelectric smoke alarms.' At the bottom, there are icons for social media and the NZFS logo with the text 'SMOKE ALARMS SAVE LIVES | fire.org.nz'.

A novel approach to catching community attention ▲

Photo: New Zealand Fire Service

WHAT'S NEW

IT: Delivering tools for firefighters

IT Systems has a long history of working with firefighters and administration staff to provide the most efficient and effective tools to do the job. Among the IT Systems team's initiatives has been the reintroduction of fire station wall maps.

"Wall maps are useful visual tools for firefighters responding to emergencies," said Station Officer Andrew Grimwood.

"They have only recently been able to order updated maps and we are seeing a continuous rise in demand. Maps are available to all directorates and stations, and as our GIS capability is growing daily, more information will be available electronically," he said.

Information on wall maps is not just limited to station boundaries, but can also include hydrants, aerial photography with overlays, and detailed insets of specific areas such as hospitals or universities.

Maps are available to all personnel, directorates and stations. Maps can be ordered on the 'map request form' through the Station Portal Filing Cabinet.



44m ladder platform takes to the road

Specifications:

Max working height:	44m
Max side reach:	26m
Max rescue cage capacity:	500kg (410kg when delivering water)
Weight:	27 tonne
Length:	11m
Width:	2.5m

A new \$1.7 million, 44m ladder platform, allocated to City of Sydney fire station to improve aerial firefighting and high-rise rescue operations in the city is the most technologically advanced in Australia and a welcome addition to the fleet.

Fitted with an additional third extendable boom, it gives firefighters a greater field of operation, both in height and reach. With a reach of up to 14 storeys high and 26m on a horizontal plane, the new appliance is more versatile and provides improved firefighter access for city operations.



Structural firefighting protective clothing consultation

The creation of a new generation of personal protective clothing for structural firefighting is an exciting opportunity for us to adopt the best in design and materials available to ensure that our protective clothing carries us safely into the future.

Changes to the current structural firefighting ensemble relate to the requirements of *AS/NZS 4967:2009 Protective clothing for firefighters - Requirements and test methods for protective clothing used for structural firefighting*.

We're taking a consultative approach to the opportunities that this change can bring about, being sure that we actively listen to different points of view. Operational Logistics is steering the process and a working group was formed to chart the way.

Prototypes are being considered, with the likely new look to feature a 'sand' ensemble. It is hoped that deliveries will commence before June 2011.



Photo: Brett Hamlin

OPERATIONS

Firefighters 'go the whole hog' in combating silo fire at Young piggery

Article by Superintendent Gordon Boath, Manager Operations Research and Analysis, Lessons Learned Centre.

Due to their unique and complex risks, silo fires offer considerable challenges to firefighters. When these risks are combined with the risks involved in managing the welfare of export grade livestock, the challenges are even greater. This was the situation that confronted crews in regional southwest NSW earlier this year.

At 0950 hours on 16 March 2010, the Wollongong Communication Centre received a Triple Zero (000) call from staff at Windridge Piggery reporting a fire in a silo at their property off Moppity Rd, Young. The call was referred to the NSW Rural Fire Service (RFS) as the piggery is located in their area. Because of the risks associated with this type of incident, Wollongong ComCen dispatched 513 Young Rescue Pumper to support the RFS response.

On arrival, firefighters observed light grey/white smoke issuing from a corrugated steel silo 8m high, 5.7m in diameter, and with a storage capacity of 100 tonnes. Further investigation revealed that the silo contained 30 tonnes of triticale, a wheat-rye hybrid grain used for stock feed. It is believed that friction generated by machinery within the silo had ignited the grain the previous day.

The silo was one of a series of 11 silos containing stock feed for the piggery. The silos were all interconnected, creating the risk that a dust explosion in one silo may spread throughout the entire storage network.

The RFS Crew Leaders and 513 Station Commander agreed incident control should be assumed by the NSWFB, due to the capabilities required to manage such an incident. Having taken on the Incident Controller (IC) role, 513 Station Commander A/Captain Donald Smyth introduced

an initial 400m exclusion zone around the site, that required the evacuation of about 30 piggery staff. After applying *Standard Operational Guideline (SOG) 8.2, Bulk Solids Storage Facilities (Silos)*, the exclusion zone was extended to an 800m restricted access zone (RAZ).

The Acting Duty Commander Regional South 3 (A/D CRS3) Inspector Kernin Lambert responded with 480 Wagga Wagga Hazmat, 266 Cootamundra and 232 Boorowa Rescue Pumpers. A second appliance from 513 Young was later deployed as well. Other senior officers from nearby regional areas were dispatched to form a full incident management team (IMT).

The Scientific Adviser, Deputy Manager, Hazmat and Manager Safety were deployed in Fire Air 1 taking laser thermometers and thermal imaging cameras with them.

On arrival A/D CRS3 was briefed by 513 Station Commander. A defensive strategy had been adopted with hoselines charged ready to protect exposures in case of a sudden fire extension. Power and gas had been temporarily isolated from the site.

After a comprehensive size-up, A/D CRS3 assumed the role of IC. An incident control point was set up at the piggery office and a forward control point established within the RAZ but with the protection of substantial cover.

As the affected silo was of conventional design and hence freely venting, the IC was confident there was no risk of backdraught. This meant the major risk to be addressed was the possibility of a dust explosion. To manage this, an incident action plan (IAP) was developed which involved gently applying water through open ends to flood the silo. The intention was to avoid disturbing the grain and ensuring dust clouds were not created.

Intensive consultation with site management revealed the need to manage the safety and welfare of 20,000 export grade pigs, housed in structures within the RAZ. The assistance of the Livestock Health and Pest Authorities was sought on this task.



Members of Incident Management Team consulting incident data services

Photo: Kernin Lambert

Logistical limitations dictated a shelter-in-place strategy for the livestock and the IAP was amended to include the safe management of the pigs' immediate and long-term needs. This was achieved through close cooperation between piggery management, the Livestock Health and Pest Authorities representative and the IMT.

Zone Commander Regional South 3 (ZCRS3) Superintendent Col Holmes arrived at 1337 hours to assume incident control from A/DCRS3 who then managed Operations. Shortly after, Fire Air 1 landed and a program of thermal monitoring was introduced to check for abnormal heating in any of the silos. This revealed a deep-seated smouldering fire burning within the triticale silo.

The silo's capacity limited the amount of water which could be applied to around 70,000 litres, which meant pump operations needed to be monitored accordingly. Open-ended hoselines were positioned at the top of the silo and water was supplied through a relay of RFS tankers. As the nearest reticulated supply was over 500m away, a Young Shire Council bulk water tanker sustained the relay.

Superintendent Paul Bailey as the appointed Safety Officer, applied a dynamic risk assessment (DRA) to the IAP. The DRA included designing a safety system as a treatment option for firefighters working at height to position the hoselines. This system was implemented and monitored by rescue operators. Based on the DRA, essential personnel entering the RAZ received a safety induction and briefing from the Safety Officer. This included piggery workers looking after the pigs.

Firefighters had to operate in an environment contaminated by rotting material and infested by flies and maggots. Strict hygiene controls were therefore an essential element of the DRA, underpinning the careful selection of a suitable rehabilitation area.

Shortly after 1500 hours, Area Commander Regional West (ACRW) Chief Superintendent Neil Harris replaced ZCRS3 as IC, with Superintendent Holmes assuming the planning function. Duty Commander

South 2 (DCS2) Inspector Graham Jarrett also attended, managing the logistics cell as well as liaising with the media.

The IAP remained in place until well into the evening when crews were changed over. By this time the cooling operation had been partly successful. The effectiveness of the cooling activities was assessed by 266 Cootamundra Captain Les Carr, whose experience from a 2007 silo fire assisted in positioning hoselines to greatest advantage.

Firefighters from 456 Temora continued the cooling process throughout the night. When the IMT returned early the next day, observations confirmed no discernible fire activity, a conclusion supported by thermal monitoring. However, atmospheric monitoring with a gas detector found high concentrations of carbon monoxide around the top of the silo, which was attributed to fermentation caused by moisture affecting the grain. Fire protection was consequently maintained and all possible sources of ignition eliminated.

To address this risk, the IAP was revised to incorporate a hazmat operation which included careful removal of contaminated grain from the affected silo. The purpose of this was to aid ventilation and allow the

gases inside to naturally dissipate. This operation continued until 0819 hours when the site was considered safe enough to hand back to piggery management and a 'stop' message was sent by ACRW.

Chief Superintendent Harris was extremely pleased by the commitment shown by the firefighters and supporting personnel.

"This was a protracted incident which presented many risks in a most uncomfortable environment. I was particularly impressed by the resolve of the crews to efficiently undertake the essential tasks and see them through to a successful conclusion", he said.

Piggery management also praised the firefighting effort. The owners of the business were very pleased that the impact on their business continuity was minimal.

The silo fire at Windridge Piggery highlighted the fact that SOGs do not plan for every contingency. Sound emergency management is very much dependent on the problem solving, lateral thinking and coordination skills of IMTs to address the arising issues, which in this case were considerable. The fact the fire was successfully managed without injury to personnel or livestock can be attributed to such skills.

Photo: Kernin Lambert

Fire crew stands by with protection lines ▼



St Marys 6th Alarm fire creates multiple challenges for fire crews

Article by Superintendent Gordon Boath, Manager Operations Research and Analysis, Lessons Learned Centre.

Rapid response of NSWFB fire crews based in Sydney's west saved a warehouse full of valuable antiques from a fire which destroyed a furniture factory and an LPG cylinder filling facility. Other significant assets were also saved.

At 0310 hours on 20 March 2010, the Sydney Communication Centre received the first of 40 Triple Zero (000) calls, initially reporting gas cylinders alight in Dunheved Circuit, St Marys. Stations 78 Dunheved and 77 St Marys were originally responded. It quickly became apparent to the responding crews that a fire of major proportions was awaiting them as flames extended high into the sky in the distance. This prompted 78 Dunheved Station Commander to upgrade the response to a 2nd Alarm while still en route.

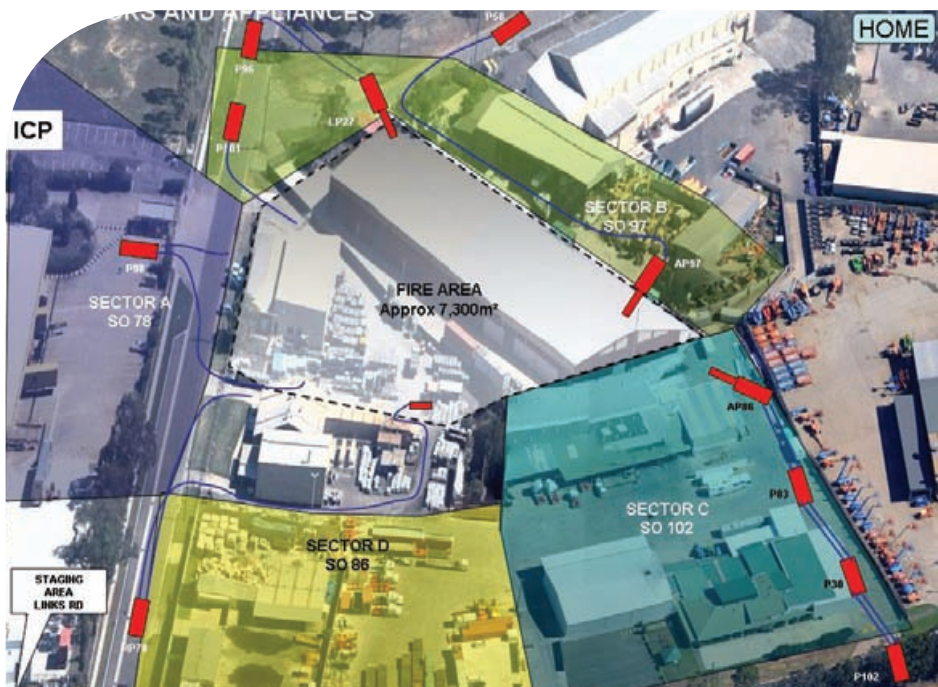
Sydney ComCen subsequently responded 78 Dunheved tanker, 86 Penrith aerial pumper, 98 Cranebrook pumper, 102 Regentville pumper and 27 Parramatta ladder platform.

The Dunheved crew were on scene within eight minutes. They were confronted with an LPG cylinder filling factory totally involved in fire and generating immense radiant heat, preventing firefighters from approaching closer than 100m. Communications on the fireground were hampered by the deafening noise of pressure relief valves operating on many of the 2000 9kg LPG cylinders stored at the site, as well as numerous boiling liquid expanding vapour explosions (BLEVEs) occurring within the site.

At 0318 hours, 78 Dunheved Station Commander as the initial Incident Controller (IC) again upgraded the response, to a 3rd Alarm. While he confirmed the filling station was fully involved, he could not ascertain what exposures were at risk from the tremendous heat due to the dangers of approaching the filling station. As Sydney ComCen dispatched pumpers from 96 Schofields and 83 Riverstone together with 63 Blacktown Rescue and 77 St Marys Hazmat, the IC began tasking resources on the incident ground to protect other assets at risk.

Ground monitors were positioned to protect a 30-tonne bulk LPG tank and a transport company warehouse located in sector C. In order to establish protective water curtains between the fire and identified exposures, ground monitors and aerial appliances were deployed. The first arriving Senior Officer on the incident ground was Duty Commander West (DCW) Inspector Glenn Launt, who assumed control from 78 Dunheved Station Commander. At this stage, fire activity within the LPG facility had diminished sufficiently to allow a more comprehensive size-up and establishment of an Incident Action Plan (IAP). It quickly became apparent that the fire involved many structures and vehicles over an area of 100m x

Sectored incident ground. Sectoring overlay: Glenn Launt ▼



▲ Aerial view of incident ground

100m, including a large furniture warehouse in sector B. The warehouse was of mixed construction comprising a lightweight metal structure adjoining a newer tilt-slab section. As the building was observed to be fully involved and its structural integrity had been severely compromised, defensive firefighting tactics were employed to protect nearby assets.

To resource the IAP, the IC upgraded the incident to 6th Alarm status, bringing the response of another five pumpers and an aerial appliance. The additional resources deployed were 32 Mt Druitt, 97 Huntingwood, 30 Lidcombe, 73 Fairfield and 101 Bonnyrigg Heights. The escalation also prompted a full Incident Management Team (IMT) response from IMT Charlie. The Incident Control Vehicle based at Sydney ComCen in Alexandria was responded to the incident and positioned at the Incident Control Point (ICP) in a carpark opposite sector A, allowing a 180° view of the incident.

“Fire crews were confronted by a substantial fire loading, which included acetylene cylinders and tyres”

Assets within and surrounding the incident were identified as smaller warehouses, shipping containers and earthmoving equipment in sector B; 1 x 30-tonne and 3 x 7.5-tonne bulk LPG tanks and transport company warehouse in sector C; and a shed containing 2000 litres of water-based

paints in sector D. Due to the risks associated with the bulk LPG containers, a restricted access zone (RAZ) of one kilometre was secured with the assistance of the NSW Police Force. All but essential personnel were removed from the RAZ, which was enforced until 1042 hours the following day when it was reduced to 500m. Fire Air 1 was deployed in the morning to provide an overview of the extensive fireground.

Fire crews operating in sector C were confronted by a substantial fire loading, which included acetylene cylinders and tyres. Assisted by transport company workers, they moved this material to a safe location so it was no longer an exposure risk.

The major risks remained in sector C where the transport business and bulk LPG tanks were under threat. To protect the warehouse, an aerial appliance and ground monitors were positioned at the junction of sectors B and C. To cool the LPG tanks, ground monitors were deployed to avoid having to position firefighters in this dangerous situation. Aerial appliances and monitors were also positioned in sector B to provide a water curtain between the fully involved furniture warehouse and the structures behind it. The earthmoving equipment and shipping containers were also similarly protected.

In most sectors water supplies were adequate. However, hydrants for the purposes of supplying pumping appliances in sector B were sealed over and a closed relay was required to ensure ample water for firefighting. Once the fire within the LPG business was sufficiently subdued, an effort was made to use the ring main installed in the premises. Unfortunately the heat generated by the fire had caused the plastic blank caps to fuse to the pillar hydrants, rendering them inoperable.

Hazmat technicians set up remote atmospheric monitoring equipment in all sectors to detect the presence of flammable vapours. They also used more portable equipment to monitor drains and low-lying areas to detect if LPG was present. To minimise the environmental impact, fire runoff was monitored as an integral part of the hazmat operation.

IMT Charlie leader, Acting Assistant Commissioner Steve Pearce, assumed the IC role from Inspector Launt who subsequently became Operations Officer. A/AC Pearce also appointed Planning, Safety and Logistics officers to manage these essential functions during the incident. The full IMT also included 86 Station Commander as sector A Commander, 97 Station Commander as sector B Commander, 102 Station Commander as sector C Commander and 78 Station Commander as sector D Commander. Commissioner Mullins also attended, but left incident control with A/AC Pearce.

To support operations, Incident Crew Management System level 2 was implemented and a rehabilitation sector established. This included deploying the rehabilitation vehicle which was joined by a crew of Ambulance paramedics who monitored firefighters' health.

At about 0800 hours the fire was sufficiently subdued to relax some of the control measures. By this time the fire had destroyed six structures, including the furniture warehouse; and six trucks; five of which were loaded with up to three tonnes of LPG cylinders. However, all other exposures had been saved.

The LPG business contained around 2000 9kg cylinders, over half of which were affected by the fire, and with many showing signs of BLEVE. The Operational Safety Coordinator observed that the new lightweight LPG cylinders, which consist of a steel liner with a fibre wrap and polyethylene shell, tended to BLEVE earlier than the conventional all-steel cylinders.

This was a transitional stage in the operation as the firefighting effort was scaled down and the hazmat function began in earnest.

With the assistance of industry experts, the IMT revised the IAP to promote LPG containment as a priority. An essential activity of the plan was the righting and inspection of the numerous cylinders that remained intact but were lying on their sides. These cylinders presented the risk of hydrostatic block whereby the liquid within the cylinder blocks the valve assembly and subsequently prevents vapours from escaping when under pressure.

Hydrostatic block refers to the condition created within an LPG cylinder when the liquid level in the cylinder is above the pressure relief valve. In this situation, if the valve operates it will expel liquid instead of vapour. The liquid will then vapourise in the atmosphere to expand in volume by 270 times, thereby creating a huge, highly flammable vapour cloud. The pressure relief valve must always be in communication with the vapour (ullage) space.

After the shift changeover, the relief crews focused on the hazmat risks. The crews received a thorough safety induction and briefing as part of the Dynamic Risk Assessment conducted by the Operational Safety Coordinator. Rendering the site safe and carrying out the salvage and overhaul functions dominated activities well into the next day and involved several shift changeovers.

The 'stop' message was finally sent at 0932 hours on Sunday 21 March. However, firefighting and hazmat activities continued until after 1600 hours that afternoon.

This was a very challenging fire to contain as the radiant heat generated by the burning LPG created a considerable exposure risk. Firefighters were required to work in a hostile environment involving the extreme heat, exploding LPG cylinders and the intimidating sound of numerous screeching pressure relief valves. Undaunted by this, the fire crews put an effective defensive strategy in place and resolved to successfully protect the exposures. Crews also worked tirelessly over the 30 hours to render the site safe.

Commissioner Mullins acknowledged the efforts of the crews involved. "The fact that no more damage was sustained subsequent to the expert intervention of the firefighters is testimony to their skills and courage," he said. "Their efforts, apart from anything else, saved over a million dollars worth of antique furniture and most importantly, no injuries were sustained in the process."

PROJECTS & ISSUES

Fire fatalities: Recognising suicide by fire

Article by Senior Firefighter Justin Potter, who joined the NSWFB in 1993 and is currently stationed at Eastwood. His interest in the forensic discipline of fire investigation motivated him to complete a Masters Degree in Fire Investigation through Charles Sturt University. As part of his studies, he examined the act of self-immolation. His research on 'Suicide by Fire' culminated in a 21,000 word thesis, of which this article is a brief overview. A more detailed article is located on the Fire and Investigation Research Unit intranet site.

Introduction

When confronted with a fire fatality, investigators strive to determine if the manner of death was natural, accidental, homicidal or suicidal. The use of fire to commit suicide however, is quite uncommon in Australia. As such, this study was undertaken with the objective of identifying and describing characteristics of suicide by fire deaths in Sydney, Australia.

Method

A retrospective study of records generated by the NSWFB, the NSW Police Force and the NSW State Coroner was undertaken. These records were examined for investigative reports of fire fatalities that had occurred in Sydney from 2001 through 2005. During the five-year period that this research focused on, 24 cases of suicide by fire were identified that fell within the constraints of this study. These 24 cases were examined for characteristics that related to the circumstances preceding the death, evidence gathered at the scene and post-mortem results. A review of the literature on suicide by fire was also undertaken to ascertain current knowledge on this topic and compare this knowledge with the research findings.

Note: Some people may find this article confronting. Fire and Rescue NSW offers a range of support services to its staff through its Employee Assistance Program (EAP). These include both external (ring PPC Worldwide on 1300 361 008 or email Email@assist) and internal services (contact the Manager, EAP on 0428 405 427).

“A retrospective study of records, examined for investigative reports of fire fatalities that occurred in Sydney from 2001 through 2005”

Results

This study showed a clear male predominance in suicide by fire deaths, with the ages of the deceased ranging from 20 to 83 years old. A history of some form of mental illness appeared to be a common theme among the study population. Prior attempts at suicide were reported in five cases; however, only one of these cases involved an attempted suicide with fire. A further three people had a history of threatening suicide or self harm, but none had carried through with their threats.

The scene of suicide was usually familiar to the deceased. This scene was most often the deceased's residence or its vicinity. In more than half of these cases, the victim was not the sole occupant of the building at the time of the fire. In two of these cases, other people were asleep in the residence at the time; and in one of these instances, the deceased's de facto partner and children had to be rescued from the burning building. The next most common place was outside, in the backyard area of a residential dwelling, where six people ignited themselves. Four people were in cars and one person in a public park.

The body of the victim was found by family members or witnesses in 13 of the cases. In many of these instances, the victim was extinguished and/or moved before the arrival of emergency service personnel. Fire suppression activities included hosing the victim with a garden hose/hose reel, placing them in the shower, throwing a blanket/towel over them or rolling them on the grass. Firefighters discovered four of the deceased during firefighting operations.

The total percentage of body surface area burnt as a result of the self-incineration ranged from 47% up to 100%. In most cases, the medical cause of death was due to burn injuries. However, in seven cases the consequences of smoke inhalation were listed as contributing to the deaths.

Carboxyhaemoglobin levels were reported in 15 cases. This level ranged from a minimum of 2% to a maximum of 70%. Lower levels (2% to 4%) were found in people who did not use petrol as the accelerant and were extinguished soon after ignition. The next lowest levels (7% - 9%) were found in people who undertook their act outdoors. Medium to high levels (18% to 31%) were generally found in people who self-incinerated indoors. The highest levels (30% to 70%) were found in those who undertook their act in a car.

Conclusion

The aim of this study was to identify and describe characteristics of suicide by fire fatalities in Sydney. Through undertaking this research, our knowledge of these deaths can be advanced. Equipped with this knowledge, investigators can be better prepared to face their next equivocal fire fatality. By maintaining an understanding of advances in the field of fire investigation, uncommon methods of death such as suicide by fire will not go unnoticed.

“Through undertaking this research our knowledge can be advanced; investigators can be better prepared to face their next equivocal fire fatality”

Photo: Jan Crombie-Brown



Major hazard facilities and the role of Fire and Rescue NSW

Article by Inspector Peter Nugent who joined the NSWFB in 1996. Peter was a relieving Station Officer in Metro West 1 prior to transferring to the Structural Fire Safety Unit (SFSU) where he was relieving as Acting Manager. His substantive role is Team Leader of the Alternative Solutions team, which assesses engineered solutions to satisfy the performance requirements of the Building Code of Australia.



Photo: Keith King

Application of foam onto a transformer fire ▲

In the wake of disasters such as the Longford Gas Plant incident in Victoria in 1998, the NSW Government decided to introduce legislation in line with the *National Code of Practice for Major Hazard Facilities* (MHFs). MHFs are locations such as oil refineries, chemical plants and large fuel and chemical storage sites where large quantities of hazardous materials are stored, handled or processed. The MHF legislation has been gazetted and forms part of the *Occupational Health and Safety Regulation 2001*.

Fire and Rescue NSW, as the combat agency for fires in fire districts and land-based hazardous materials incidents for the entire State, became involved in the MHF profiling program in 2002 as part of a multi-agency group including Planning NSW (now the Department of Planning), WorkCover NSW, the EPA (now the Department of Environment, Climate Change and Water) and the NSW Police Force.

The profiling program was voluntary, with existing MHF sites allowing the multi-agency team to inspect the site and provide comments/recommendations about a range of elements that would be covered by the legislation. The elements assessed during the profiling inspections were fire safety, emergency planning and consultation with local emergency services. The members of the team carried out a thorough inspection of the premises and then provided a face-to-face debrief with the site management and made recommendations in relation to any shortcomings that were observed.

A large number of MHF profiles were conducted prior to the conclusion of the program. Duties at SFSU included representing the agency on the MHF Consultative Committee chaired by WorkCover. The committee finalised the wording of the draft regulation prior to gazetting and prepared numerous guidance notes for industry to cater for the staged implementation of the requirements of the regulation.

The committee also liaised with each agency to develop a fulltime MHF team with members of each agency on secondment to WorkCover for a two-year period. Station Officer Greg Symonds was the NSWFB's first MHF Officer, paving the way for later secondee Station Officer Stuart Harvey.

In addition to the MHF legislation, other legislative changes affecting us was the repeal of the *Dangerous Goods Act 1975* and Regulation in 2005. The legislation governing the handling and use of dangerous goods now falls under the ambit of the *Occupational Health and Safety Act 2000* and associated Regulation, with the exception of explosives which fall under the *Explosives Act 2003* and associated Regulation.

The main challenge for us is the requirement under these regulations to review and comment on emergency plans. All dangerous goods sites with 'manifest' quantities (a minimum threshold quantity prescribed by the regulation) of dangerous goods and explosives sites must prepare a draft emergency plan and submit it to us for review and comment. The regulations require the applicants to implement Fire and Rescue NSW recommendations.

The task of reviewing the draft emergency plans was given to the Special Infrastructure team in SFSU. The then Team Leader, Station Officer Mark Castelli, developed our *Guidelines for Emergency Plans at Facilities* having notifiable quantities of Dangerous Goods, using the *Hazardous Industry Planning Advisory Paper (HIPAP) No. 1: Industry Emergency Planning Guidelines* as a reference.

The Special Infrastructure team reviewed and provided recommendations for inclusion into several industry guidance papers including the latest versions of *HIPAP No. 1 and HIPAP No. 2: Fire Safety Study Guidelines*, to ensure that issues affecting our prevention and response roles were adequately addressed. The Fire Safety Officers in the team reviewed the Preliminary and Final Hazard Analyses and Fire Safety Studies prepared for proposed hazardous industrial developments as required by either Ministerial Conditions of Consent or *State Environmental Planning Policy 33*.

In order to make emergency plans more relevant to responding crews and to cater for the pending MHF legislation a number of proposals for a revised emergency plan guideline were presented to the 2008 Annual Conference of the Australian Institute of Dangerous Goods Consultants, which was well received. Fire and Rescue NSW's emergency plan guideline was revised and renamed *Guidelines for Emergency Plans at sites having Dangerous Goods, Explosives and Major Hazard Facilities*.

As both the Dangerous Goods and MHF clauses in the *Occupational Health and Safety Regulation 2001* require facilities to implement our requirements for their emergency plans, the intent was to have a clear, easy-to-follow guideline that would allow industry to prepare draft emergency plans in the first instance.

As part of the revision process, input was requested from Hazmat, WorkCover, NSW Department of Planning and the NSW State Emergency Management Committee to ensure our guideline would align with their requirements and publications.



Photo: Jan Crombie-Brown

Port Kembla fire ▲

“The Special Infrastructure team reviewed and provided recommendations for inclusion into several industry guidance papers”

An *Emergency Services Information Package (ESIP)* was also proposed. The ESIP would be a laminated removable insert at the front of the emergency plan that first arriving crews could use

to quickly determine the main risks and firefighting/hazmat resources available on site. This information would be used to start combat operations and make sure the incident didn't escalate prior to accessing the main body of the emergency plan to bring the incident through to termination.

Through negotiation with the WorkCover Dangerous Goods team, it was ensured that a correctly formatted ESIP would satisfy the requirements under the OHS Regulation for a 'manifest', to save duplication of documents provided at a site.

Previously, the majority of emergency planning guidance documents available were mainly aimed at developing plans for use by onsite staff. Inclusion of the ESIP in Dangerous Goods, Explosives and MHF emergency plans has resulted in a holistic approach to emergency management. These emergency plans should be reviewed and tested in combined exercises with Fire and Rescue NSW on a regular basis, rather than just becoming another static document.

Following the recent introduction of electronic records management, the SFSU aims to have all emergency plans remotely accessible by Duty Commanders and Station Officers, although hard copies should be available on site.

Fire boats protecting Vancouver and Seattle Ports

The following is an extract from Leading Firefighter Shane Austin's research project while on an International Firefighter Exchange Program with the District of North Vancouver Fire and Rescue Services (DNVFRS). This exchange occurred over a 10-month period from April 2008 through to February 2009.

With over 20 years of commercial maritime experience (his current qualifications are Marine Master Class 5 and Marine Engine Driver 3) LF Austin's research project was the fire boat operations in the City of Vancouver. The purpose of this research was to obtain information which could be used for a fast response firefighting vessel (FRFV) program. During his time overseas, LF Austin also spent time with Seattle Fire Department's Marine Division.

Vancouver

The District of North Vancouver is situated on the north shore of Vancouver Harbour, extending from the Capilano River to Indian Arm. DNVFRS was established in 1954 and protects and serves a community of around 85,000 residents. DNVFRS has five pumpers, a tower, a support vehicle, a rescue vehicle, a command vehicle, a hazmat unit and a fire boat; and it employs 143 career firefighters (126 allocated to suppression and 17 to support).

The Port of Vancouver is the fourth largest North American port for commercial shipping, transporting more than 130 million tonnes of cargo per year in around 2800 ship movements. It is home to one of the largest sulphur transport sites in the world and is also a major terminal for Alaskan cruise ships with around 254 ship movements carrying 850,000 passengers annually. In addition to the port's maritime operations, there is also a busy seaplane facility and heliport which services the vast island network off the British Columbia coast. These facilities provide another potential emergency response for the local fire services.

To protect this maritime industry the city has set up a joint venture known as the Fire Boat Consortium. This consists of five identical vessels operated by the fire services which border the Port of Vancouver waterfront.

Fire Boat 4 is one of these vessels. It is operated by the DNVFRS and crewed by members of 2 Hall that respond to the dock whenever the boat is called into action. The boat is 12.2m, weighs 13.5t, and has twin Detroit Diesel engines

“The purpose of the research was to gain information that could be used for a fast response firefighting vessel program”

producing around 450bhp each which allows the boat to reach speeds of up to 32 knots. These engines are coupled to a pair of Hamilton 291 water jets which make this boat extremely manoeuvrable. The 2 Waterous CXK pumps on the boat are each capable of pumping 5680 L/min and are coupled to the main engines.

Seattle

The City of Seattle is home to the third largest port in the United States, with a huge volume of vessel activity, including:

- 5000 deep draft ship transits per year
- 57 billion litres of oil moved
- 200 cruise ship movements carrying around 835,000 passengers, and
- 1.3 million recreational boaters.

The history of marine firefighting in this city dates back to June 1889 when a major fire started and spread quickly along the entire Seattle waterfront. Twenty-nine square blocks and all but four of the city's wharfs were destroyed. Soon after that, the city purchased its first fire boat. The Seattle Fire Department has a dedicated specialist unit known as the Marine Emergency Response Team (MERT) who operate a small fleet of four fire boats:

Photo: Seamus Murray

The 32-metre Chief Seattle pumps 28,000 L/min ▼



New tool to guide resource allocation

- the soon-to-be-retired 37m Alki has been in service since 1927
- the 32m Chief Seattle was built in 1984 and has a pumping capacity of approximately 28,000 L/min
- the recently built fast attack vessel Fire1 is capable of over 30 knots, is powered by twin water jets, and can pump around 25,000 L/min, and
- the newest addition, the 35m Leschi, is a state-of-the-art fire boat. It weighs 295t and has a top speed of 15 knots. Propulsion is by twin screws driven by a pair of MTU diesels delivering 1550hp each. A second pair of near-identical engines rated at 1440hp each are connected to the main fire pumps and have a capacity of around 19,000 L/min each. With another two pumps connected to the main propulsion engines, this fireboat has an impressive pumping capacity of 75,500 L/min!

The information above is contained in the reports: *International Maritime Firefighting Operations*, *International Firefighter Exchange* and the DVD documentary *Fireboats* which are available from Fire and Rescue NSW's Library.

“We have a successful working relationship with the Sydney Ports Corporation”

Fire and Rescue NSW

We have a successful working relationship with the Sydney Ports Corporation. We use Sydney Ports' two firefighting vessels, Shirley Smith (Port Sydney) and *Ted Noffs* (Port Botany), to combat marine vessel fires on Sydney Harbour and the surrounding waters, with our fast attack fire boat, *Marine 1*, providing assistance.

Article by Mr Shane Kempnich, Senior Planning Officer and Station Officer Jeff Macpherson, Operations Research Planning and Support Officer in the Operations Research and Analysis Unit. Shane initially joined the NSWFB on secondment in 2005, securing a permanent position in 2007. He has an honours degree in Regional and Town Planning, and an Advanced Diploma in Property (Valuation). Jeff joined the NSWFB in 1980, serving in numerous operational positions as a firefighter and Station Officer, until he joined the Operations Research Unit in 2007 which was incorporated into the Lessons Learned Centre in 2008. These two positions work together on strategic resource planning and service delivery issues.



Photo: Jan Crombie-Brown

Fire and Rescue NSW has developed a systematic and comprehensive new tool for planning the allocation of frontline resources across the State, called the Resource Allocation Methodology (RAM). This tool is comprised of modules to assist with decisions related to two main elements:

- **Static Resources** (ie fire station locations): by applying a planned response time and isochrone analysis, the area which can be covered by a fire station in a given time is modelled. This identifies the ideal location of new fire stations to give an efficient and effective coverage
- **Dynamic resources** (ie fire station staff and appliances): by using a comparative Resource Index and other quantitative and qualitative elements, the need for new or enhanced station-based resources can be identified and prioritised.

“The RAM provides the means to quantify the level of resource needed to address the key service demands in an area, not just for response functions but also for prevention, mitigation, education, recovery and other activities which assist in delivering Fire and Rescue NSW's services and meeting our objectives,” says Chief Superintendent Greg Adams, Assistant Director Lessons Learned Centre.

Following a 1989 government review, we established a research project to develop a more systematic approach to allocation of frontline resources. The first element to be developed and approved by government was known as the Standards of Fire Cover (SOFC). This incorporated the outcomes of research conducted in Australia and overseas to provide a solution to locating fire stations.

Another key element was the Hazard Categorisation (HazCat) Project. It focused on assessments of structural fire hazard; and when combined with the population and call rates of a given area, was used to define crew and vehicle configurations for fire stations.

Ongoing research and development of these projects was carried out by the then Operations Research Unit, under former managers, Superintendent Stan Hearne (later Chief Officer), Superintendent Ken Thompson (later to become Deputy Commissioner), and Superintendent Greg Mullins (current Commissioner). The integration of this previous research with outputs from other risk-based assessment projects subsequently resulted in a practical and adaptable resource allocation methodology known as the Fire Service Resource Allocation Model (FSRAM). The acknowledged ‘father’ of FSRAM is retired Station Officer Trevor Neal AFSM.

This FSRAM has been the backbone that delivered many new fire stations across western Sydney and other major growth areas, such as the Central Coast and Newcastle, over the last 20 years.

What has changed?

The Project Manager, Senior Planning Officer Shane Kempnich, says that while the FSRAM did its job, 20 years on, it now needs an upgrade to better reflect the role of a modern fire and rescue agency, as well as the increasing demands from Government and the community for rigorous and transparent decision-making.

“The previous RAM was very fire-focused. Clearly fire remains a significant factor, but the roles and responsibilities of Fire and Rescue NSW have expanded substantially, and this has not been formally reflected in our resource allocation considerations,” says Shane Kempnich.

Linked to this is the concept of ‘resourcing to risk’. Not every station area is the same, and some factors make one station area more vulnerable to fires and emergency incidents than another. In order to better reflect this, the factors used to construct a risk profile for each station area have been increased from three (structural hazards, population and primary call rate) to 20.

“Simply, this means that we will be better able to identify and understand what is driving the overall demand for services in a given area, and we can better resource those accordingly,” Shane says.

In the new RAM, these 20 factors make up the Resource Index which is the primary tool for planning staffing and major appliance allocation, and it is calculated based on each station area. The Resource Index comprises:

- level of structural fire hazards (HazCat)
- population number and SEIFA (socio-economic disadvantage) weighting
- employment population (numbers of workers from out of the area)
- seasonal population (number of annual visitors to the area)
- responses for:
 - primary incidents
 - total incidents
 - building fires
 - all fires
 - non-fire rescue incidents
 - hazmat incidents
- bushfire/urban interface risk
- transport risks, reflected by:
 - traffic volumes
 - number of motor vehicle accidents (MVAs) with injury
 - number of heavy vehicle MVAs
 - aircraft movements and passenger numbers
- rescue accreditation and number of incidents assigned by Police Rescue Coordinator
- licensed chemical storage facilities
- average property values, and
- occurrence of severe natural hazard events.

Use of Socio-Economic Indexes for Areas (SEIFA) data

Research by many fire authorities here and overseas has demonstrated the link between socio-economic conditions and vulnerability to fire. The Strategic Information Unit (SIU) has undertaken similar work and has demonstrated a correlation between socio-economic conditions and fires in NSW.

The most disadvantaged areas are almost three and a half times more likely to experience a fire than those in the most advantaged areas. The work has been conducted to such a level that the population for each suburb can be ‘weighted’ based on its socio-economics, giving us a better idea of how vulnerable they are likely to be to fires.

This quantified risk can now be used in better planning for resource allocation decisions.



Photo: Jan Crombie-Brown

Clearly many of these factors involve acquiring data from a number of external sources including the Roads and Traffic Authority, WorkCover, Air Services Australia, Tourism NSW and the Bureau of Meteorology.

All these factors are sorted and weighted based on the determined level of significance, and then totalled to give an indexed score. These scores allow for a quick comparison of the overall operating environment across station areas, and for indicative thresholds to be established, in support of resource allocation planning.

These factors were chosen in consultation with senior operational officers. They reflect the issues which drive the demand for our services, but are also able to be easily quantified.

In terms of the efficient location of fire stations, there were many issues with the existing FSRAM model that needed to be addressed in developing Fire and Rescue NSW's RAM.

Firstly, there was only a single set timeframe used to define an appropriate response coverage. This was 7.1 minutes, but applied only to the Greater Sydney Area (GSA). It was based on 1980s research into structural fire behaviour and flashover.

This posed a number of issues including:

- validity, given potential changes to fire behaviour in structures since this time
- changes to call processing, turnout and travel times for incidents
- applicability of this time outside of the GSA (eg in areas serviced only by retained staff)
- focus on fire incidents at the expense of our other roles and responsibilities, and
- lack of differentiation between areas of very high risk (which may require quicker responses) and areas of low risk, where a time longer than this may be appropriate or in fact necessary.

▼ Firefighting at a protracted incident



Photo: Jan Crombie-Brown

Among the main issues with the '7.1 minutes' were assumptions of 1 minute 45 seconds for call taking and turnout, and about 5 minutes 20 seconds for road travel.

"In developing the new FRNSW RAM we went back over the last five years to see how call processing and turnout times have changed since the initial research was undertaken. We now know that it actually takes longer than previously thought to alert and mobilise crews," says SO Jeff Macpherson, Operational Research Planning Support Officer.

We also needed to review the way travel time estimates were calculated and how closely they matched actual travel times being achieved. This was done by analysing AIRS data over five years for selected stations right across the State, plotting incident locations, and calculating the average speed of appliances in relation to the posted speed limits (based on Code 1 to Code 3 times).

"We needed to look at how quickly

"Upgrade to better reflect the role of the modern fire agency, as well as the increasing demands for rigorous and transparent decision-making"

appliances were travelling to incidents, so we could factor this into the isochrone model. Previously in our mapping models, we only had the capacity for a single, average speed to be used across that whole station area, but now we can reflect a speed based on the type of road and the speed limit that applies. So the modelled response area for say, 75 Berowra once they hit the F3 will be much more realistic," said SO Macpherson. "It also reinforces the need for quality information in AIRS reports, so we have the best data available to assist with this analysis."

Risk management in the emergency environment

Edited version of a published article by Superintendent Paul Bailey, Inspector Nick Ferrante and Superintendent Phil Harlock that appeared in Fire Australia, Winter 2010 and Fire Risk Management, July 2010. The views expressed do not necessarily reflect those of FRNSW.

Introduction

In a recent paper on the risk-taking behaviour of firefighters, a British researcher posed the question, “Is dynamic risk assessment fit for purpose?” (Bill Gough, Fire Magazine, January 2009). Risk management principles, from which dynamic risk assessment (DRA) is born, is key to understanding this issue, as well as examining the purpose which is the emergency work environment faced by firefighters and the emergency incident controllers.

“In NSW, risk management is a mandatory process under occupational health and safety legislation”

▼ Hazmat shower at a counter-terrorism activity



Photo: Jan Crombie-Brown

Risk Assessment

Risk Assessment (RA) is a discrete part of a larger process known broadly as risk management. It involves:

- identifying factors (hazards) that may contribute to a potential risk
- reviewing information from authoritative sources about the risk posed by the identified hazards
- assessing the likelihood and severity of an injury occurring
- identifying actions necessary to control or preferably eliminate the risk, and
- recording the above process as proof of compliance.

In NSW, risk management, and by extension risk assessment, is a mandatory process under occupational health and safety legislation. The WorkCover HAZPAK guide to basic risk management states unambiguously, “one of the key principles of the *NSW Occupational Health and Safety 2000* and *Occupational Health and Safety Regulation 2001* is risk management – the process of identification, assessment, and elimination or control of hazards in the workplace.”

Risk management processes, including a formal risk assessment, are legislated into every workplace as a dictated methodology. However, an accurate assessment of risk assumes the following.

- **Information Availability** – seeking out and listing workplace hazards assumes these hazards are readily recognizable and easily found.
- **Time Availability** – besides the time involved in actually seeking out and listing the workplace hazard, the RA process assumes additional time is available for analysing the likelihood and consequence of the hazard causing injury and thereby estimating its potential risk profile.

- **Environment Stability** – ongoing validity of the risk profile could only be assured if there is an assumption that the work environment would not change significantly over a short time period.
- **Cognitive Capacity** – the process assumes that the people undertaking the risk assessment will have enough of their cognitive capacity available to undertake the often complex analysis required.

In the context of a non-emergency workplace, the assumptions mentioned above are easily met and are closely related to what is known as a 'classical' model of decision making.

While it is true that many incidents attended by fire agencies are routine and that RAs could be prepared for many expected hazards, any search of fire agencies' call data will always uncover incidents that would be described as not routine. Fire agencies work in every place and there will always be the need to expand on the prepared RAs based on unanticipated hazards.

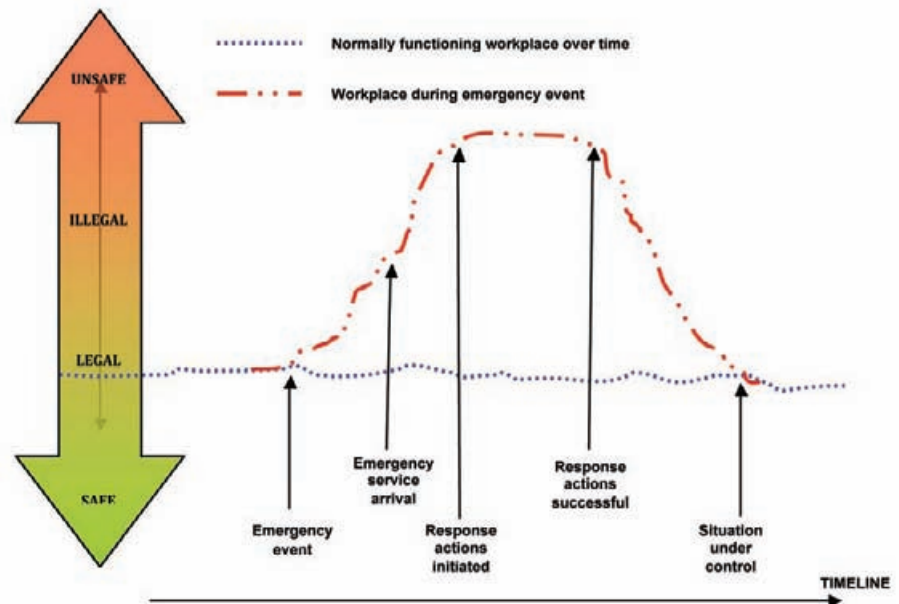
OHS legislation also assumes that any decisions regarding the immediate stopping of work for safety reasons will essentially be an economic decision. This assumption comes from the evident fact that, by definition, workplaces are usually commercial in nature. However, during an emergency incident, the assumptions that the workplace is commercial in nature and that dynamic processes can be immediately made safe by pressing a stop button are inaccurate.

The nature of an emergency work environment

For the sake of this discussion we will assume that the fire agencies' workplace is a (previously considered) legally safe multi-occupancy commercial building that is now suffering a fire situation. An uncontrolled fire will see an immediate transformation of this safe place into a legally defined unsafe place. Once responded, the arriving fire agency may be faced with a situation in which even the act of gathering information about the nature of the incident will itself present significant risks.

When working under the same legislation but faced with civilian lives at risk, the stopping of work for the same safety standards imposed on commercial endeavours will possibly lead to civilian fatalities. For a fire agency committed to saving lives, the stakes could not be higher.

Figure 1 – Safety profile of a workplace during an emergency



So far we have strongly argued that the assumptions made in OHS legislation may not always work well in an emergency environment. Most fire agencies have their own underpinning legislation and this not only gives the agency enormous powers to take actions when saving lives and property, but actually compels them to do so. Many historical disasters and big loss fires have seen fire agency enabling legislation grow stronger over time. To better understand the far reaching extent of these powers the following section is fairly typical – a fire agency officer may, *“take and direct any measures which appear to him to be necessary or expedient for the protection of life and property, or for the control and extinguishing of fire, the confining or ending of a hazardous material incident or the carrying out of a rescue operation, and may cause any premises to be entered, taken possession of, pulled down wholly or partially, or otherwise destroyed for such purpose, or for preventing fire or a hazardous material incident or for preventing the spread of fire or confining or ending a hazardous material incident”* (Western Australia Fire Brigades Act 1942, section 34 C).

Fire agency interpretation of their enabling legislation seems to allow the assumption that all incidents can be considered as a worst case scenario. To say that a historical risk-taking culture had previously developed within fire agencies is easily understood. In days gone by, taking risks was perceived to give good results and the approach seemed to work. Routinely accepting risks often had no threat or consequence and at times paid off handsomely. Extreme risk-taking behaviour could result in fire agency personnel being recipients of either a medal or a state-sponsored funeral, both of which were honourable.

“An historical risk-taking culture had previously developed within fire agencies”

The introduction and continual development of OHS legislation over the past two decades has seen the historical culture of fire agencies wobble somewhat as they strive hard to evolve a new cultural attitude towards risk. OHS laws that essentially seek to prevent, control and at times punish any form of risk-taking, other than absolutely minimal, pose a great challenge to a fire agency obliged by other legislation to save life and protect property.

So why have OHS legislators not readily anticipated this problem and worked with fire agencies to remodel their intentions for work in an emergency environment?

The answers are probably numerous. Any analysis of firefighter injuries would see a high percentage of these injuries occurring in a work environment far different to that described in our previous example. Although a call for assistance and subsequent emergency service response could potentially present the agency with an information poor, time constrained, unstable and cognitively demanding workplace, this actually represents a very small percentage of the time spent at incidents. OHS legislators are not seeing any compelling evidence that shows fire agencies' work environments to be significantly different from any other workplace and are therefore not inclined to offer dispensation.


Calls that do present with a civilian life risk or a potential to expand and at which risk management processes are extremely difficult to apply will eventually see a phase change from this condition to an essentially non-emergency phase. So why not apply full risk management principles from this point onwards?

Considering that there would be little to gain from risk taking behaviour in this phase of the incident, a fire agency would do well to reconsider any allowances it offered to risk-taking behaviour earlier in the incident, where the payoff from accepting some risk could be worthwhile. An incident phase change therefore becomes the signal point or trigger for the emergency personnel to take a deep breath, slow down, and completely re-evaluate their risk acceptance level at the incident.

The procedures for life-risking work should be different to containment work and far removed from the non-emergency work required once these two initial phases have passed. We suggest that most emergency services produce one set of SOPs that sit somewhere between the obligations

of OHS legislation and the obligations of fire enabling legislation. SOPs can be overly risk averse when there could be payoff for risk acceptance or alternately be accepting of risk when the phase of the incident does not require this.

The table below describes the phases common to all incidents.

Table 1 – The Phase Change Model of Emergency Incidents			
Incident time line 			
Phase	1 – Life Risk Phase	2 – Potential to expand Phase	3 – Non-emergency Phase
Characteristics	Incident presents evidence that civilian lives are in immediate danger and may be saveable with rapid intervention	Incident indicates that there is no longer any threat to saveable lives, but the incident has the potential to expand of it's own accord	Incident is still active, but is essentially contained with no loss expected beyond that already lost
Information availability	Low	Low to moderate	Very high
Time pressure	Very high	High	Very low
Incident stability	Very low	Low	Very high
Cognitive allowance	Very low	Low	Very high
Fire agency enabling legislation dependence	Response actions rely heavily on fire agency enabling legislation	Response actions rely heavily on fire agency enabling legislation	Fire enabling legislation is often used but is not actually required
Cost/benefit for accepting risk	Some moderate risk acceptance may be acceptable due to the fact that lives are in danger	Some moderate risk acceptance may be acceptable to ensure incident does not expand	Risk taking has very little or no benefit and is therefore unacceptable
Likelihood that DRA will be fit for purpose	Very unlikely	Unlikely	Unlikely
Preferred risk assessment method	Pre-identification of agencies' life-saving critical tasks and training to standard. Acceptance that not all hazards will be identified and treated	Pre-identification of agencies' exposure protecting critical tasks and training to standard. Acceptance that not all hazards will be identified and treated	Full risk management process as described in applicable OHS legislation

The phase change model and risk management

The phase change concept repackages a common risk management philosophy articulated by the US Federal Emergency Management Agency that is stated as follows:

1. Activities that present a significant risk to the safety of members shall be limited to situations in which there is a potential to save endangered lives
2. Activities routinely employed to protect property shall be recognized as inherent risks to the safety of members, and actions shall be taken to reduce or avoid those risks
3. No risk to the safety of members shall be acceptable when there is no possibility to save lives or property

The New Zealand Fire Service articulate the same concept in these words:

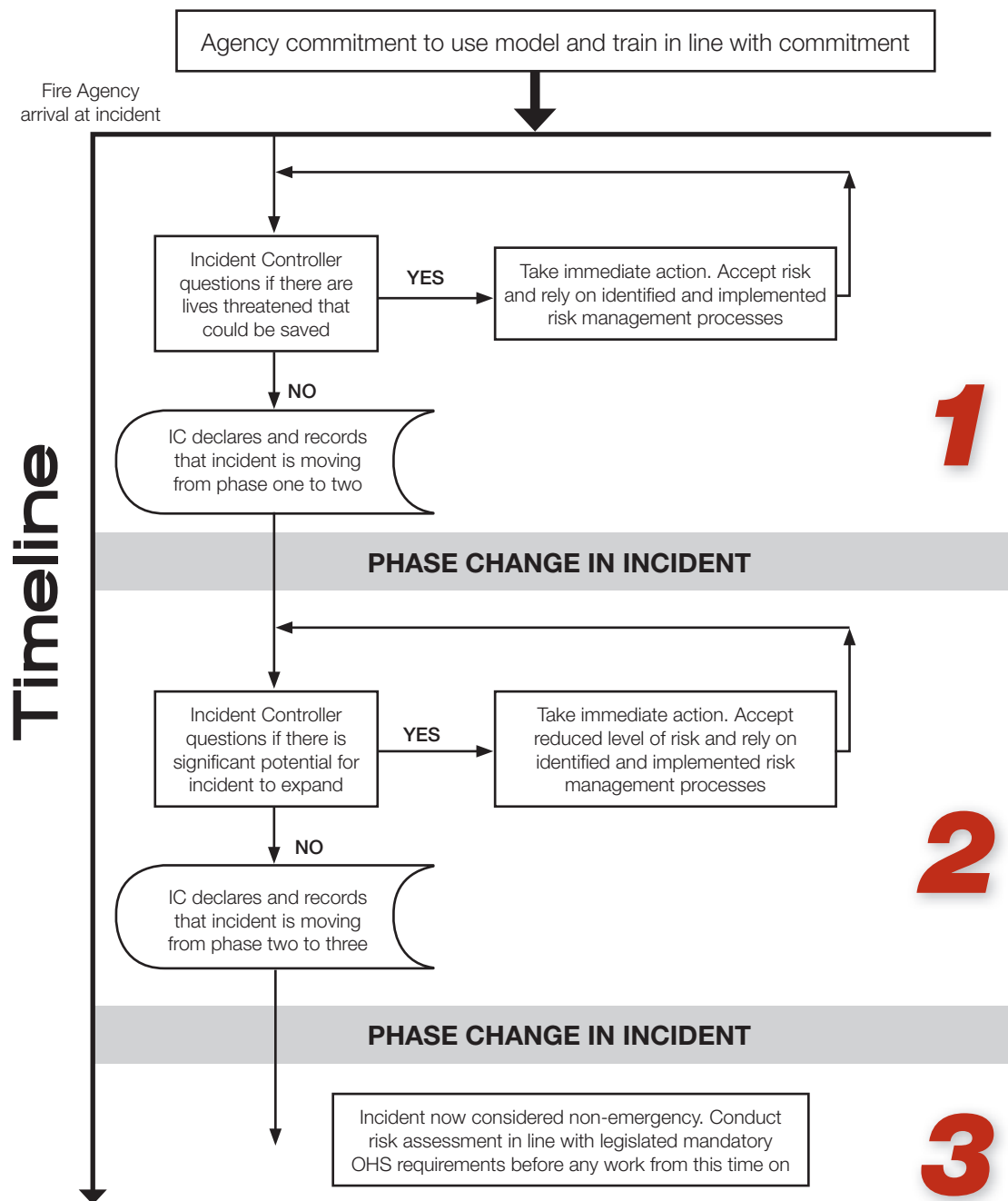
1. We may risk our safety, in a highly calculated manner, to protect saveable lives
2. We may risk our safety a little, in a very careful manner, to protect saveable property
3. We will not risk our safety for lives or property that are obviously lost.

The phase change model (PCM) suggests that over the life of an incident, different methods of risk management and risk assessment should be used. The use of the model lies in the recognition that, whereas currently fire agencies use one form of RA and SOP throughout the whole incident lifecycle, the preferred treatment for potential risks and procedures should be situational depending on the incident phase.

“Employees, unions and workplace safety regulators all need to fully understand and embrace the goal of providing a safe place of work”



Diagram 2 - shows the phase change model in use at an incident



The phase change model as a safe system of work

An 'all hazards' approach does not consider how an individual's actions can affect the risk profile of the hazard and it certainly does not consider the risk profile in line with the PCM.

By way of example, let us explore a few hazards that would be considered typical when attending a structure fire. Building collapse is an ever present danger for operational firefighters and should be clearly understood by all. All firefighters should therefore have an appreciation of how structural building elements perform under fire conditions and what this will mean to the structural integrity of the building.

What this statement assumes is that all firefighters on the incident ground have the potential to be exposed to the hazard of the building collapsing on to them. It suggests that building collapse is a risk regardless of the circumstances of the incident or the strategies adopted by the Incident Controller. What it does not do is

contextualise the risk and provide some weighting to its criticality. When one views this hazard with an overlay of the PCM one can see that the risk of collapse only applies if firefighters are operating in a level 1 life risk phase or a level 2 expanding risk phase and are entering the building or employing tactics that take them within potential external collapse zones.

“Strive hard to evolve a new cultural attitude towards risk”

The same applies to the hazards of smoke and toxic gases. Again this is a hazard that would be found at any fire and indeed fire services spend significant resources on equipping firefighters to work with any vitiated atmosphere. Again this hazard only becomes a risk when firefighters choose to operate in the smoke-filled atmosphere. We use the term ‘choose’ deliberately here as PCM challenges the notion that, by its very nature, responding to emergency incidents will inevitably involve exposing emergency personnel to some unconsidered risk. It is the view of the authors that this is not the case and that a training regime that complements the PCM will allow organisations to implement control measures for the majority of the risks associated with tasks that need to be undertaken when operating in either stage 1 or stage 2 of the model.

Critical risk controls

One of the arguments often made is that there is a seemingly endless list of hazards that can be associated with operating within an emergency environment. Emergency situations are, by nature, unpredictable events that present constantly changing hazards to emergency workers. However when an incident is clearly delineated by the PCM the activities that occur with the stages are more easily identified and thus the critical risks associated with those tasks can be more easily managed.

Let’s review the activities that would, in all likelihood, occur with the life phase of the incident. During this phase there is an urgency to act quickly to give the

best possible chance to save the life. There is little time to think deeply about the hazards involved in the action. The decisions made by the emergency workers would draw on previous experience gained at training scenarios or from what has worked for the individual in similar situations. This decision making model is known as recognition primed decision making and requires very little cognitive processing or in-depth analysis. Recognition primed decision making is therefore ideal for phase 1 and 2 incidents, that are inherently not conducive to complex or time consuming cognitive processes.

For a fire situation where people are trapped in a structure, firefighters will enter and conduct a search and rescue operation with the aim of finding the people and removing them as quickly as possible. Other personnel may be undertaking many other tasks that support this endeavour, but the critical task and therefore the critical risk at this phase of the incident centres around the need to enter the structure and find and remove the victims. Can we accurately predict the hazards that this scenario presents for the firefighters undertaking the search and rescue? It is our belief that indeed it is a relatively easy task to anticipate what the potential critical hazards associated with this task would be.

A structured risk assessment, conducted with key stakeholders from the organisation would identify the critical risks applicable to each situation. However, as an example, below is a list of what the authors consider could be the critical hazards for personnel entering a burning structure:

- smoke, toxic and flammable gases
- heat and flame
- structural weakening or collapse
- poor situational awareness, and
- exhaustion (due to the physical exertion).

These risks are associated with the task of search and rescue in a structure that is on fire and affected by smoke. What type of structure is involved is irrelevant to the hazards listed above. Smoke within a house fire poses no more or less of a hazard to the firefighter than smoke from within a factory. A risk only applies to these hazards when personnel choose to interact with the hazard.

If we accept that the above are critical hazards, and accept that an organisation’s service delivery mandate dictates how personnel would interact with these hazards, then it a relatively simple process to determine the risk rating and the control measures to mitigate the risks. From the risk assessment, the critical risks would be matched to critical risk controls that provide the organisation with a set of ‘must have’ skills for each activity.

The successful implementation of the PCM as a genuine safe system of work requires organisations to constantly liaise with various stakeholders to build mutual trust and understanding. Employees, unions and workplace safety regulators all need to fully understand and embrace the concept for the goal of providing a safe place of work for emergency service personnel to be achieved.

The phase change model is not a system to exclude risk assessment from the emergency incident ground. What it does is allow organisations to clearly articulate the tasks associated with each phase of the incident and target training specific to the risks presented by those tasks.

Doing this before the event and allowing personnel to develop their own recognition primed decision making ability through realistic training that is driven by structured risk assessments, provides a system that easily fits within the legislative parameters of a safe system of work. This concept of balancing the removal of formal risk assessments from the early incident phases with additional pre-incident work aims to create a deemed-to-comply concept for workplace safety regulators.

NOTE: The concepts articulated in this paper represent the opinions of the authors and should not be construed as Fire and Rescue NSW’s policy or opinion.

PROFILES

Library: A mine of information

Fire and Rescue NSW's Library offers an extensive resource facility for all its personnel. The Library holds information about firefighting, fire safety engineering, fire chemistry, fire and arson investigation, fire prevention, emergency management, rescue, and hazardous materials handling and management.

Located at the State Training College at Alexandria, the Library was established in the late 1970s and today houses a large collection of resources on these subjects and many more, including occupational health and safety, risk management, communication skills, leadership and supervision skills, and organisational management.

The Library provides resources and information services to all its personnel. Members of the public may visit the Library by appointment only, but are unable to borrow from the collection. However, the general public can access the Library's collection of books and research reports via interlibrary loan through public or university libraries.

"The Library's physical collection consists of books, videos and DVDs, journals, annual reports, post-incident reports, conference proceedings and learning manuals," said Julie Wyner, Library Manager.

"We also offer a database or online catalogue, which is a searchable index of all resources in the Library's collection. It includes bibliographic references for thousands of individual journal articles, as well as links to the full-text where available. I update the Library's catalogue and intranet pages, and welcome any suggestions for new resources."

The Library holds memberships in various networks and organisations. If you require an item not held by

▼ Library Manager, Julie Wyner

Photo: Jan Crombie-Brown



the Library, or need help in locating information from another fire service or external organisation, the Library can use these networks to obtain the items or information you require.

The Library subscribes to a number of specialist online resources and databases, including Australian Standards Online, NFPA Codes Online, Academic OneFile (a research database of journal articles), Proquest ANZ Newsstand (a full-text news database) and more. These can be accessed via the Library's intranet pages under the heading Online Resources. The Library also offers an advanced research service if you want a comprehensive list of books

and articles on a particular topic just contact the Library and Julie will use search skills honed over a decade of library and information work to find what you need.

A Library service which offers Fire and Rescue NSW staff a way to keep up with new publications in their area(s) of interest is the Current Awareness Alert. Instead of searching the catalogue or waiting for the monthly *Library Update* to come out, you can be alerted by email of new books, journal articles, DVDs and online documents in the subject areas of your interest as they are received in the Library. To receive this alert, subscribe via the Library's online pages on the intranet.

"The Library subscribes to specialist online resources and databases, including Australian Standards Online, NFPA Codes Online, Academic OneFile"

Captain Ewen Jones: Serving the Narromine community

Retained Captain Ewen Jones, from 401 Narromine, was born and raised in Narromine and holds a lifelong interest in helping the community.

“On average, 401
Narromine responds
to more than 80
incidents per year”

Ewen's first job after completing his HSC at Narromine High School was as a spare parts salesman in Parkes, and in 1985 he purchased his first taxi in Parkes. One day in 1987, a taxi caught alight on the Dalton Street taxi rank. Ewen ran across the road to the Coachman Motor Inn and, with a bucket of water extinguished the fire before the crew from 417 Parkes arrived. In 1988 Ewen bought two more taxis in Narromine, and subsequently moved back there.

In 1991, Ewen began working with Narromine Shire Council and today is Narromine Council's Environmental Ranger and Airport Reporting Officer. After an initial unsuccessful application for a position in early 1991, Ewen was subsequently appointed to 401 Narromine as a Retained Firefighter on 15 December 1991.

Ewen was appointed as the Engine Keeper in 2003. Following the retirement of Captain Robert Hawkins AFSM, Ewen became Captain of the Narromine Brigade on 1 October 2009 and now heads a team of 12 firefighters.

Ewen's first major fires were the Mungeribar Manor in 1992 and the Imperial Hotel in Narromine in 1996.

“We also recently had a fire at a local industrial shed where a spark had ignited the whole shed. The Rural Fire Service got there and they assisted us in successfully extinguishing the blaze,” Ewen said.

On average, Narromine Station responds to more than 80 incidents per year.

Aside from administration and operational duties, Ewen said the station is very much involved with the rural community. Prior to joining the NSWFB he was a member of Apex for more than 23 years, which he originally joined in Parkes, retiring in 2007 only because of the age limit specified by Apex. He was made a Life Member of the organisation in 2003.

“I had always been community-minded and that was what drew me initially to a role within the NSWFB,” he said. “The station is involved in many community activities, such as the SABRE program and Brigades Kids Day. It's all about raising community awareness of the risks of fire and what to do in an emergency. I really enjoy getting the message out there that, in the case of fire risk, prevention is definitely better than cure,” he said.

In 2009 Ewen and his crew received a Letter of Recognition from Assistant Commissioner Jim Hamilton AFSM for their role in responding to a house fire which involved a fatality. Ewen himself has also been awarded the National Medal, and the Long Service and Good Conduct Medal.



“Ewen has been awarded
the National Medal, and
the Long Service and
Good Conduct Medal”



Chief Superintendent Gary McKinnon: Following a varied career path



Photo: Jan Crombie-Brown

Chief Superintendent Gary McKinnon is Fire and Rescue NSW's Assistant Director Information Technology Systems, coming to his current role following a 22-year career path with the organisation.

"I joined in early January 1988 after seeing a recruiting campaign," Chief Superintendent McKinnon said.

"From the Training College at Alexandria I was first stationed at HQ (City of Sydney) on B Platoon, then headed by Station Officer Gordon 'Bubbles' Rice. Bubbles' HQ B was notorious for being very active when it came to drills. I stayed there for around 18 months before becoming a Relieving Firefighter, relieving at approximately 30 different stations across Sydney during an 18-month period.

"Chief Superintendent McKinnon came to his current role as Assistant Director Information Technology Systems in 2009"

"A vacancy then became available at D Platoon Darlinghurst so I took this up," he said.

In 1989, Chief Superintendent McKinnon witnessed the Kings Cross backpacker fire when six people died in the Down Under Hostel.

"Despite the tragedy we were able to save 59 people. The incident brought with it the realisation of the importance of our organisation and the service we offer," he said.

Chief Superintendent McKinnon stayed on D Platoon for seven years during which he took his Station Officer exam in 1996.

"In 1998 I went to the State Training College to become a Recruit Trainer. Today, I have seen many of these recruits come up through the ranks," he said.

During his time at the Training College Chief Superintendent McKinnon was promoted to Station Officer.

"This led into the preparations for the Sydney Olympic Games when I was lucky enough to be part of a small NSWFB team seconded to SOCOG for a total of 10 months. This was a once-in-a-career opportunity, and very rewarding," he said.

"After SOCOG I became a Relieving Station Officer and then spent six months working in the then newly developed Operational Information Systems (OIS) unit as a Project Coordinator for Area Management. The key function of my role was to manage a range of innovative projects designed for implementation at fire station level; an example was Pre-Incident Plans."

In late 2001, Chief Superintendent McKinnon was appointed Manager Community Risk Management for the previous Region North where he led a

project team tasked with the strategic development of a business application that became Statewide, intranet-based and centrally stored and backed up. This application was to record the many community activities undertaken by firefighters across the State.

Following this period, Chief Supt McKinnon became the State Manager Community Risk Management in the then newly formed Risk Management (Community Safety) Directorate. He stayed there for four years building the Community Risk Management team.

In 2004 he was promoted to Inspector. Then in 2007 he was successful in gaining the position of Zone Commander within the Northern Rivers (Lismore) area and was promoted to Superintendent.

"Preparations for the Sydney Olympic Games, I was part of a small FRNSW team seconded to SOCOG for 10 months"

Chief Superintendent McKinnon came to his current role as Assistant Director Information Technology Systems in August 2009.

"Essentially, this position is all about leading a number of specialist IT teams designed to assist the FRNSW," he said.

Academically, Chief Superintendent McKinnon has just completed a Masters Degree in Public Administration at Sydney University; he also has Postgraduate Diplomas in Emergency Management, and Social Science studies. He sees the rewards of his extensive career with Fire and Rescue NSW as being numerous.

"It is gratifying to see that as a member of the FRNSW, at every level of the organisation you are able to make a real difference," he said.

"You get applied knowledge on the job and see your training applied at the pointy operational end. You see a tangible result."

Corporate Services and Governance

The Corporate Services and Governance directorate helps to ensure that all support services are run efficiently and effectively.



1. Ms Rosemary Milkins
Deputy Commissioner, Corporate Services and Governance
2. Assistant Commissioner Jim Smith
Director Community Safety
3. Ms Fatima Abbas
Director Strategy and Innovation
4. Mr Richard Host
Director Finance and Information Technology
5. Ms Gail Wykes
Director Education and Training
6. Mr Darren Husdell
Director Human Resources
7. Mr Emmanuel Varipatis
Director Logistics Support



511 Yass: Celebrates centenary

511 Yass celebrated a hundred years in September, with an open day spectacular and a formal dinner. This included an historical display of incident photos and various trophies, a motor vehicle rescue demonstration and a kitchen fire simulation, as well as several old appliances on loan from the Historic Fire Engines Association and souvenirs from the Museum of Fire.

Dignitaries included Commissioner Greg Mullins AFSM; Deputy Commissioner Ms Rosemary Milkins; A/Assistant Commissioner Steven Pearce; Ms Katrina Hodgkinson, MP for Burrinjuck; and Councillor Nic Carmody, Yass Valley Council Mayor.

Current personnel: Captain Allan Carey, Deputy Captains David Mather and Paul McLucas, Retained Firefighters Steven Bugden, Mathew Carroll, Nathan Cooke, Stephen Davy, Christopher Grieves, David Halley, Paul Hewett, Stephen Hill, Matthew Jamieson, Joshua Loxley, Jason Pack, Sissi Sawyer, Cameron Small, and Robert Wilcox.

Photo: Angus Mordant



“511 Yass celebrated a hundred years in September, with an open day spectacular and a formal dinner”



Photo: Angus Mordant

43 Seven Hills: Serving the Hills District

43 Seven Hills, located in Metropolitan West 1, is situated 34 kilometres west of the Sydney CBD. During 2009/10, 43 Seven Hills responded to 532 fire calls and 1337 other callouts, with a total response rate of 1869 calls. They also undertook 284 community safety, preparedness and other engagements.

“2009/10 – 532 fire calls and 1337 other callouts – total response rate of 1869 calls ... 284 community safety preparedness and other engagements”

Left to right: Firefighter Howard Rock, Firefighter Tim Lloyd, Station Officer Ian McDonald, and Firefighter Glen Hughes.

Photo: Jan Crombie-Brown



Photo: Jan Crombie-Brown

RETIREMENTS & DEATHS

January

Robert DUNCAN	Captain Coraki
David QUINLIVAN	Station Officer
Terry MUNSEY	Station Officer
Brett MERTON	Retained Firefighter Coraki
Louis O'BRIEN	Senior Firefighter
Gregory CRUMP	Captain Carrington
Rodd CROKER	Retained Firefighter Forster
Raymond LATTER	Senior Firefighter
Stephen GODDEN	Station Officer
Christopher MURTAGH AFSM	Station Officer
Kieran BRITT	Station Officer

February

Terry NOBLE	Retained Firefighter Bowraville
Leslie ROWLANDS	Retained Firefighter Finley
Thomas WEBLEY	Senior Firefighter
Lance MCCABE	Station Officer
Kyle GRADWELL	Retained Firefighter Morriset
Terrence THOMPSON	Senior Firefighter
Russell REID	Senior Firefighter
Craig COOPER	Station Officer
Robert BROOKER	Captain Mulwala

March

Grahame SPURWAY	Deputy Captain Kelso
Christina PHILLIPS	Retained Firefighter Yass
Danny RESNIK	Station Officer
Jeffrey SORMUS	Senior Firefighter
Danny COYNE	Qualified Firefighter
Robert GOUTTMAN	Inspector
Geoffrey TOLSON	Senior Firefighter
Phillip TREACY	Inspector
Geoffrey ROSE	Senior Firefighter
Neale MCCABE	Retained Firefighter Wellington

April

Bryan SEE	Station Officer
Kerry THOMPSON	Retained Firefighter Narromine
Giacoma ROSANELLA	Fire Vehicle Repairer
Robert LONG	Retained Firefighter Young
Allan KELSO	Senior Firefighter

May

Philip BIGGAR	Retained Firefighter Byron Bay
Matthew WILDE	Retained Firefighter Orange
Richard VARLEY	Retained Firefighter Tocumwal
Ken THOMPSON AFSM	Deputy Commissioner
David PAGE	Retained Firefighter Kyogle

June

Richard HANCOCK	Retained Firefighter Sawtell
Noel CLARKE	Retained Firefighter Kempsey
Robin DALY	Retained Firefighter Tumberumba

July

Jeffrey ARNOLD	Station Officer
Phillip DIPPERT	Station Officer
Vlado SELJA	Senior Firefighter
Graham DEWSNAP AFSM	Assistant Commissioner
John GARNER	Station Officer
James PRITCHARD	Captain Moree
John REED	Qualified Firefighter
Stanley REIMER AFSM	Captain Young
Stephen REYNOLDS	Station Officer
Terence WHEELER	Retained Firefighter Moss Vale
Peter GORDON	Station Officer
Michael SMITH	Station Officer
Graham BEAMES	Deputy Captain Toronto
Alan WHELAN	Station Officer
Peter SPEIRS	Senior Firefighter
Mark HARDIE	Senior Firefighter
James MCDONALD	Station Officer
Troy CUTLER	Retained Firefighter Murwillumbah
Richard BENSON	Senior Firefighter
Julia SIMONIDES	Executive Assistant
Rodney BRADLEY	Deputy Captain Parkes

August

Glenn RORIE Station Officer
Paul BARRASS Deputy Captain Weston
Gregory BROWN Retained Firefighter The Entrance
Gary GALWEY Superintendent
Laurence DENYER Senior Firefighter
Robert GELLWILER Deputy Captain Kearsley
Jeffrey KOCH Retained Firefighter Tenterfield

September

James FLYNN AFSM Captain Tenterfield
Christopher WALLACE Deputy Captain Bateau Bay
Brett ROBINSON Retained Firefighter Cardiff
Michael YEARSLEY Station Officer
Corazon SARMIENTO Executive Assistant
Barry HARRINGTON Station Officer
Glenn WARDEN Station Officer
Robert WHITEHEAD Retained Firefighter Ballina
John STOCKLEY Retained Firefighter Katoomba
John WILSON Retained Firefighter Yamba

October

Dawn EASTON Director Strategy & Planning
Alan WOODS Station Officer
Aaron MANNING Retained Firefighter Taree
John GARDNER AFSM Station Officer
Keith KING AFSM Superintendent
Douglas WILLIAMS Superintendent
John SCHOLES Senior Firefighter
Peter MCASKILL Area Manager

November

Stuart BEAR AFSM Station Officer
Brian DUDLEY Qualified Firefighter
Peter HINCHCLIFFE AFSM Captain Kempsey
Stuart MARRIOTT Station Officer
Allan PARTRIDGE Deputy Captain Branxton
Robert PRICE Senior Firefighter
John RUSHTON Retained Firefighter Narrabri
Neil WARREN Station Officer
Edgar WILLIAM Retained Firefighter Gilgandra

December

Jeffrey COLLINS Senior Firefighter
David EDWARDS Senior Firefighter
Allan MURRAY Station Officer
Evan WATSON Deputy Captain Cowra

Deaths

Kevin HAPGOOD Retained Firefighter Shellharbour
Mark FOSTER Qualified Firefighter
Gregory ROCHESTER Senior Firefighter
Matthew VINEN Retained Firefighter Nambucca Heads



Photo: courtesy of Channel Nine

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