

FIRE AND RESCUE INTERNATIONAL

Integrated fire, rescue, EMS and incident command technology

Volume 4 No 1



Official magazine of SAESI

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Comment

Proudly presenting our 37th edition of **Fire and Rescue International (FRI)**, providing readers with great news articles, technical advice, reviews of recent exhibitions, launches and events and some topical interest articles. Enjoy the read!

Southern African Emergency Services Institute (SAESI)

SAESI has appointed Fire and Rescue International as its official magazine and we will be bringing you the latest news from SAESI in each issue. We feature a message from SAESI president, Dino Padayachee and review the recent AGM and elections and look at the extrication team of the City of Cape Town, who will be presenting South Africa at the World Rescue Organisation Extrication Challenge in Brazil later this year. FRI has also been appointed as the organisers of the SAESI 2017 Conference, Expo and Training Challenges.

In the news

We provide some insight on the recently launched National Veld and Forest Fire Working Group while other news items include the MOU signed between Rescue South Africa and the City of Ekurhuleni, the new fire station launch in Kwa-Thema, NSRI's 49th awards ceremony and AGM and feedback on the summer fire season by Cape Winelands District Municipality.

Fires in abandoned buildings

Colin Deiner provides some background to the hazards and risks that are associated with abandoned buildings. He looks at the fire fighting strategies and the role of the incident commander. Deiner dedicated this article to the late Willie Barker.

High-rise fires: extending hose lines for initial attack

In this fourth part of Ian Schnetler's series on high-rise fires, he discusses extending the hose lines for the initial attack noting water supply strategies and safety.

Fire station planning principles

Previn Govender provides researched insight into the calculations for optimal siting of fire stations in this third part of his series of articles on fire station planning principles.

Post-traumatic stress disorder (PTSD)

A new addition to the FRI line-up of articles, Mike Webber looks at PTSD, its symptoms and variations, using a South African incident as an example. This is the first in a series of articles on this delicate subject. PTSD is real. Let's talk about it.

IFSAC Spring Conference 2016

Theresa Geldenhuis provides a review of the recently held International Fire Service Accreditation Congress (IFSAC) Spring Conference in Oklahoma City, USA.

World Rescue Organisation

Neville van Rensburg and Julius Fleischman reviews the recently held World Rescue Organisation Assessor Workshop in Ireland.

Fire safety as a career

An interesting article on the issues surrounding fire safety as a career and the relevant qualifications written by Petrus Brits provides some insightful reading on this topic, providing a proposal for the way forward.

Disaster search dogs

In this informative article, Neels de Klerk provides some insight into the use of disaster search dogs during a structural collapse or disaster scenario, with a historic overview of their use and the current status.

Fire protection association

We profile Lion's River Fire Protection Association (FPA), their area of operations, risk profile, fire risk mitigation strategies and challenges

A big thank you to our contributors, readers and advertisers for their support. Fire and Rescue International is your magazine. Read it, use it and share it!

Lee Raath-Brownie
Publisher



Lee Raath-Brownie

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This month's FRI images winner!

Congratulations to

Shaun Graham for his photograph 'Night drill' taken with a Nikon D90 with a shutter speed of 1/40 of a second, ISO 1600 and an aperture 7.1 F-stop.

Shaun Graham wins this month's prize money of R 2 000!

Photo description:
The photo was taken during a fire fighting exercise

Well done!

Submit your rescue, fire or EMS photo and win R2 000!



Fire and Rescue International's (FRI) monthly photographic competition is open to all its readers and offers you the opportunity of submitting your digital images of fires, fire fighters, disasters, emergencies and rescues.

The rules are simple:

- All photographs submitted must be in jpeg format and not bigger than 4 megabytes.
- Photographs must be in high resolution (minimum 1500 pixels on the longest edge @ 300dpi) for publishing purposes
- **Allowed:** cropping, curves, levels, colour saturation, contrast, brightness, sharpening but the faithful representation of a natural form, behaviour or phenomenon must be maintained.
- **Not allowed:** cloning, merging/photo stitching, layering of two photos into one final frame, special effects digital filters.
- Fire and Rescue International (FRI) reserves the right to publish (printed or digitally) submitted photographs with acknowledgement to the photographer.
- Winners will be chosen on the merit of their photograph.
- The judge's decision is final and no correspondence will be entered into afterwards.
- Brief description should accompany photo.

Entries must include:

- Name of photographer
- Contact details (not for publishing)
- Email: (not for publishing)
- Name of photograph
- Brief description of photograph including type of fire
- Camera, lens and settings used

All entries must be emailed to:
lee@fireandrescue.co

>>ENTER NOW!



President's comment



meeting (AGM) held in Durban on 23 June 2016, we are pleased to report to you that Melvin Ramlall has been elected as president for the term of office 2017 to 2019. Another historical moment was achieved by SAESI during the AGM when our first lady vice president was elected. Arlene Wehr was elected as the vice president for the term of office 2017 to 2019. We wish our incoming presidents all the best and we know that you will serve our great institute with excellence.

We have just celebrated Women's Month and we would like to take this opportunity to thank all our moms, grannies, wives, sisters, aunts, daughters in our lives for being our pillar of strength. Without you we would not be alive. As men we need to protect, respect and nurture the wonderful ladies in our lives. To all the ladies in the emergency services, we salute you for your courage and strength for doing a job that is rated as one that has the greatest risk factors.

It gives us great pleasure to present to you our feedback on behalf of the board of directors and the executive committee of SAESI. Following our annual general

We also welcome on board Lee Raath-Brownie of Fire and Rescue International with whom SAESI has partnered with to deliver to you a magazine that is filled with exciting information. SAESI has also partnered with Lee Raath-Brownie to assist with the organisation of the SAESI 2017 Conference, Exhibition and Training event. We have no doubt that Lee Raath-Brownie will be a great asset to SAESI.

We thank all the members of the board of directors and executive committee for all your hard work. We know that you spend many hours away from your families and friends to further the interests of our great institution for the benefit of all emergency services personnel. Our institution is a truly South African institution for which I am proud to be a member of.

Dino Padayachee, president, SAESI

New home for SAESI head office

By Salomé van den Berg, CEO, SAESI Non-profit Company



the current board of directors of SAESI took the initiative in searching for a suitable property to relocate the head office and establish a SAESI House. The move took place on 1 June 2016 and the team is now settled.

Not only is this an asset for generations to come but a milestone that members can be proud of. SAESI House is open for business and members, office bearers and public are welcome.

SAESI's new address is 295 Jorissen Street, Monument, Krugersdorp. The telephone numbers remained the same.

Contact details are:

Tel: +27 011 660 5672

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Email: info@saesi.com

Website: www.saesi.com

What started as a passion to establish a home for the Southern African Emergency Services

Institute members many years ago, has finally come to fruition. Thanks to the vision of Moshema Mosia, past president, who initiated this project,



SAESI AGM and awards 2016



The SAESI AGM was held in Durban at Engen



Dino Padayachee



Melvin Ramlall



Riaan Janse van Vuuren

The Southern African Emergency Services Institute (SAESI) held its annual general meeting on 25 June 2016 at the Engen Sports Complex in Durban, KwaZulu-Natal. This was the first annual general council meeting of the Southern African Emergency Services Institute as a non-profit company post the adoption of the memorandum of incorporation and registration as a company.

Chairing the meeting was Dino Padayachee, president of SAESI, assisted by the vice president, Melvin Ramlall with Riaan Janse van Vuuren opened with prayer. Lenny Naidoo, past president of SAESI, was host to the 2016 AGM and Lynn Hanekom, head of health and safety at Engen Refinery, provided a brief overview of Engen.

The necrology and observation of a moment of silence in honour of those whom have lost their lives in the line of

Gratitude for support during bereavement

I would like to express my sincere gratitude to my fire family for all the support, messages, emails and phone calls received during my time of bereavement. The sudden passing of my son had a vast impact on my family and I and we are grateful for the understanding and support received during this difficult time.

Melvin Ramlall, vice-president, SAESI



duty followed. The following people have passed since the previous council meeting:

- R Sampson, Cape Peninsula branch
- NE Liphadzi, Greater Northern branch
- V Naidoo, KZN Inland branch
- MP Raophala, Greater Northern branch
- HM Pretorius, Cape Peninsula branch
- SS Mpatso, Vaal Triangle branch
- LW Mphatswe, South Western Gauteng branch
- DD Phantsi, Vaal Triangle branch
- G Govender, KZN Coastal branch
- JM Matsemela, Cape North West branch
- GM Msomi, KZN Coastal branch
- MJ Ferreira, Cape Peninsula branch

Awards

Five members were awarded Continued Membership Awards for their longstanding support and participation in furthering the goals and objectives of the Southern African Emergency Services Institute NPC. Members are devoting their time and commitment on a voluntary basis and continued membership over 40 and 30 years is truly commendable.

30 Year Continued Membership Awards

- Mr RJ Brooks, Free State branch
- Mr FJ Mogale, Greater Northern branch
- Mr TM Nelwamondo, South Western Gauteng Branch (Not in attendance)
- Mr CK Osman, KwaZulu-Natal Coastal branch

40 Year Continued Membership Award

- Mr ON Singh, KwaZulu-Natal Coastal branch

Citation Awards

- Mr MJH Steyn, Vaal Triangle branch
- Mr A Bruno, Vaal Triangle branch

The 10 and 20 Years Continued Membership Awards were handed over to the branch chairpersons for presentation at branch level. A special event will

take place in Gauteng for the students receiving Examination Awards.

Dino Padayachee, SAESI president and chairman of the board of directors presented the first board of directors' report to council for the period since the previous council meeting and Riaan Janse van Vuuren, treasurer, presented the audited financial statements. Lee Raath-Brownie, managing director of FRI Media (Pty) Ltd, presented an overview of the SAESI 2017 Conference, Exhibition and Training Challenges. FRI Media was appointed as the organisers of the 2017 SAESI Conference and Exhibition. It was also announced that Fire and Rescue International is the official magazine of SAESI.

Elections

Salomé van den Berg presented the criteria for nominations and voting eligibility from the draft Terms of Reference of the Nominations Committee and confirmed the nominations received, accepted as vetted, qualifying and open for voting for the term June 2017 to June 2019 was for president, Melvin Ramlall, while Riaan Janse van Vuuren and Arlene Wehr was nominated for vice president.

The Vice Presidents candidates were afforded an opportunity to present to council their vision and motivation for the company and their term of office.

Melvin Ramlall, City of eThekweni Fire and Rescue, was elected as president unopposed, not only being the only candidate but the most qualified and Arlene Wehr, City of Cape Town Fire and Rescue, was elected as vice-president of the Southern African Emergency Services Institute NPC. They will take office on 1 June 2017 and will serve until June 2019. Congratulations to the successors!

The next Council Meeting will take place in Cape Town on 24 February 2017. ▲







Cape Town extrication team readies for Brazil

By Arlene Wehr, *divisional commander, fire and life safety: Blaauwberg district, City of Cape Town Fire and Rescue Service*

The Cape Town team: team manager, Arlene Wehr, Morne Haskell, Virgel Cloete, Kirk Wernars, Micheal Gardiner, Gershwin Cloete. Front: Keenan Walters, Warren Sam

Cape Town will be sending an extrication team to attend the World Rescue Organisation (WRO) Extrication Challenge, which will be held in Curitiba, Parana in Brazil from 19 to 23 October 2016. The World Rescue Challenge (WRC) is

considered the biggest international rescue event performed in a simulated environment.

The WRC happens annually and brings together professionals who work with rescue, salvation and pre-hospital care interested in refining their techniques

and participating in the experiences' exchange with teams from several Brazilian states and international groups. The WRO is committed to improving technical rescue standards by bringing together rescue and medical services throughout the world to develop and share essential post-

SAESI Conference, Exhibition Training Events and Challenges set to take place 29 October to 3 November 2017

FR Media, publishers of Fire and Rescue International, has been appointed as the organisers of the SAESI 2017 Conference and Exhibition. The expo, conferences, training events and challenges will once again be held at the Expo Centre, NASREC in Johannesburg from 29 October to 3 November 2017. Save the date!

The programme for the training events and challenges will include the fire fighter's challenge, high angle and rope rescue, extrication, emergency medical and the new kid on the block, an incident command system (ICS) challenge. Sponsorships are currently being negotiated and we will release the challenge details as soon as it is finalised.

Our aim is to increase the exhibition size, create an action-packed conference line up of interesting topics and relevant discussions, raise public awareness regarding the industry whilst promoting SAESI and the emergency services as a profession.

We need your assistance in making this the showcase event of your profession. Help us to help you!

We are busy with the strategic planning of the event and welcome any comments, whether good or bad, that you have in order for us to provide you with the best event we can muster. All input and suggestions are welcome.

Apart from the conference and exhibition other events will include the gala dinner, cocktail evening, SAESI EXCO meeting, Public PIER Project, world record attempt, badge swapping evening and the SAESI annual awards.

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Tel: 011 452 3135
Cell: 082 371 0190



incident skills and knowledge. In doing so, the WRO is contributing to the reduction of unintentional injuries and the promotion of gold standards for combined rescue and medical care.

The South African team will be representing South Africa and has participated in two competitions held at the National Exhibition Centre at NASREC in Johannesburg at the South African Emergency Services Institute (SAESI) Conferences in 2013 and 2015. The team's recent achievements were at the SAESI Conference held in November 2015, where they achieved the Best Technical Team award and second place overall. All the team members are SAESI members of the Cape Peninsula Branch and are actively involved in all branch activities.

This is the team's first International extrication challenge and by attending this event, they will gain international experience as well as new skills and techniques. With the advantage of the new and additional skills, they can then impart their knowledge to their fellow colleagues through lectures and demonstrations. They can also actively use their new skills on vehicle extrications and rescues on South African roads.

2018 Challenge

The City of Cape Town will be hosting the World Rescue Organisation (WRO) Vehicle Extrication Challenge in 2018 this will be a good introduction as to the competition by participating in the upcoming one in October 2016 in Brazil.

The team would like to thank the following sponsors for their assistance in making this trip a reality namely South African Emergency Services Institute (SAESI), Western Cape Firefighters Association (WCFA) and Marcé, FirestoreSA for some of the gear.

Contact me on:

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Cell: 072 507 5076

Email: Arlene.wehr@capetown.gov.za for additional information. 🔥



The team training at Roeland Street Fire Station



The team training at Roeland Street Fire Station



The East District 3 crews training at Mitchells Plain Fire Station

City of Ekurhuleni signs MOU with Rescue South Africa



Moshema Mosia and Ian Sher



Ian Sher, Moshema Mosia, Dr Elias Sithole and Previn Govender



Rescue SA team

The City of Ekurhuleni and Rescue South Africa have entered into a memorandum of understanding (MOU) to cooperate as a disaster management and response partnership. The MOU will see that any combination of their resources, skills, expertise and experience be used for the greater benefit of the municipal area as a whole, which includes specialised technical urban search and rescue (USAR) emergencies and disasters as a result of natural, technological or human caused events.

On 2 June 2016, the City of Ekurhuleni and the Rescue South Africa enhanced their partnership, by signing the MOU in the field of disaster and emergency services at the Leon Ferreira Fire Station in Boksburg. The ultimate purpose is to strengthen the ongoing partnership between the two agencies, which will allow for optimal response to emergencies in Ekurhuleni.

Programme director, Previn Govender said, "Today is a ground breaking day as the City of Ekurhuleni nurtures new strategic relationships such as the MOU between Ekurhuleni and Rescue South Africa, a first to enter into such an agreement."

Moshema Mosia, Ekurhuleni Disaster and Emergency Management Service (DEMS) head of department was present at the signing and believes that the joining of these forces, places the City of Ekurhuleni in a favourable position, in terms of responding to disasters of any nature. Mosia was deployed as part of the incident command structure of the South African rescue mission to India during the Gujarat Earthquake in 2001.

"I feel deeply honoured to be part of this. The City of Ekurhuleni and Rescue South Africa have successfully partnered on previous occasions, where the city authorised the deployment of DEMS personnel on missions coordinated by Rescue South Africa. With this agreement we are excited to enhance



Dr Elias Sithole, chief director of the Gauteng Provincial Disaster Management Centre



Previn Govender, programme director




Moshema Mosia, Ekurhuleni Disaster and Emergency Management Service (DEMS) head of department

our partnership because this is not just a public expectation but a worldly expectation for us to deal with our natural disasters," said Mosia.

Rescue South Africa houses a sizeable reserve of approximately 40 tons of highly specialised technical rescue equipment in Kempton Park. These resources would

be accessible to the City of Ekurhuleni for use on specialised rescue incidents, in terms of the agreement.

Chief executive officer of Rescue South Africa, Ian Scher added that the agreement between Rescue South Africa and City of Ekurhuleni makes South Africa a more self-

sufficient country. He also referred to the stock of rescue equipment available in Kempton Park and said that there are many people within Ekurhuleni that are trained to use highly specialised equipment such as this. Sher concluded, "Africa can help themselves and not only be recipients of aid in time of need." 

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Kwa-Thema Fire Station inaugurated in City of Ekurhuleni, South Africa



Official opening of Kwa-Thema Fire Station



Kwa-Thema Fire Station



Unveiling of plaque by Mayor Mondli Gungubele

Ekurhuleni Metropolitan Municipality (EMM) officially opened its new fire station on 3 June 2016 in Kwa-Thema. The station was inaugurated by the executive mayor of the City of Ekurhuleni Mondli Gungubele accompanied by member of mayoral committee (MMC) for community safety Vivian Chauke and other councillors including Moshema Mosia, emergency services divisional head.

The station has a standby power generator complemented by power solar system in case of any eventualities, additional potable emergency water tanks, a breathing air (BA) compressor, oxygen booster pump room, security guard room and equipment stores. The station runs two medical ambulances daily, a grass fire unit, rescue pumper and major pumper. The area of coverage includes Kwa-Thema as well as parts of Langaville, Selcourt and the N17.

Forty permanent fire fighters are employed at the station and are complemented by the reserve force members and learnership students who are in their experiential phase. All reservist and learnership students are placed across the twenty nine fire stations within the City of Ekurhuleni. The operational staff members are divided into four shift systems allowing the station to be operational 24 hours a day, seven days a week. The inexperienced staff and the experienced, seasonal fire fighters are integrated to the benefit of the service as well as the learnership programmes. Each shift will be supervised by a shift manager and respectively four shift managers report to the station manager.



City of Ekurhuleni Mayor Mondli Gungubele and engineering students, Matidze Khuliso Signovia, Teboho Mampuru and Ncedo Jam

The station has five machine bays, the fifth being a washing bay, which is built onto the main building. The station has a kitchen, board room, rest room, operational control room, administration offices for the station manager and four shift managers, reception area, tower, gym for fire fighters, showers and lavatories

facilities. "A total of R27 million was allocated to building this station and in the process, three civil engineering students namely, Matidze Khuliso Signovia, Teboho Mampuru and Ncedo Jam from Kwa-Thema, had an opportunity to work there, which allowed them to gain experience," said Gungubele. ▲



Entertainment at opening of Kwa-Thema Fire Station



Kwa-Thema Fire Station

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National Veld and Forest Fire Working Group launched



The launch of the 2016 winter fire season and the National Veld and Forest Fire Working Group (NVFFWG)



General Bheki Cele, Minister Senzeni Zokwana and Dr Mmaphaka Tau

The 2016 winter fire season and the National Veld and Forest Fire Working Group (NVFFWG) was launched by Department of Agriculture, Forestry and Fisheries (DAFF) minister, Senzeni Zokwana, at an event held at Birchwood Hotel on 13 May 2016. Chairing the meeting was Mortimer Manny, acting director-general DAFF with a number of dignitaries in attendance.

Dr Mmaphaka Tau, deputy director-general: Forestry and Natural Resources Management at DAFF, set the scene saying that the Constitution is the supreme law of the land and that there is no other law above it. "Chapter 2 of the Constitution contains the Bill of Rights, which is the cornerstone of democracy in South Africa. The state must respect, protect, promote and fulfil the rights in the Bill of rights." He added that veld fire risk management is a shared responsibility to be fostered through partnership between various stakeholders and cooperative relationships between different spheres of government, the private sector and civil society hence the constitution.

General Bheki Cele, deputy minister of Agriculture, Forestry and Fisheries, introduced Senzeni Zokwana, minister of Agriculture, Forestry and Fisheries, saying that the meeting will outline DAFF's vision on fire management.

In his keynote address, Minister Zokwana said, "The National Veld and Forest Fire Act (NVFFA), 1998 supports the implementation of integrated fire management as a methodology to reduce damaging wildfires and encourage improved land management techniques, including that of using fire as a beneficial land management tool. This legislation places a duty to care and the responsibility to manage fires upon all landowners, both public and private, on whose land a veld fire may start or spread. Accordingly, together with interested stakeholders, my department has established a National Veld and Forest Fire Working Group to strengthen our mandate with regard to the implementation of this legislation and the Integrated National Forest Protection Strategy."

The minister referred to Chapter 2 of the National Veld and Forest Fire Act (1998), which makes provision for the formation of fire protection associations (FPAs) in high fire risk areas of the country.

"FPAs are community-based voluntary organisations that are formed to prevent, fight and manage veld fires. They subscribe to the principle of freedom of association. That means landowners are not compelled to be members of the FPAs but have a legislative obligation to prevent the start and spread of fires in their land. The success of these FPA institutions has been hampered by insufficient financial support, which we are currently addressing in terms of section 7 of this Act. FPAs are also having challenges of failure to comply with the provisions of this legislation by the landowners, including government departments and municipalities. Failure by government departments and municipalities to join FPAs is a major concern to me and must be addressed through engagement."

The minister warned that the current drought in South Africa has increased the risk of disaster wildfires and urged stakeholders to ensure that:

- Awareness campaigns aimed at encouraging landowners to join fire protection associations are undertaken
- Firebreaks are in place
- Fire fighting equipment such as radios, skid units have been checked, serviced properly and are ready
- Memorandums of understanding between fire protection associations are in place
- Update all contacts of key people within all fire management units
- Agreements with other fire fighting agencies like Working on Fire are in place

- Ground crews are trained and where necessary attend refresher courses
- Emergency services, including South African Police Services (SAPS), are involved in planning operations.

In conclusion Minister Zokwana said that disaster management centres play a crucial role in terms of coordinating disaster management plans at local and district municipal level. "It is important that fire protection associations cooperate with these centres to access fire fighting resources, relevant information and to complement the resources of the municipalities."

Moses Khangale, senior manager: Fire Services Coordination at the National Disaster Management Centre (NDMC), discussed the White Paper on Fire Brigade Services and its associations with the National Veld and Forest Fire Act, 1998. "The purpose of the white paper was to outline the vision of the fire service and the strategy to achieve the vision, to set out key major policy proposal that are required to reposition the fire service to be able to deal with the challenges that modern fire services face which they cannot do based on the Fire Brigade Service Act, Act No 1987," said Khangale. "The current problems are that many fire services from resource poor municipalities are struggling to provide sustainable and cost effective fire services. The number of lives lost through fire is increasing especially in informal settlements; the growth in rural-urban interface also increases fire risks. Responding to incidents involving transportation of dangerous goods is also a problem," added Khangale.

He continued, "The White paper intends to reposition the fire service to deal with current challenges that they face, clearly define the role and responsibilities of all spheres of government in providing fire services. The NDMC is working with National Treasury to introduce a funding model for fire services. The White paper has been approved by the minister of Cooperative Governance and Traditional Affairs," Khangale concluded.

Luke Radebe, deputy director: Veldfire Oversight at DAFF, led the discussion on the country's state of readiness for the upcoming winter and summer fire seasons with the umbrella FPAs reporting their state of readiness. Radebe also outlined the purpose of the new working group and introduced the terms of reference as a document that outlines the purpose, the focus areas and gave all the participants an opportunity to make comments, ask questions and make suggestions to add on the terms of references. A heated discussion followed with a number of concerns raised. The outcome is a 10-point strategy to ensure a comprehensive and multi-disciplinary approach. Radebe highlighted the fact that the terms of references can be amended.

Purpose

The purpose of the National Veld and Forest Fire Working Group is:

- To highlight the various aspects of fire protection, through a comprehensive and multi-disciplinary approach as outlined by the National Forest Protection Strategy



Moses Khangale and Luke Radebe

- Advise the Directorate: Forestry Development and Regulations on matters relating to wildfire disaster management
- Provide a platform for consultation between all veld fire stakeholders
- Advise DAFF on the implementation of the NVFFA, including cooperative government arrangements in this respect
- Propose research initiatives on veld fire management
- Monitor and evaluate strategies put in place by the department to improve veld fire management in the country
- Provide advice on veld fire management training and capacity building

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Cape Winelands District Municipality Fire Services 2015/2016 wildfire season assessment report



By Danie Wilds, chief fire officer, Cape Winelands District Municipality



The Cape Winelands District Fire Services experienced an extremely busy and rough fire season and responded to a very high number of fires and major devastating fires that ravaged large areas of fynbos, timber plantations and agricultural land.

The fire services responded and attended to more than 1 300 wildfires during the summer wildfire season, which

stretched the resources, especially human resources, beyond its limits. Fire fighting personnel and equipment from various agencies have been tested and stretched to the limit on numerous occasions and full incident command teams were deployed to manage a number of the operations. A unified command post was established at all the major fires to ensure the safety of the fire crews, to manage and coordinate the incident action plans.

The high number of fires and especially the major and devastating fires could only be attended to in many instances with the assistance of the local municipalities, MTO, Working on Fire, Cape Nature, fire protection association (FPA) members, contracted ground wildfire crews and aerial fire fighting support.

The most devastating and destructive fires were in the vicinity of Aan De Doorns

near Worcester, Riverside/Robertson, La Motte in Franschhoek, Tulbagh, Wemmershoek in Franschhoek, Op die Berg in Witzenberg, Koue Bokkeveld in Witzenberg, Simonsberg, Waboomsriver and De Doorns. The majority of the other larger fires were brought under control and extinguished within a period of two days.

The extent of the areas of vegetation burned amounts to more than 90 000 hectares. Aerial resources (helicopters and fixed-wing bombers) were called out on 64 occasions. The total cost to Cape Winelands for the use of aerial support and ground wildfire crews amounts to approximately R 11,5 million. The Western Cape Provincial Government (WCPG) also assisted Cape Winelands by providing aerial support as initial attack on a number of occasions.

A possible disaster to the community was prevented by the rapid response

- ▶ • Provide advice on how existing resources for veld fire management can be optimally utilised
- Make recommendations on the formulation and amendment of policies and/or legislation
- Ensure that all fire management activities are compliant with and supported by appropriate legislation.

The working group comprises representatives from:

- Department of Agriculture, Forestry and Fisheries
- Department of Cooperative Governance and Traditional Affairs
- Department of Land and Rural Development
- Department of Environmental Affairs
- National Disaster Management Centre
- South African Local Government Association
- Centre for Scientific and Industrial Research (CSIR)
- Insurance industry dealing with wildfire insurance
- Working on Fire
- Any relevant United Nations agency
- Umbrella Fire Protection Associations
- Other government departments as may be necessary
- State owned entities including Eskom, SANRAL, Telkom, SANParks and Transnet.

The working group will report to the deputy director-general of the Natural and Forestry Resource Management (NFRM) branch of DAFF and the National Disaster Management Centre (NDMC). The working group will meet at least four times a year.

2016/17 framework for action plan

- 100 percent state landownership compliance and participation at FPA level end of this year
- Alignment of the NVFFA with the Disaster Management Act
- Make available funding to respond to disaster fires
- Heads of disaster management centres to form part of the working group
- Funding model for FPAs implemented
- Implement compliance and enforcement of the NVFFA
- The size of the fire danger index FDI coverage is too big, narrow to local municipal boundaries
- Establish a task team to work on the Integrated National Forest Protection Strategy
- Minister to review the mandate of South African Weather Service (SAWS) and use of other competent institutions
- Implement a central point/platform for awareness of fire materials. 🔥

and effective fire suppression operations by all agencies involved. The incident command team and fire crews did extremely well to manage the incidents, contain the devastating blazes and avoid catastrophic fires. There was no loss to life or serious injuries reported. Damage to property limited to only a few buildings. One dwelling on the farm 'Boskloof' was completely destroyed. Other damages included vineyards, orchards, water pipes, water tanks, fences, timber plantations, etc.

The fire fighters and pilots displayed tremendous dedication, commitment and skills during the fires that ravaged the Cape Winelands over the past season. Were it not for the fire fighter's exceptional work, Cape Winelands would have experienced far greater damage and losses of property and risks to lives. The bravery and service of these dedicated fire fighters and unsung heroes need to be saluted. The fire service prides itself on efficient and effective service delivery to the entire community and to comply with our primary goal to eliminate loss of life and reduce property loss.

Integrated wildfire management plan

An integrated fire management for the Cape Winelands District is currently under review by the relevant role players and this plan aims to strategically set out a number of approaches that will result in more cost effective and sustainable management of the benefits and threats of wildfires. Implementation of the integrated veld fire management plan will result in healthier natural ecosystems, preservation of catchment areas, communities that are less at risk from fires and a more cost-effective fire suppression program.

Challenges

Our inherent biodiversity, changing weather conditions due to the climate

change and negligent human behaviour increases the challenges when dealing with fires. The extremely high temperatures that the fire fighting personnel are exposed to, makes them prone to dehydration that could lead to heat related illnesses. In addition, the excess hours- normal and overtime that the personnel have to work, further exposes them to physical and mental exhaustion that could make them prone to injuries whilst in the line of duty.

Outstanding key issues

Some of the outstanding key issues from the season are the size and duration of some of the incidents and the associated high costs of suppression.

A lot of the incidents and their expansion into complex and costly suppression operations were as a direct result of a few common denominators. These are as follows:

- Excessively large fuel loads as a result of poorly managed alien clearing operations and poor vegetation management by landowners
- Inadequate clearance around structures has been repeatedly identified as a major factor in the destruction of homes and other buildings
- Repetitive deliberate ignitions by members of certain communities
- Negligence by members of the public and landowners due to open fires during adverse weather conditions ie hot, dry and windy
- Extended periods of extreme fire weather ie hot, dry and high velocity winds. There were at least three extended heat wave periods during the season

Another concern is the general lack of adherence to national legislation by landowners and government institutions, with respect to the National Veld and Forest Fire Act (No 101 of 1998).

Memorandum of agreement with the Department of Local Government The Cape Winelands District Municipality and the Department of Local Government entered into an agreement whereby the Department will assist CWDM managing veld fires to deploy aerial fixed wing aircraft and a helicopter to respond to fires in their initial stages and commence an early fire attack with the objective of preventing extended attack operations and major fire spread. The department paid for the initial hour of fire fighting for one helicopter and one fixed-wing bomber.

Cape Winelands District Veld Fire Workgroup

The fire services of the Cape Winelands District Municipality, Cape Nature, Winelands Fire Protection Association and Cape Pine entered into a memorandum of agreement with the objective that the parties agree to cooperate in the optimisation of their organisations and resources for systematically and expeditiously managing wildfires within the Cape Winelands District Municipal area. It must again be noted that this partnership is working well and resulted in fires being secured in their initial stages or the spread and impact of the fires drastically reduced.

Local municipalities and West Coast District Municipalities

Cape Winelands District Municipality have mutual aid agreements with West Coast District Municipality and all the local municipalities in the district. They assisted our fire services at major fires and when we experienced a high number of fires and our resources were stretched to the limit.

Fire protection association

The Winelands Fire Protection Association is functioning very well ▶



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NSRI held its 49th awards ceremony and AGM, Cape Town



NSRI Hermanus deputy station commander Jean Le Roux accepted the award for the most improved station presented by operations director, Mark Hughes

CMA CGM Rossini. Captain Lepage received an award for the rescue of two yachtsmen, Jean Sitruk, aged 65, from Lyon, France and his crewman Kyle Castelyn, aged 20, from Strand, Cape Town, after their yacht, the Llama Lo struck a whale and capsized off the Wild Coast.

Below is a full list of the awards presented by NSRI Chairman Ronnie Stein

20 Years Long Service Awards

- Andrew Mayes
- Pamela St Clair-Laing of Station 5 Durban
- Pieter Zaayman of Station 15 Mossel Bay
- Deon Langenhoven of Station 17 Hermanus
- Rhine Barnes of Station 18 Melkbosstrand
- Dave Jensen of Station 26 Kommetjie

25 Years Long Service Awards

- Piet Van Der Merwe– Station 8 Hout Bay
- Darren Zimmerman – Station 10 Simon's Town
- Graham Anley – Station 14 Plettenberg Bay
- Antonie De Klerk–Station 17 Hermanus

The 49th National Sea Rescue Institute (NSRI) awards ceremony and annual general meeting (AGM) was held at The Bay Hotel, Camps Bay at 18h00 on 6 June 2016. The awards ceremony recognised the contribution of the volunteer sea rescue crew as well as others who went beyond the call of duty. This year's award winners

include Howard Godfrey and Ian Hamilton, sea rescue volunteers who have served for 45 years.

Also present at the ceremony were Nic Bothma and Abdurahman Farat, surfers who rescued, Nazley Davids, from a rip current in Noordhoek as well as Captain Hervé Lepage of the 277 metre French Bulk Carrier

▶ and this organisation is maturing as envisaged by the National Veld and Forest Fire Act. It is also the intention to ensure that there is a coordinated and standardised approach to the management of fire risk within the district, such as the specifications and siting of firebreaks, equipment and training of members etc. The FPA operate from the Cape Winelands offices in Bird Street, Stellenbosch, which allows for better cooperation and interaction between the FPA and the fire services.

Other role players include Working on Fire ground teams, CWDM contract ground wildfire fighting teams, Volunteer Wildfire Services Jonkershoek base, FFA (Kishugu) aerial

resources, helicopters and fixed wing bombers and Henley Air, helicopter

Community assistance

While the fire fighters were hard at work with their difficult task to manage and control the Simonsberg fire, members of the Stellenbosch community coordinated a project to provide food and refreshments to the fire fighters. Even individual families contributed in their personal capacity showing their support and appreciation towards the fire fighters doing their challenging jobs under difficult and life threatening circumstances. In this way commendable citizenship and partnership in protecting our resources were demonstrated.

Note of appreciation

We must congratulate and extend our sincere appreciation to all the role players such as the Department of Local Government, the local municipalities, West Coast District Municipality, Cape Nature, MTO, Airports Company of South Africa (ACSA) Fire Service, South African Air Force (SAAF), Volunteer Wildfire Services, contract ground fire fighting teams, Henley Air (helicopters), Simonsberg conservancy, other private organisations, members of the Winelands Fire Protection Association and especially the incident command team and fire crews for their commitment to effective fire suppression operations. ⚠



Jerome Simonis received the Best RIB station award for Station 12, Knysna



Lyll Pringle station commander of Station Eight, Hout Bay received the Best Class One Station award



NSRI chief executive officer (CEO) Dr Cleeve Robertson presents Percy Mthombeni with the WaterWise Recognition Award



Abdurahman Farat and Nic Bothma with Nazley Harris who they rescued from a rip current at Noordhoek

30 Years Long Service Awards

- Mark Thompson of Station 2 Bakoven
- The late Kenneth Elliot of Station 7 East London (Kenneth's Son Colin Accepted The Award)
- Paul Jordaan – Station 14 Plettenberg Bay
- Clint Abrahams – Station 16 Strandfontein
- Andy Connell – Station 29 Air Sea Rescue

35 Years Long Service Awards:

Chris Hudson, Honorary Life Governor and Station 8 Hout Bay

45 Years Long Service Awards

- Ian Hamilton, Honorary Life Governor and Station 15 Mossel Bay
- Howard Godfrey, Honorary Life Governor and Station 3 Table Bay

Most Improved Station Award

Station 17 Hermanus, Deputy station commander Jean Le Roux accepted the award

Best Rib Station Award

Station 12 Knysna

The Pat O Sullivan Trophy for the Best Class 1 Station Award

Station 8 Hout Bay

Waterwise Academy Recognition Award

Percy Mthombeni, Waterwise academy instructor

Alric Simpson Award

Mitsubishi Motors SA, awarded annually to a person who or an organisation, which has rendered distinguished service to the NSRI

Marmion Marsh Award

Mike Patterson of Station 19 Richards Bay, recognises a person or organisation for especially noteworthy service to the cause of sea rescue in South Africa over a number of years

Chief Executive Officer's Letter of Appreciation

Received by Paul Richards of Sandown Blues Restaurant in Kleinmond for the rescue of three women caught in a rip current by restaurant owner. Richards was not

able to attend. Hermanus deputy station commander Jean Le Roux accepted the award on his behalf

Chief Executive Officer's Letter of Appreciation

Received by Nic Bothma and Abdurahman Farat for the rescue of Nazley Davids from a rip current in Noordhoek.

Chief Executive Officer's Letter of Appreciation

Received by Timsel Steinfels and Sebastian Deneke for the rescue of kite boarder Markus Wolff near Melkbosstrand. The award was accepted by Klaus Heidorn, deputy head of mission at the German consulate general.

Directors' thanks

To the captain and crew of the CMA CGM Rossini, Captain Hervé Lepage received the award for the rescue of Jean Sitruk and Kyle Castelyn of the yacht Llama Lo, which sank off East London. Kyle's parents Ray and Linda Castelyn were in attendance. 🇿🇦

Changes in cervical spine immobilisation protocols



Cervical spine immobilisation protocols

There is a need to rethink the traditionally held belief that all trauma patients should automatically receive full spinal immobilisation. Earlier studies had attributed prehospital neurological deterioration to a failure to immobilise the spine. More recent studies have however failed to support this link. This doesn't mean that the earlier studies were incorrect but rather that more extensive research is needed before a decisive protocol can be developed for the patient immobilisation. Until such time, full body immobilisation must still be considered as an important treatment protocol and the use of cervical collars under certain conditions is still advised.

Cervical collars present additional challenges in using the optimal protocol for a patient. We find that they are often not an ideal fit for all patients and that even when they do fit a patient favourably they still allow for an undesirable amount of cervical spine movement and as such are not a complete cervical spine immobilisation tool. Also, if cervical collars are applied too tightly to a patient, they can compress the jugular veins, which can lead to substantially increased

intracranial pressure, a serious concern in patients with confirmed or suspected head injuries.


As part of the overall patient assessment, the following factors should be considered when deciding on the immobilisation methods to be used:

- In an unstable patient with blunt trauma, time is of the essence and rapid transportation to hospital should be the priority. In such instances, the use of a cervical collar only, while limiting movement on a stretcher, can be considered.
- In a patient with a penetrating traumatic wound and unstable circulation there is very little evidence to suggest that use of spinal immobilisation is of any benefit and rapid transportation without the application of immobilisation techniques can be considered.

It needs to be highlighted that reduced immobilisation techniques should only be applied to patients that are in a critical condition.

In patients that are stable, the following considerations should be taken:

- Patients who show signs of head injuries or increased intracranial pressure should not be immobilised with the use of a cervical collar. Full body immobilisation using a device like a vacuum mattress should still be applied. A spine board and head blocks can also be used for short immobilisation periods but the use of a vacuum mattress is preferred.
- In stable patients who show no signs of a head injury or increased intracranial pressure, the use of a proper fitting cervical collar is still recommended as part of a full body immobilisation protocol that also includes the use of a vacuum mattress or spine board and head blocks.

We strongly recommend that the reader familiarises themselves with the article in the Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine on the development of a new emergency medicine spinal immobilisation protocol as well as any further literature available to this effect before deciding to apply any new cervical spine treatment methods in their regular patient care procedures. 

The compressed air foam systems challenge

By Rod Carringer, chief marketing officer, Task Force Tips, Inc

Compressed air foam systems (CAFS) continue to be evaluated by fire service professionals worldwide for use in interior structural attack operations. With a significant percentage of all pumping apparatus being delivered today incorporating CAFS capabilities, there are several common misconceptions about the overall versatility of the manner of class A finished foam applications.

CAFS is a high-energy delivery system for class A foam. Just as a nozzle or a nozzle with a foam aspiration tube is a low-energy delivery method.

In the simplest terms, class A foam is a soap-based chemical agent that makes water foam up as it is agitated. Often, fire departments do not realise that common pumping systems and regular nozzles and attachments will work effectively with class A foam agents.

As has been proven many times in testing done in the United States by National Fire Protection Research Foundation, as well as the National Institute for Standards and Technology, the foam application



CAFS is a high-energy delivery system for Class A foam

method, (high or low energy) has no effect on the necessary critical application rate for extinguishment. It is important to note that the chemical chain reaction we call fire requires a minimum application rate of water to absorb the British thermal units (BTUs) being generated in the fire space. Foam (water) either from a CAFS attack or from a standard

combination nozzle must be applied in sufficient quantity for successful suppression to take place. Class A foam is an enhancement to... not a replacement for water.

Hose handling characteristics of high-energy CAFS lines require additional training and understanding for crews to be safe and effective. Though lightweight and easy to maneuver, these lines are actually storing the energy of the apparatus air compressor's pressurization. When opened and the stored energy is allowed to release, substantial nozzle reaction can be expected. Crews need to be prepared for this force. Additionally, kinking of a CAFS hose line will certainly change the finished foam quality and flow rate, and ultimately could cause 'slug flow'. Slug flow is an inconsistent mixture of air, water and foam concentrate in the hose that cause the line to uncontrollably react.

Many fire fighters that have viewed finished CAFS streams are amazed by the consistent, long lasting bubble structure of the highly expanded



Hose handling characteristics of high-energy CAFS lines require additional training and understanding

MAN Africa relocates head offices to Modderfontein, Johannesburg



MAN Truck and Bus South Africa (SA) and MAN sub equatorial Africa have relocated their head offices to new premises in Modderfontein, Johannesburg. A move that is representative of the organisation's new strategy to satisfy markets across South Africa and sub equatorial Africa by leveraging synergies between the two regional divisions.

With the retirement of former MAN Truck and Bus SA managing director, Geoff du Plessis in December 2015, MAN AG has appointed erstwhile chairman of MAN Truck and Bus SA and

head of sub equatorial Africa, Middle East and India), Markus Geyer as the new managing director of MAN Truck and Bus SA and MAN sub equatorial Africa. Relocating from Munich, Geyer is now based in Johannesburg and is contracted to occupy the position for four years with the option of extending the term by two years. "I am extremely excited to be living in South Africa and am looking forward to the arrival of my family in August when the international school year ends. My experience with MAN in South Africa and Africa as a whole goes back to 2004 when I oversaw the company's global repair and maintenance division. Since then, my engagement

with African customers has increased and I have come to understand the idiosyncrasies of respective markets on the continent. I believe I have the necessary experience to lead MAN into a new era of positive growth in the Pan African markets I now manage," says Geyer.

Joining Geyer on the management board of MAN Truck and Bus SA are Arshad Hassim as financial director and Sarah Luthuli as nonexecutive director. Ian Seethal, head of network development, adds the position of head of marketing communications for South Africa and sub equatorial Africa to his portfolio of responsibilities. Robert Clough is head of MAN sub equatorial Africa. "The streamlining of our management structure extends to our proprietary dealerships in Centurion, Pinetown and Cape Town, where we have created branch manager positions to elevate decision-making power at the point of sale. This forms part of MAN's new global management strategy, the PACE2017 project, designed to enhance customer-centric product and service delivery in specific markets," explains Geyer.

At the core of the PACE2017 project is a focus on a dynamic business culture where processes are simplified to ensure that customers get the right products and services more swiftly, with all MAN

▶ 'shaving cream' quality finished foam. This 'dry' foam is outstanding for exposure pretreatment but often lacks the necessary water content in the bubble structure to drain into the fuels to which it has been applied. It is not uncommon to have a fire continuing to burn or smolder in fuels that have had CAFS foam applied to them. This is due to the limited drain out of water in the bubble structure and can often lead to rekindling and overhaul challenges. Using a wetter foam is often more preferable when dealing with deep seated fires.

Rules of thumb for operational guidelines

Exterior or interior direct attack: When using a high-energy foam system (CAFS), the system should be adjusted to provide a wet foam. A conventional combination nozzle can be used to provide a protective fog pattern, though reach and foam quality may be diminished.

Exposure protection: The appropriate foam can be produced by varying the mix ratio and/or changing the discharge device. Smooth bore nozzles or open ball valves should be used for the delivery of a drier foam with CAFS.

Ultimately, the selection of the nozzles used with CAFS applications is the key to overall suppression success. A widely recommended combination is a two-piece ball shutoff and allows a combination nozzle tip to be easily added or removed based on fire suppression strategies.

For additional information on class A foam agents, compressed air foam systems or nozzle combination choices, your local fire equipment distribution partner should be contacted. ⚠

personnel being guided by the acronym, PACE ie passion, accountability, commitment and execution.

Behind this commitment to customer satisfaction is the MAN portfolio of truck and bus products, which continue to prove their ability to lower total cost of ownership through engineering excellence, says Geyer. MAN notched up its fourth consecutive number-one position in the 2015 TÜV report, an international quality assurance audit of trucks and buses in active duty undertaken every six months.

"Our new head office reflects our premium brand positioning and our values of transparency and openness. A total investment of R75 million demonstrates MAN's commitment to long-term investment in South Africa, to establishing the organisation as the leading employer in the heavy commercial vehicle sector by attracting the right talent to ensure market-leading customer orientation," adds Geyer.

"We now have full decision-making power for the entire sub equatorial Africa region, including South Africa all under one roof. MAN Financial Services, a joint venture between ABSA and Volkswagen (VW) Financial Services, will also relocate to our new headquarters, which will ensure stronger support between sales and finance thus ensuring better customer service. Having our sales and aftersales teams sitting next to each other will also strengthen our ability to support our customers more effectively. Furthermore, having all strategic business units in one building enables us to not only share business intelligence from respective market bases more easily between operational divisions but also cultivates concentrated effort to enhance efficiency in dealing with customer requirements," adds Geyer.

Commenting on MAN's market performance globally in 2015, Geyer states that despite worldwide market volatility, MAN Truck and Bus experienced positive revenue growth on 2014 figures in its respective divisions, with vehicle order numbers rising by nine percent, truck sales up by seven percent and bus sales climbing by 21 percent.

"Our turnover for 2015 from global operations rose by seven percent and our final operative result showed an increase of 35 percent on 2014 to close at 205 million euros. The South African heavy truck market, however, has been in slow decline for over a year, largely due to commodity market dips but our performance in other African markets has been positive," says Geyer. "We continue to hold market-leadership in the bus segment and the optimisation of our product portfolio for respective African truck and bus applications has reached a point where we can confidently extend our range of services to add tangible value and return on investment for our customers."

With the lion's share of its revenue coming from extra-heavy truck sales, MAN Truck and Bus SA has had to weather the storm that has seen a plummet in regional mining activity.

"The MAN TGS range of long-haul truck tractors has established industry benchmarks for fuel efficiency and despite headwinds in the side-tipper transport sector, the TGS range continues to perform as a viable solution for long-haul distribution applications," Geyer says. "The TGS rigid-chassis freight-carrier derivatives are proving themselves in applications where superior traction is required, such as construction and timber transport. Our CLA, TGM and VW derivatives are also satisfying customer requirements in niche segments, both private and municipal."

A highlight for MAN during 2015 was the introduction of the Euro 5 MAN TGX 540 long-haul 6x4 truck-tractor and its 13 240 kilometre 'ONE MAN Kann Journey' across southern and east Africa. The epic trip not only proved the merits of the new flagship as a bona-fide long-haul truck for Africa but also demonstrated the efficacy of two new MAN Support offerings, MAN ProfiDrive®, which is an advanced driver training programme and MAN TeleMatics®, a Fleet Management solution co-developed in South Africa by MAN and Cartrack.

"The journey helped to showcase our growing dealer network in sub equatorial Africa. New private-capital dealerships in Maputo, Nairobi, Lusaka and Windhoek were opened to



coincide with the Journey as it made its way across the sub-continent. With 27 dealers in South Africa and 17 in 12 countries in sub equatorial Africa, we are at the forefront of supplying optimum aftersales support to transporters, particularly those who conduct cross-border operations," states Geyer.

"We are constantly investing in skills training to develop our dealer network, both proprietary and privately-owned. We doubled our technical training level percentage in 2015 and escalated our driver-training executions considerably with the launch of ProfiDrive®.

"After a period of consolidation, which saw a great amount of effort and good work lead to the introduction of genuine market-driven solutions, we now have an unprecedented degree of unity and focus that extends across all areas of our operations. From our new head office, to our assembly plants and parts distribution centre, to each of our 43 dealerships south of the equator, we are perfectly geared to create a new paradigm of supplier responsiveness and competency for heavy-duty commercial vehicle operators across a broad spectrum of specialised applications.

"What is really exciting is that we are now in a position to offer solutions that will not only bring new intra-Africa opportunities for South African transporters, but to also provide a support infrastructure that will help unify and boost the burgeoning economies of sub equatorial Africa," concludes Geyer. ▲

Fires in vacant and abandoned buildings – taking the risk when it's needed

By Colin Deiner, Chief Director, Disaster Management and Fire Brigade Services,
Western Cape Government



Incident commanders have a huge responsibility when committing crews into abandoned structures

The downturn in the economy has many casualties. One of these is the increase in the number of buildings being abandoned by their owners. Most of these are commercial structures that had previously been used for manufacture and storage of various goods. In many of these cases the buildings were abandoned without much rehabilitation of any hazardous contents that may still have been inside them or service piping and other safety risks that may have been in place.

Another negative result of the downturn is the increased migration of people from poverty stricken rural areas to cities. Large numbers of these people do not have access to housing and then seek shelter anywhere they can find; on many occasions they end up in abandoned buildings. With no fire safety or any other security systems in place, these desperate people take their own security measures, often with devastating consequences in the event of a fire.

Vacant building types

Virtually all buildings are at a risk of being abandoned and standing vacant for an unspecified (and sometimes extended) period. The three most common buildings that are periodically left abandoned are large volume industrial manufacturing and storage structures, medium to high rise office structures and residential dwellings.

I recall having an office in Johannesburg across from an abandoned office block some years ago. This seven-storey structure had been invaded by a large number of people who turned the office areas into living spaces. To achieve some sort of privacy they used blankets, curtains and plastic sheeting rigged with wire or rope at various heights throughout the building. These 'separating elements' would often lead to the lighting system being obscured and to address this problem they would run electrical wiring from the power system to their own little enclaves. A particularly

hazardous condition developed in the lift shaft that had long since stopped operating and was now being used as a rather large rubbish disposal. In a similar building I once inspected the rubbish had already piled up to the sixth floor. Despite the huge fire hazard this poses, one can only imagine the massive prevailing health hazard.

At some stage the authorities decided to evict all occupants from the structure and seal all entrance points and windows up in order to prevent any future occupation. One early morning I noticed a few of the bricks at a point at the bottom of the building being displaced from the inside. Shortly thereafter I counted more than a hundred people exiting through this opening. Problem: you now have an added challenge of NO escape routes for occupants if the building catches fire.

In buildings like this, no matter where they are located, there is often also a major crime risk. It is therefore very difficult for fire inspectors to enter these premises and many times they can only enter under police protection.

The objectives of this article are not to lay blame on any authorities or recommend measures to prevent their illegal occupation. The objective here is to provide some thoughts on the management of emergency operations in these buildings.

Hazards

The four main universal hazards of abandoned buildings are:

- Poor structural integrity
- Advanced fire conditions due to the use of flammable materials for occupancy separation by illegal occupants
- Use of flammable substances by illegal occupants
- Large amounts of trash and debris
- Entanglement and entrapment hazards
- Poor to non-existent ventilation conditions

Risk versus reward

The City of Phoenix, Arizona, has an important preamble in their standard operating procedure on fighting fires in unoccupied structures:

- We will risk our lives a lot, in a highly calculated and controlled manner, to protect a saveable human life
- We will risk our lives a little, in a highly calculated and controlled manner, to protect saveable property
- We will not risk our lives at all to protect lives or property that are already lost

These rules, I believe, should be uppermost in the minds of all incident commanders responding to fires in vacant buildings. We should, however, not allow every vacant building to burn down just because there are no saveable lives inside. It is expected of fire services to bring enough water and people to a fire to enable them to extinguish it. What is critical is that a thorough risk assessment be made of all fires in abandoned buildings before committing resources into high risk situations.

If as incident commander you have no evidence of possible occupation of an abandoned structure, it is not advisable to commit resources into the interior of the structure. However, always look for clues. Deploy someone to speak to the

bystanders. If there is sufficient evidence to suggest that people might be somewhere in the structure and the risk is acceptable then it will be required of the fire department to search the building and effect any possible rescues.

An important clue as to whether a 'vacant' building is occupied might be an appreciation of the cause of the fire. If the fire was started by candles or heating equipment the chances are that someone is still in there. Arson might be a sign of some act of revenge and could be aimed at someone inside the building. Using thermal imaging cameras will assist greatly in identifying possible entrapped occupants but also the source and origin of the fire.

There are other, more obvious, signs that seemingly abandoned buildings are in fact, occupied. Look for washing hanging in or around the building, improvised living areas, illegal electrical fittings, water buckets and portable ablution devices. Even television sets and satellite dishes might be present.

Also look at the location of the structure. If it is located near an informal settlement or within an inner city zone that is heavily populated, the chances are almost certain that the abandoned structure will be populated.

A well-involved building would likely represent a zero survivability profile. Similar conditions in an abandoned building would indicate limited survivability and virtually no property that may be saved. If the fire intensity is of



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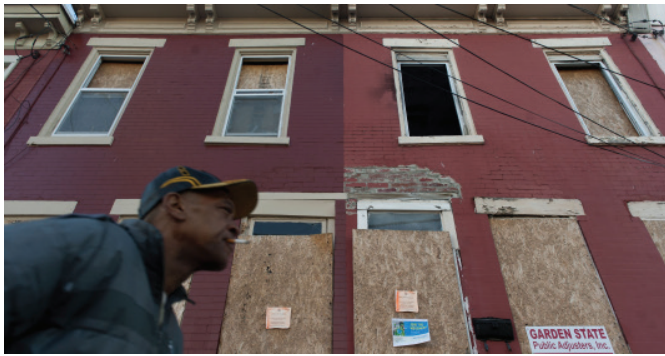
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Abandoned buildings



Your path of entry and egress must be carefully noted

- ▶ such a nature that your fire fighters can't enter without full personal protective equipment (PPE) and breathing apparatus, the chances of anyone surviving is remote.

Preplanning

Because it is difficult to continuously keep tabs on which buildings are being vacated, it might be really difficult to keep tabs on every vacant building in your response area. Abandoned inner city structures such as those I mentioned above would have been in existence for a while. Obviously, it would be better to act immediate when 'high-rise slums' are encountered and try to have the building evacuated, however, it might not be as easy as we might imagine. A number of legal challenges and social resistance to such an eviction might make it difficult. While making every effort to keep people safe and that usually means getting them out of the building, it would be advisable to develop an effective response plan.

Not all buildings will be abandoned for an extended period. You might encounter a business that has been recently discontinued, which may still have all its electricity and water fittings and may still contain a large amount of stock or manufacturing machinery. This could all add to the fire load and present additional hazards such as high-rack storage.

Fire fighting

Your strategy and tactics will mainly depend on the type of structure involved.

If you are called to a large volume commercial warehouse or factory type structure, you should be able to determine relatively easily if it is occupied or not. Any occupants would normally be found in smaller storerooms or offices located within the structure, generally constructed around the sides. A thorough scan of the inside of the structure with a thermal imaging device could confirm the presence (or absence) of any occupants. If the fire is confined to a small part of the interior and there is no structural collapse risk, it might be possible to quickly extinguish it with a few attack lines. Beware here of the existence of any hazardous materials (hazmat) that might have remained after the business was discontinued. The golden rule of hazmat, "If you don't know. Don't go. Because it might blow." is as relevant here as anywhere. Possible hazardous materials that could be encountered here could include gas cylinders, corrosive cleaning agents and other toxic substances. More on this later.

If the structure is fully involved, it is best to go defensive. In such a case it probably will not be possible to save much of the structure. Surround and drown might be the only game in town. It will generally require large water volumes and several master streams. This might be a problem in an area that has not supported industry for a while, if the water mains system has not been maintained. A sudden surge of increased water pressure in such an area could disturb any debris in the water mains, which could cause damage to your fire water supply system.

Depending on the age and condition of the structure, you will also have to consider the possibility of collapsing roofs and walls. Ensure that all exterior units are set-up outside any potential collapse zones.

Abandoned single occupancy dwellings should present the same challenges as an occupied dwelling. However, the neglect and vandalism to which it was exposed will increase the risk to fire fighters. A standard two engine and one ladder truck response should provide you with enough resources to conduct either an interior (offensive) or exterior (defensive) attack.

If it is certain or you have sufficient proof that people might be trapped inside the dwelling, the incident commander must do an immediate assessment of the prevailing hazards and then make a rapid decision to deploy a search and rescue operation supported by a balanced fire attack. This last point is important. A balanced attack is when a fast interior fire suppression operation is supported by fire fighters providing effective ventilation and ensuring an unimpeded entry and escape route for the nozzle team. The nozzle team's first and most important task (after their own safety) is to locate and rescue inhabitants. This is greatly helped by reaching the seat of the fire and removing the smoke and heat from the structure. A separate search and rescue crew can be deployed but bear in mind that they will need the protection of a hose team as they move through the building. Staffing challenges might necessitate you to deploy your attack team as a search and rescue team. If a dwelling's openings have been boarded up by timber or any other materials, they must be carefully removed to ensure sufficient ventilation. Crews removing this boarding should know what the fire conditions on the other side of the structure are to prevent the possibility of a backdraft occurring. ▶



Interior crews could be confronted with the hazard of unstable walls, rotting roof structures, unprotected electricity connections and hazmat risks

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Abandoned buildings



A thorough risk assessment must be made of all fires in abandoned buildings before committing resources

- ▶ If the structure is protected by security bars, they need to be removed by the exterior crews (truck company) who should move in unison with the interior crews. This will allow the search and rescue crew to remove any found victims through the closest window or to use it as an escape route when conditions go south.

The nightmare of the 'high-rise slum' is probably one that no incident commander would ever want to experience. Such an incident happening at night would be compounded by the increased occupancy of the structure as well as the lack of lighting. In such a fire you will know, you will have a lot of victims. Upon arrival at such a fire, your most important and first objective will be rescue. The best way to achieve evacuation would be to try and place protective water curtains between the fire and any identified escape routes. Due to you not having done a prefire inspection of the structure, you will have to identify these areas on the fly. Make sure that you have additional staff who can be deployed to coordinate and supervise the evacuation. It might be necessary for your attack teams to advance onto the fire and move it back to a point where it can be controlled sufficiently enough so that people can move past it.

Smoke will definitely be a challenge and therefore it will be important to deploy enough positive pressure ventilators early. In so doing you will be able to guide the smoke to areas where it could be less of a hazard to escaping occupants. You might need more than your standard tools to make ventilation openings, especially if as mentioned earlier the openings have been sealed off with bricks and mortar. If it is possible to evacuate occupants, try to get as many of them out as you can. You will then need to conduct a thorough search and rescue operation to find any victims who might have been injured or overcome by the smoke and fire. There might also be people who could be trapped in parts of the structure that will require breaking or cutting to free them. Ensure that you have the right forcible entry tools available to do this. Also make sure you have experienced personnel doing these tasks.

When committing crews to the interior of the structure, bear in mind that it would probably (almost certainly) not have been maintained for an extended period. This could mean that interior crews could be confronted with the hazard of unstable walls, rotting roof structures, unprotected electricity

connections and, in older buildings, collapsing staircases. Fire fighters need to take care to ensure that they proceed with extreme caution through the building and that they are in a safe space with a secure footing at all times. Any rescue activities must be performed from such a space and should it be necessary to reach a victim in an unsafe location the rescuer must be anchored to a stable platform.

A standby rescue crew should be on standby at all times to react quickly to any fire crew distress call. All crews inside the structure must be accounted for at all times. Especially when you are working in a building such as this, your path of entry and egress must be carefully noted to ensure that you are able to exit the building within the minimum safe duration permitted by your breathing apparatus.

The hazmat risk

The presence of hazardous materials will always be a consideration for any crews responding to incidents in abandoned and vacant buildings.

Abandoned houses or apartments are often used by gangs or drug-users (particularly in urban areas) and various paraphernalia such as contaminated needles and shattered vials could be lying around the rooms.

Abandoned buildings on farms or in rural areas could also be home to a variety of wildlife that could range from poisonous snakes to some particularly nasty members of the extended cat family. Although not a hazmat risk, these animals could cause serious injury or even kill unsuspecting fire fighters and it might be necessary to have your local animal welfare specialist's contact numbers handy.

As mentioned previously, abandoned factories could still have toxic or corrosive waste products inside them. These could either be in the form of stock that was never removed or liquids never purged from pipelines within the process areas. Also remember that certain hazardous materials might have had a long-term corrosive effect on structural elements that could cause them to weaken and collapse. Underground storage tanks can also leak hazardous materials into groundwater.

When a structure has been purposely set alight, a range of accelerants could have been used that will pose an unreasonable and unexpected threat to responding fire crews. If a fire in an abandoned or vacant structure was caused deliberately, the chances are good that it will be considered a crime scene. Then, as in any crime scene, fire services need to make every possible effort to protect any evidence while still doing their jobs. It is always good for the incident commander to work closely with a police representative to ensure that evidence in specific areas of interest to them is protected as far as possible.

Although it doesn't fall within the scope of this article, fire services in certain parts of the country often respond to incidents in abandoned mines and mines buildings. Apart from these places also being a living space for vagrants and drug-users, old mines may contain radioactive materials and/or abandoned explosives.

Fires in high-rise buildings: extending hose lines for initial attack

By Ian Schnetler, chief fire officer, City of Cape Town Fire and Rescue Service

The pump operator should take a position away from the hazard of falling glass until pumping operations are necessary

The 'Fires in high-rise buildings' series of articles offers practical know-how to responders to these perilous fires. This fourth part of the five part series focuses on extending hoselines for initial attack.

The possibility of backdrafts or flare-ups from the sudden loss of windows and the high probability of flashover temperatures all require that the initial attack line be charged before entering the floor. The easiest manner to extend hose onto a fire floor, is to

stretch it up the attack stairwell and pull it down as you advance onto the floor. Crews should layout the dry hose approximately 15cm from the outside wall as they progress up the stairs.

When charged, the hose will expand against the wall without kinking. The fire fighters extending hose on the upper landings will be exposed should the fire flash out the stair door and up the stairs. A back-up line with a fog nozzle should be in place before opening the door to advance the attack line,

both to protect the attack crew and the fire fighters in the stairwell.

Connect both the attack line and the back-up line to the hydrant outlet on the fire floor and assume a position below the level of the stair door as the door is opened or forced through broken glass.

Heat from a fire near the stair door may have warped or expanded steel doors or jambs and they may have to be forced even though they are unlocked. Crews must insure that composite type

Deep vertical shafts are susceptible to cave-ins and collapse and the air in mines can contain invisible and odourless gasses such as methane, carbon monoxide and hydrogen sulphide that are lethal.

Water-filled quarry pits and sediment ponds are often very deep and in the winter season may contain contaminated and icy water. The edges may also very slippery and steep.

In closing

Incident commanders have a huge responsibility when committing crews into structures that pose the risks mentioned in this article. When deciding on an interior attack, the following precautions must be implemented:

- Limit the time the crews work inside the structure
- Provide very specific tasks and objectives
- All crews must have safety lines and hose lines
- Provide thermal imagers to guide interior crews

- Monitor interior crews at all times
- Support interior attacks with ongoing ventilation, laddering and forcible entry tasks

When an exterior attack is decided upon, a command priority should be to implement measures aimed at protecting crews and apparatus from structural collapse and the ensuring of a sustained water supply not only for the involved structure but also to protect any neighbouring exposures.

Note: I wish to dedicate this article to the late Willie Barker. A great officer from the City of Johannesburg, who made a massive contribution to the service in South Africa over a career spanning four decades. It was Willie who first showed me the 'high rise slums' and worked tirelessly to find a solution to the scourge. I hope I have done his work justice by reflecting some of it here. ▲

High-rise fires

- ▶ stair doors are not consumed by the fire before occupants descending from above have passed. Protect these wood veneer, gypsum filled doors with fog streams.

Water supply

The incident commander must ensure that the pump operator of the initial engine on the scene should connect to a fire hydrant sufficiently close to the booster connections, supply the internal system with sufficient water pressure. In most cases, it is best to have the engine at a hydrant away from the risk of falling glass but in very tall buildings the pumper must be located at the base of the building to provide adequate pressures.

If there are multiple hydrants, hose must be connected to each inlet. If the chosen hydrant is not close to the dedicated fire department access, then the crew and equipment can be dropped at the designated entrance and the pump operator continue to the hydrant to make the connections. Dry stand-pipes should be pressurised according to standard hydraulic calculations. In wet systems, the lines should be wetted but not pressurised until verification that the fire pump is not operating. Wet systems may

require that the fire engine duplicate the system's pressure provided by the fire pump. Lobby may be able to verify the building fire pump operations from the fire control room or by sending a crew member to the pump room.

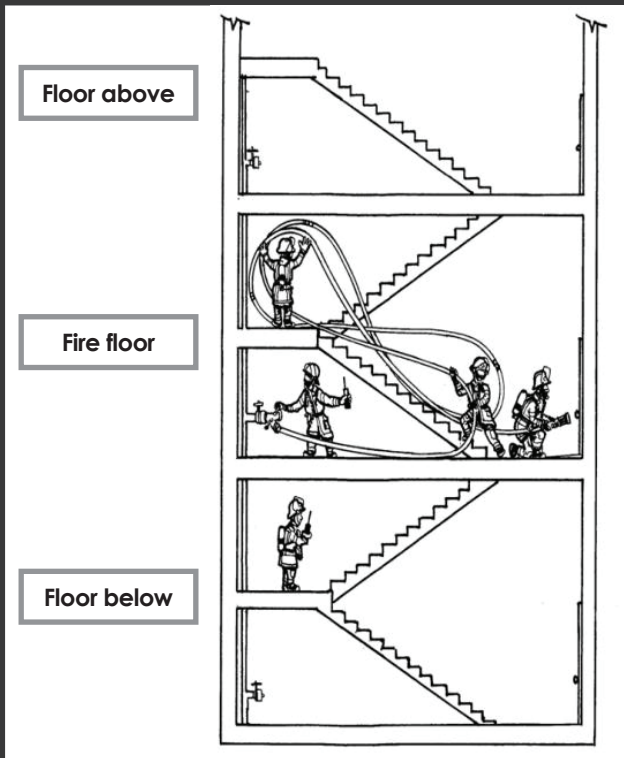
The pump operator should take a position away from the hazard of falling glass until pumping operations are necessary. If available, hose should be protected from glass and debris. The pump operator should take shelter in engine cab during pump operations to be protected from falling glass and other debris.

Safety when dealing with high-rise incidents

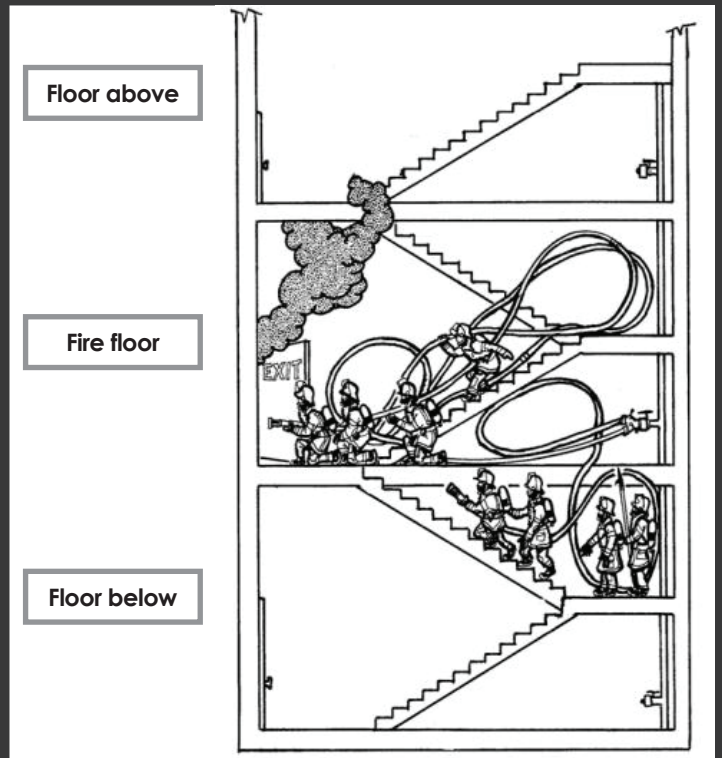
- Do not operate alone. A minimum for any task except the elevator person is two fire fighters with a radio. Maintain personnel accountability report (PAR) at all times.
- Maintain full PASSPORT accountability, PASS alert and radio protocols.
- Wear full protective gear at all times. Conditions can change rapidly.
- Do not operate on an involved floor without a charged hoseline.
- Do not allow doors to lock

behind you.

- Carry the necessary forcible entry tools.
- Be alert to backdrafts. High-rises are tightly sealed buildings. Feel metal jambs when assessing interior doors. A high-rise floor can have many compartments.
- Be cautious of open shafts or windows. Barricade all openings as soon as possible. Vision on the floor may be reduced even after ventilation because of impounded heat.
- Monitor your air supply closely. There is no diving out a window as at ground level.
- If you are sent into remote areas of the building, take a spare cylinder with. If you have not reached or completed your objective by the time the first cylinder is exhausted, use the second to immediately leave.
- You cannot independably break an upper window for air in a high rise, especially in winter time. Both the pressure of fire gases in the cores and the upward winter time stack will bring smoke to the opening.
- Maintain a 60m clear perimeter around the building.
- Do not attempt to change breathing apparatus (BA) cylinders in smoke.



The easiest manner to extend hose onto a fire floor is to stretch it up the attack stairwell and pull it down as you advance onto the floor



Connect both the attack line and the back-up line to the hydrant outlet on the fire floor

Fire station planning principles: calculating optimal siting

By Previn D Govender, divisional head: strategy and planning, City of Ekurhuleni Disaster and Emergency Management Services

In this third part of the four part series on fire station planning principles, we focus on the methodology used in motivating planning principles such as South African Standard (SANS) 10090, National Fire Protection Association (NFPA) 1710 and Geographic Information Systems (GIS).

The planning for and location of fire stations sites must be informed by methodical and logical analysis of key factors and well supported by current and historical data in order to lead to credible and informed decisions conclusive and sufficient enough to meet current and future demands.

“The need for fire protection and time-distance from the station to the points to be served is the major criteria determining distribution of fire houses”

Fire House Location Planning; American Society of Planning Officials, Information Report No. 98, May 1957

SANS 10090 methodology

Using the requirements of SANS 10090 required attendance times at fires (refer table 2 in previous article), in order to determine the fire response coverage area the key factors that are used for computing the plotting of future fire station locations are:

- The travel time requirement for the highest risk
- Estimated speed of the appliance compensating for complexities of street grids and networks
- The distance that will be covered when multiplying the above two factors in order ie distance (km) = speed (km/h x time (hours)

Once the distance that can be travelled is known, the next step is to establish the coverage area by extending the linear distance calculated from the centre point in the form of a regular polygon, in this case a six-sided polygon or hexagon.

Once the polygon has been established; it is then possible to work out the square kilometres that can be covered by using the formula (fig 2) below:

$$\text{Regular Polygon} = \frac{s^2 \times N}{4 \times \tan \frac{180}{N}}$$

Where:

“s” is the length of any side of the polygon (km)

“N” is the number of sides (6 in the case of a hexagon)

TAN is the tangent function calculated in degrees

Figure 2: Formula for calculating square kilometre area ▶

- Do not store BA cylinders in the stairwell. You can trip and if the cylinders get loose, they are dangerous to descending occupants.
- Use the hoseline as a reference point when searching in smoke. Return to it after sweeping each room. If you become disoriented, remember female couplings take you back to the stairs or passage.
- Be cautious of your back-swing when forcing doors and windows in smoke. Especially, do not follow the tool out a window!!
- Where applicable shut off the floor heating/electricity as soon as possible at the sub panel or in the main electric room.
- Be cautious of the electricity when breaching walls or pulling ceiling. Do not direct streams into the sub

panel room or closet. Water leaking under the door can disrupt power to the building.

Accountability

PASSPORT accountability should be maintained in high-rise fires in the following manner:

- Initial attack crews/units. The initial crews/units to enter the high-rise building may leave their PASSPORTS on the dash of their apparatus.
- Upon the activation of the lobby sector, all crews sent into the building should turn in their PASSPORTS to the lobby sector officer (or designated accountability officer). The lobby sector officer must retrieve any PASSPORTS left on apparatus of initial arriving crews already in the building. Crews arriving in

lobby without a PASSPORT must have a ‘make-up’ PASSPORT.

- Once the resource sector is established, the resource sector officer should assign accountability officers to the stairwell doors in resource.
- PASSPORTS will be collected from crews leaving resource to a hazard zone ie fire floor and returned to crews returning to the resource sector. Accountability officers should monitor duration times of crews assigned to hazard zones and report any delayed/overdue crews. Standard PAR benchmarks should be utilised for high-rise operations.

In the following and final part of this series, we will detail the command strategies for high-rise fires. 🔥

Fire station planning principles

Example of fire response coverage area calculation using SANS 10090

A worked example of coverage area for a fire station to meet Category 'A' fire risk travel time of five minutes based on the estimated appliance speed of 30km/h would look like:

STEP 1: Calculate linear travel distance

Distance = speed x time

Where:

d=?

s= 30km/h

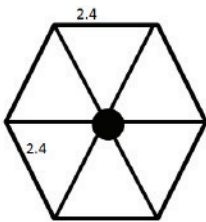
t = ,08 hours ie five minutes travel time required for category A fire risk divided by 60 minutes

Thus:

d = 30 x 0,08

= 2,4 km is the distance that can be travelled in five minutes at 30 km/h

STEP 2: Establish polygon



STEP 3: Establish polygon

$$\begin{aligned}
 \text{Regular polygon} &= \frac{s^2 \times N}{4 \times \tan \frac{180}{N}} \\
 &= \frac{2,4^2 \times 6}{4 \times \tan \frac{180}{6}} \\
 &= \frac{34,56}{2,3} \\
 &= 15,02 \text{ km}^2
 \end{aligned}$$

STEP 4: Factor 25 percent deduction allowance

SANS advises that an allowance of 25 percent must be deducted in order to make provision for complexities of street grid networks.

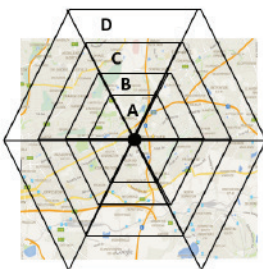
= 15,02 km² – 25 percent

= 11km² is the area to be covered with five minute response window travelling at 30km/h.

STEP 5: Repeat step 1 to Step 4 for B, C and D categories

Using the same travel speed (30km/h) but the different maximum time requirements for each remaining fire risk category; calculate the fire response coverage areas for B, C and D fire risk categories.

STEP 6: Overlay polygons on map



Consolidate polygons for each risk category and overlay on map to provide indicative fire response coverage for each risk category. Map and polygon shown below only for illustrative purposes

NFPA 1710 methodology

Taking into account that the NFPA 1710 is provision of SANS 10090, the American system considers the distribution of fire stations based on the required response times (table 3) for the area protected rather than risk protected and on the Fire Suppression Rating Schedule (FSRS), which is an analysis tool of the Public Protection Classification (PPCTM) programme of the Insurance Service Office-USA (ISO).

The FSRS states that the built upon area of the fire protection area should have a first-due engine company within 1,5 road miles (2,4 road kilometres) and a ladder-service company within 2,5 miles (4 kilometres).

This criteria produces an expected response time of 3,2 minutes for an engine company and 4,9 minutes for a ladder-service company, based on a formula developed by the New York City RAND Institute (USA).

RAND conducted extensive studies of fire department response times. They concluded that the average speed for a fire apparatus responding with emergency lights and siren is 35 mph (56.32kmh). This average speed considers average terrain, average traffic, weather and slowing down for intersections.

Taking into account the average speed and the time required for an apparatus to accelerate from a stop to the travel speed, RAND developed the following equation for calculating the travel time:

$$T = \sqrt{,65 + 1,7(D)}$$

Where:

- T= time in minutes to the nearest 1/10 of a minute
- ,65 = a vehicle-acceleration constant for the first 0,5 mile traveled
- 1,7 = a vehicle-speed constant validated for response distances ranging from 0,5 miles to 8,0 miles.
- D = distance

Figure 3: RAND Institute equation for calculation of travel time

Calculations on SANS and NFPA methodologies

It is suggested (as essential) that when planning for optimal siting of future fire stations, that both the SANS and NFPA methodologies for calculation, where one is risk category-based and the other community centric, be utilised.

The results for optimal siting of fire station will then be based on variable ranges of risk, maximum required travel times, estimated speed of appliance, distance, resultant coverage areas that when inputted into the RAND equation, will provide resultant average travel time to actually cover the road kilometres.

The tables below show the calculations for the categories of fire risk based on maximum travel times, estimated speeds of appliance and actual time to cover the road kilometre distance.

Table 1: Fire response coverage for category A fire risks

Cat	Using D= s X t			Using $\frac{s^2 \times N}{4 \times \tan \frac{180}{N}}$ less 25%	Using $T = \sqrt{,065 + 1,7(D)}$ (converted to km)
	D (km)	S (km/h)	T (hours)	Fire response coverage (km ²)	Travel time per road km (decimal minutes)
A	2	25	0,08	8	2,8
	2,4	30	0,08	11	3,2
	2,8	35	0,08	15	3,6
	3,2	40	0,08	20	4,0
	3,6	45	0,08	25	4,5
5	4	50	0,08	31	4,9
Average	3	37.5	0,08	18	3,8

Table 2: Fire response coverage for category B fire risks

Cat	Using D= s X t			Using $\frac{s^2 \times N}{4 \times \tan \frac{180}{N}}$ less 25%	Using $T = .065 + 1.7(D)$ (converted to km)
	D (km)	S (km/h)	T (hours)	Fire response coverage (km ²)	Travel time per road km (decimal minutes)
B	2,75	25	0,11	15	3,6
	3,3	30	0,11	21	4,1
	3,85	35	0,11	29	4,7
Maximum travel time (minutes)	4,4	40	0,11	38	5,3
	4,95	45	0,11	48	5,9
	5,5	50	0,11	59	6,5
Average	4	37,5	0,11	35	5,0

Table 3: Fire response coverage for category C fire risks

Cat	Using D= s X t			Using $\frac{s^2 \times N}{4 \times \tan \frac{180}{N}}$ less 25%	Using $T = .065 + 1.7(D)$ (converted to km)
	D (km)	S (km/h)	T (hours)	Fire response coverage (km ²)	Travel time per road km (decimal minutes)
C	4	25	0,16	31	4,9
	4,8	30	0,16	45	5,7
	5,6	35	0,16	61	6,6
Maximum Travel Time (minutes)	6,4	40	0,16	80	7,4
	7,2	45	0,16	101	8,3
	8	50	0,16	125	9,1
Average	6	37.5	0,16	74	7,0

Table 4: Fire response coverage for category D fire risks

Cat	Using D= s X t			Using $\frac{s^2 \times N}{4 \times \tan \frac{180}{N}}$ less 25%	Using $T = .065 + 1.7(D)$ (converted to km)
	D (km)	S (km/h)	T (hours)	Fire response coverage (km ²)	Travel time per road km to (decimal minutes)
D	8,25	25	0,33	133	9,4
	9,9	30	0,33	191	11,1
	11,55	35	0,33	260	12,9
Maximum Travel Time (minutes)	13,2	40	0,33	340	14,6
	14,85	45	0,33	430	16,3
	16,5	50	0,33	531	18,1
Average	12	37,5	0,33	314	14

Changing the standard and the approach: a new criterion

In reading the above tables and computing the averages (arithmetic mean) of categories A, B, and C fire risks (category D – rural risks deliberately excluded) and including the average of the travel time by road and average of square kilometres that can be covered against the preceding calculated averages, the following conclusion is then possible as a benchmark criterion for the planning and siting of fire stations for built upon areas in South Africa.

This above suggested benchmark criterion therefore takes into account the decentralisation of risk as influenced by the urban complexity factor and makes the intent of community protection against fire more plausible by focusing on a consistency of response travel requirement.

Benchmark travel time criterion for community centric fire response:

A community fire station should be located to provide fire protection for a built- upon area with an initial coverage span of 42km² and a first due firefighting response unit travelling at an average speed of 37,5 km/h should take five minutes to cover four road kilometres and provide an expected initial response travel time of not more than seven minutes to a structural fire in that coverage area.

Using the new benchmark criterion for community-centric fire response (as concluded above) against the response

time function of a fire station, the following verification of estimation is possible:

$$T = t_0 + K(r)$$

Where:

T= Response time of the fire station in minutes

t0 = Turnout time in minutes

K = Traffic impedance factor

r = Distance in kilometres

Thus to estimate the value of K, the formula would have to be substituted with the probable benchmark criteria of road kilometre travel radius (r) of four kilometres with an estimated turnout time (t0) of one minute and a response time of seven minutes; thus K would equal to 1,5.

Alternatively, by using the formula T=t0 + K(r) where K is known (as a result of detailed traffic studies) and where t_0 and r are the variables, it will then also be possible to embark on analysis of historical response data. This will aide in improving the management of turnout times taking into consideration the urban diversity and varying complexities of different parts of the areas to be protected.

Attendance time standard for community-centric fire response

As the travel time is a component of the response time sequence and travel can only occur after turnout and dispatch and dispatch can only occur after call taking, it is then possible derive the attendance time for a first arriving fire fighting unit in a built-upon area.

This is done by adding the three minutes cumulative maximum time allocated for call taking, dispatch and turnout and adding this to the benchmark travel time criteria of seven minutes.

Thus the attendance time standard for community centric fire response can be stated as:

The total attendance time from time of call to time of arrival for a first arriving fire fighting response apparatus should be 10 minutes or less for any structural fire incident in a built-upon area.

The response convergence principle

The influence of the urban complexity factor coupled with the additional pressures of continuing expansion of urban edges, increasing traffic densities and decentralisation of central business districts into integrated human settlements warrants (and desperately so) a new approach to the way we actually design fire stations.

The proposed attendance time standard for community-centric fire response also suggests the shift away from large centralised fire stations (one town-one fire station model) and instead decentralisation to real community focused (smaller) fire stations in built upon areas by virtue of promoting turnout overlaps where larger built-upon areas would have more than one fire station strategically located within the built upon area in order to meet the initial seven minute response travel time window.



Traffic congestion, ever expanding street networks, building densities and suburban development must be considered in the planning, locating and siting of fire stations

- ▶ This will promote the concept of response convergence where stations could be located (in simple terms) within 14 minutes travel time from each other ie seven minutes to a central point and where mindful of potential traffic flow and other response barrier issues, fire fighting (and other emergency response) resources could be decentralised to smaller stations thereby ensuring that at any given time there is a potential fire fighting response apparatus and crew available to respond and converge upon the incident.

The automatic tracking of vehicles also is a factor that must be used to promote the shift away from standing response areas and where instead the mindset should be dispatch that which is closest in terms of road travel time.

Using GIS for travel time modelling

The use of geographic information systems (GIS) to perform response travel time modelling can easily incorporate other current and future development factors in order to determine more realistic travel time modelling.

The incorporation of aspects of current and future development, public transport and road network

systems information in GIS travel time modelling will highlight areas that would be characterised by intensification of human and transport activity and also at the same time identify how these factors could potentially impact on traffic flows, which will assist in gauging how street attribute information will influence the expected response travel times from identified possible station locations so identified during the stages of location planning.

Added advantages of using GIS can be extended to historic analysis of fire response throughout the jurisdictional area which will further influence future coverage decision making in terms of highlighting coverage gaps, response trends and patterns, fire and life safety risk indicators and turnout overlaps gaps in built upon areas and importantly the need to create future turnout overlaps as development occurs in the area and as suggested by the community-centric fire response criteria.

The next and final part of the series will focus on choosing a site and will detail site functionality and location. ▲

Post-traumatic stress disorder

– what is it?

By Mike Webber,
counselling psychologist

In this first part of a series of three articles on Post-traumatic stress disorder (PTSD), we're going to describe what it is (and what it's not), followed by a further two papers on its treatment and prevention (yes, it can to some extent be prevented). PTSD is not news. It's been described and researched by medical and psychology researchers for over 100 years now. However, this research has focused on military veterans and the subject is still, unfortunately, the elephant in the fire station here in South Africa.

PTSD is something that happens in wars. South African troops came back from border duty 'Bossies'. Vietnam veterans had 'battle fatigue'. World War II veterans had 'shell shock'. Some military hospital trains had wards for the 'mentally injured'. In the South African fire services, we hadn't heard of it or thought that we could suffer from it. Until around 13h15 on Wednesday, 27 March 1985.

Case study

Nobody came away from the Westdene bus disaster in 1985 the same person as they'd woken up that morning. First responders arrived poorly equipped to deal with an underwater rescue. Ambulance crews, the fire crews from Brixton and Roosevelt Park fire stations, officers from Johannesburg Fire and Rescue headquarters, instructors from Brixton Training School and fire

About the Author

Mike Webber is a member of the Institute of Fire Engineers (IFE) and currently serves as a council member on the IFE South Africa (SA) council. He also holds the SAESI Associate Diploma, currently referred to as the Higher Diploma in Fire Technology and is also a Fellow of SAESI. Mike has graduated with Bachelor of Arts (BA) degree (majoring in psychology and sociology) from UNISA, a BA Honours degree (Psychology) Cum Laude from University of KZN and a Masters degree (Psychology) Cum Laude from the University of Fort Hare in East London. He has served for over 30 years in the emergency services, first in the South African Police Service for over



Nobody came away from the Westdene bus disaster in 1985 the same person as they'd woken up that morning.

prevention officers frantically tried to dive down to the windows and bus door stripped down to their underwear. Some tried using breathing apparatus (BA) sets to stay down longer. The underwater visibility was zero. Although BA sets do work to limited depth underwater, their curved visors cause double vision underwater. Children brought to the surface were carried off the wall by staff carrying them on blankets as they literally ran towards ambulances and the four helicopters flying backwards and forwards to and from the JG Strydom Hospital. Too many children, too little time, too few hands, too little coordination and too little suitable equipment. The rescuers were frantic. Their emotions ranged from desperation to anger. They worked like Trojans. But they couldn't achieve what they were trying for - a successful rescue.

After the incident no-one was the same. Many responders became depressed, demotivated and in fire service terms 'NAAFI'. Most became very irritable and angry a lot of the time. Many relationships broke up. Many resorted to self medicating with over-the-counter medications and excessive alcohol consumption. Many avoided any reminders of the incident, including the scene, press reports, sounds or sights that reminded them of the incident. What happened?

What is PTSD?

The development of PTSD requires exposure to an event that is exceptionally threatening or catastrophic. It frequently involves a threat of death or serious injury or being witness to instances of death, disfigurement serious injury or violence. ▶

two years, before assuming duties in the fire services. He has served as a fire fighter and leading fire fighter in the East London Fire Brigade before serving as an officer in the Johannesburg, Milnerton and Durban Fire and Emergency Services. He currently works as a counselling psychologist at the Netcare Blaauwberg Hospital in Cape Town.

Webber, whilst now in private practice and working as a fire and dangerous goods risk consultant, has continued to be involved in fire service matters. Apart from serving on the IFE (SA) council, he serves on numerous South African Bureau of Standards (SABS) technical

committees and working groups regarding the transport and storage of dangerous goods. He is currently the chairperson of the SABS technical committee TC1060 on the classification, storage and transport of dangerous goods, including hazardous chemical substances and waste and is also the convenor of the SABS working group on the development of a national standard on the storage of packaged flammable and combustible liquids. He also advises several multi-national clients on fire and risk management matters and has contributed to the psychological support section of the current National White Paper on Fire Services.

Post-traumatic stress disorder

DSM - 5	ICD - 10
<ul style="list-style-type: none"> • Exposure to actual or threatened death, serious injury or sexual violence in one or more of the following ways: <ul style="list-style-type: none"> - Directly experiencing the event - Witnessing the event - Learning that an event happened to some-one close - Repeated exposure to aversive details of traumatic events (fire fighters, emergency care practitioners, etc) • Experiencing one or more of the following: <ul style="list-style-type: none"> - Recurrent involuntary memories - Recurrent distressing dreams - Dissociative reactions (flashbacks) - Psychological distress at exposure to reminders of the event - Physiological reactions to internal or external cues that resemble the trauma • Persistent avoidance of stimuli associated with the traumatic event • Negative alterations in thoughts and mood that include two of the following: <ul style="list-style-type: none"> - Inability to remember aspects of the trauma - Exaggerated negative beliefs, such as 'the world is a dangerous place' or 'I'm worthless' - Distorted beliefs about the event, such as self blame - Persistent negative mood - Diminished interest in activities - Feelings of detachment from friends, loved ones or colleagues - Persistent inability to experience positive emotions • Significant alterations in arousal and reactivity characterised by two or more of the following: <ul style="list-style-type: none"> - Irritability and angry outbursts - Reckless or self-destructive behaviour - Hypervigilance - Exaggerated startle response - Problems concentrating; - Sleep disturbances 	<ul style="list-style-type: none"> • Exposure to a stressful event or situation (either short or long lasting) of an exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress in almost anyone • Persistent remembering or reliving the stressor through intrusive flashbacks, vivid memories, recurring dreams/nightmares or by experiencing distress when exposed to circumstances resembling or associated with the traumatic event • Actual or preferred avoidance of circumstances resembling or associated with the stressor • Either of: <ul style="list-style-type: none"> - Inability to recall some important aspects of the period of exposure to the stressor or - Persistent increased physiological arousal shown by any two of the following: <ul style="list-style-type: none"> * Difficulty falling or staying asleep * Irritability or outbursts of anger * Difficulty concentrating * Hypervigilance or * Exaggerated startle response • The above criteria occurred within six months of the event.

▶ It is also often accompanied by feelings of helplessness or disempowerment. This is what the crews at the Westdene bus disaster experienced. It was an event that fell outside the realm of what fire and rescue crews would normally face. They felt disempowered. They felt that they couldn't do enough. They were surrounded by dead children. They couldn't resuscitate them.

We know what causes PTSD. It's not being weak. It's not malingering. Whilst this writer has come across one or two instances where fire fighters have complained of 'trauma' after attending a simple vehicle rescue, which certainly does beg their suitability for rescue work, everybody has a breaking point. It's not being 'unsuitable for the service' after an event like the Westdene bus disaster. Changes in certain brain structures and the way that the brain processes information occur during exposure to an exceptionally catastrophic or threatening event. The medial hypothalamus in the brain starts to process information differently. The hypothalamic-pituitary-

adrenal (HPA) axis that is responsible for autonomic sympathetic nervous system arousal, the fight/flight/freeze response, becomes dysregulated. The medial prefrontal cortex reduces in volume and becomes hypo-responsive. The amygdala (part of the brain's threat processing circuitry) becomes hyperactive. The hippocampus that mediates memory encoding also exhibits reduced volume and reduced functional integrity. It's a brain injury!

At an information processing level extremely threatening, powerful information does not get stored in the brain's autobiographical memory but rather become dissociated memories that return as involuntary flashbacks and nightmares. It leads to negative self appraisal, feelings of inadequacy, increased perceptions of risk and pessimism.

Symptoms

PTSD is characterised by a constellation of symptoms. The two diagnostic classification systems commonly used in South Africa list symptoms as follows:

The ICD-10 classification system is the officially recognised diagnostic system as directed by the National Department of Health. However, the American DSM 5 classification system is often referred to for additional guidance.

Variations on PTSD

PTSD is most commonly only diagnosed if symptoms occur or persist more than one month duration. Within one month it is more frequently referred to as an acute stress reaction.

However, a further development on PTSD that should be of far more concern to emergency services is that of Complex PTSD (C-PTSD). Whilst not part of the official classification systems described above, leading researchers are calling for it to be recognised as a separate disorder. Prof Judith Herman of Harvard University suggests that prolonged exposure to long-term trauma results in symptoms additional to those seen in 'normal' PTSD. These symptoms include emotional dysregulation (anger outbursts, suicidal thoughts),

IFSAC Spring Conference 2016



By Theresa Geldenhuys, senior district manager: training, Ekurhuleni Emergency Services Training Academy

The International Fire Service Accreditation Congress (IFSAC) Spring Conference is held annually in Oklahoma City near the Oklahoma State University. Members from different countries were present at the conference.

The International Fire Service Accreditation Congress (IFSAC) is a not-for-profit, peer-driven, self-governing system of both fire service certifying entities and higher education fire-related degree programs. The Southern African Emergency Services Institute (SAESI) is a certifying entity of this organisation for all the Certificate Assembly programs that South Africa is accredited for.

We arrived on Tuesday 26 April 2016 in Oklahoma City with a tornado warning; luckily for us it missed the city. The conference was held at the Sheraton Oklahoma City Downtown Hotel on North Broadway Avenue, Oklahoma City, USA.

Wednesday 27 April 2016

Day one started with registration and meeting all the delegates that represented the Council of Governors (COG), Certificate Assembly Board of Governors (CABOG) and Degree Assembly Board of Governors (DABOG) of IFSAC. A general session was held with an overview of the conference, after which Dr Denis

Onieal of the US Fire Administration did a presentation on simulations during training and testing. Simulation in fire-related training is a training and feedback method in which learners practice tasks and processes in lifelike circumstances, with feedback from observers, peers and instructors to assist improvement in skills. Simulations are most efficient when new concepts are introduced and are mostly used where scenes are set up for the learners to make training and assessment as life-like as possible.

Other sessions that were also held were Orientations, Step-by-Step Guides, Mentor Training for the Certificate Assembly (CA) and the Degree Assembly (DA). Wayne Bailey from North Carolina was allocated to SAESI as our mentor for the upcoming reaccreditation site visit that will take place in 2017.

Some of us ended the day by taking a walk to the to the Oklahoma City Bombing Memorial site.

Thursday 28 April 2016

Day two continued with different sessions for the Certificate Assembly and the Degree Assembly. The Certificate Assembly focused on IFSAC 101 and a presentation on Projects vs Portfolios. The presentation alluded to the fact that projects can be used where an assignment is given



Oklahoma City National Memorial and Museum

that provide a situation in which a learner uses their knowledge gained and apply it to the situation. Portfolios on the other hand can be used for learners to submit documents of learning, training experiences or parts of standards that were completed.

IFSAC 101 discussions were about testing methodology, making the system meet the needs of the organisation and other standards recognised by IFSAC. ▶

consciousness (forgetting details of events), feelings of shame and guilt, social isolation and distrust and loss of meaning and hopelessness. C-PTSD is commonly seen in fire fighters, police officers, township residents frequently exposed to community violence, prisoners of war, domestic violence and victims of long term sexual abuse.

Prolonged exposure to death, disfigurement, trauma in patients and even loss of colleagues is far more

likely to cause emotional distress and disturbing symptoms in emergency service workers than a major catastrophic incident. Westdene bus disasters are thankfully rare events. But C-PTSD is probably far more common in the fire services than is acknowledged, is under-reported, is under-treated and is more likely to be misdiagnosed as depression than C-PTSD. The extent of the problem is unclear and there is no research data quantifying the extent of this problem

in South Africa. However, anecdotal evidence from this writer's 30 years of experience suggests that it's an endemic problem with South African emergency services.

In the following two articles we'll explore evidence-based treatments for PTSD and how one can go about developing one's resistance to suffering from it.

A complete list of references is available from Fire and Rescue International. ▲



Oklahoma City National Memorial and Museum

and immediately after that the board meetings for the Certificate Assembly Board of Governors (CABOG) and Degree Assembly Board of Governors (DABOG) of IFSAC followed where changes and new developments were discussed.

Saturday 30 April 2016

Day four saw all the assembly meetings taking place. It started with the General Assembly meetings where the Certificate Assembly and Degree Assembly did presentations on accreditation on new certifying entities and reaccreditation of existing entities, an administrative report was delivered, committee reports reviewed and recommendations were made. Several new policies and documents were discussed and voted on.

The Certificate Assembly and Degree Assembly had their respective meetings where nominations and elections were held for the vacancies in Certificate Assembly Board of Governors and Council of Governors. Committee reports were dealt with, accepted or referred and voted on.

The conference ended early afternoon.

What an amazing experience to have been afforded the opportunity by SAESI and time off by my employer to attend the conference. I have learned a lot that will assist with the IFSAC reaccreditation visit taking place next year.

A huge thank you to Wayne Bailey for his willingness to always help and guide and thank you for accepting to be our mentor. 🙏



A presentation was done on the National Fire Protection Association (NFPA) codes that are currently being updated as well as a variety of vendors that supplies books, curricula, audio visual aids and testing programs to the industry.

A social event was hosted by IFSAC on this evening where even more networking was done and a good meal was shared.

Friday 29 April 2016

Day three started with different committees meeting on a variety of subjects including the Certificate Assembly rules, Certificate Assembly and Degree Assembly training and mentoring, Certificate Assembly site teams, Certificate Assembly and Degree Assembly promotions, business operations, finance and standards review.

That afternoon the Council of Governors board meeting took place



Oklahoma State Firefighters Museum



Successful WRO Assessor Workshop held in Ireland

By Neville van Rensburg and Julius Fleischman, World Rescue Organisation (WRO) assessors and members

The World Rescue Organisation (WRO) Assessor Workshop was held in May 2016 in Ashbourne, County Meath, Ireland. Hosted by Rescue Organisation Ireland (ROI), the one day workshop was a great success, thanks to the contribution of 13 countries around the world including six WRO members of the committee. The aim of the workshop was to provide a clear understanding of the WRO competence standards and how to assess on the WRO 'knowledge and skills' sections using a range of assessment methods and support materials. The challenging agenda was completed each day under the determined direction of meeting chairman, Michael Gahan, with positive results.

The objectives of the training workshop were to inform the participants about the existing WRO standards, the criteria for successfully passing a test, provide information about WRO Assessor Codes of Practice and guidance and to harmonise the testing procedures and the testing of candidates on a WRO level. It also included a discussion and an exchange of opinions on testing practices in the member countries.

Key points included:

- Clarifying the present WRO assessors standards: criteria, learning objectives, support materials and level of importance

('all moving in the same direction')

- How to assess 'knowledge' sections with candidates: oral, written, computer-based or other assessment methodology format
- How to assess 'practical skills' with candidates. What are the experiences of WRO assessors?
- What kind of assessment methodology format is used?
- Analysing the existing WRO support materials used eg score sheets

WRO member organisations were invited to nominate their head or deputy head assessor to attend this workshop and each participant received a trainer pack to assist in delivering the workshop for their respective organisation. It was the responsibility of the WRO to ensure the

teams are assessed by competent specialists working from established best practice assessment methods.

The group collated a database of suitably qualified assessors who comply with the WRO assessor selection policy so member organisations regardless of level, can request support from the WRO for challenge development and assessor training. They will be responsible for assisting with WRO assessors training and competencies throughout member organisations.

The main topics covered on the day include the following:

- WRO assessor policy
- The role of the assessor
- Competency framework
- Assessment techniques



Career path for fire safety personnel in the municipal environment

By Petrus Brits, senior district manager for fire safety, Ekurhuleni Emergency Services



The fire service, fire brigade, fire and rescue service or emergency, whatever it is called by people, is governed by mainly two acts, one being the Constitution of South Africa and the other the Fire Brigade Services Act.

The Constitution of South Africa, Schedule 4: Part B states that the running of a "fire fighting service" is the responsibility of Local Government. In Chapter 7, Schedule 155 (6) (a) and (7) it states that provinces

are responsible for the monitoring and support to Local Government regarding service delivery.

The Fire Brigade Services Act, Section 3(1) states that, "A local authority may establish and maintain a service in accordance with the prescribed requirements" In Section 5(1) it states that, "A controlling authority shall appoint a person who possesses the prescribed qualifications and experience, as chief fire officer to be in charge of its service".

The above mentioned acts clearly indicates who's responsibility it is to establish a service as well as who will render support to them to perform at their level best. The concern, however, is the reference to the "prescribed" qualifications a person must have to be appointed as chief fire officer. As we all know there is no set of qualifications gazetted in an act or regulation for these positions and it solely leaves this up to the individual local authority to decide upon if they wish to establish a service. Remember, the Fire Brigade Services Act states that they "may" establish a service instead of "must". The failure of these prescribed qualifications has a rippling effect downwards on all positions as it is not clearly identified due to the lack of a career path or career profile for fire services.

In terms of the Fire Brigade Services Act, a "service" means a fire brigade service intended to be employed for:

- a. Preventing the outbreak or spread of a fire
- b. Fighting or extinguishing a fire
- c. The protection of life or property against a fire or other threatening danger



- Common pitfalls
- Debriefing
- Assessor conduct
- Shadow assessor and safety checklists
- Practical application and participant assessment

Michael Gahan provided current and upcoming WRO assessors with both theoretical and practical knowledge to increase and improve the skills and attributes required to assess at WRC Road Traffic Collision and Trauma Challenges and at their own rescue organisation's national events. ⚠

(a) Preventing the outbreak or spread of fire	<ul style="list-style-type: none"> Inspect premises for fire safety compliance Inspect and register premises for use, storage and handling of dangerous goods/flammable liquids Inspect and approve/not-approve vehicles for transporting dangerous goods/flammable liquids Inspect and register premises for compliance to the major hazard installation regulations Enforcement of applicable legislation and municipal bylaws Provide and conduct public education and awareness campaigns
(c) The protection of life or property against a fire or other threatening danger	<ul style="list-style-type: none"> Evaluate, comment and recommend on approval/non-approval of: <ul style="list-style-type: none"> Building plans Rational designs SDP applications/submissions Land use related applications/submissions Special event applications/submissions Fire risks assessments Conduct fire cause and origin determination after fires Issue fire clearance certificates for new buildings

Some of the duties and activities listed that are performed

d. The rescue of life or property from a fire or other danger
 e. Subject to the provisions of the Health Act, 1977 (Act No 63 of 1977), the rendering of an ambulance service as an integral part of the fire brigade service or
 f. The performance of any other function connected with any of the matters referred to in paragraphs (a) to (e).

Section (a) and (c) in the paragraph above is a direct instruction of what duties must be performed by a service and these duties are normally performed by the fire prevention section as established in terms of SANS 10090:2003 in larger services or by a single person in our smaller and rural services. In

the table above are some of the duties and activities listed that are performed in terms of (a) and (c):

What we have currently

Needless who perform these duties, said person needs to be qualified in order to deliver a competent service to the community. The question now comes to mind, what qualifications does this person need to possess and where or how will it be obtained? Again, this is left to the local authority to decide on. Currently in South Africa we have the following qualifications and providers available delivering some sort of fire safety qualifications to the industry as per the table below.

What do we need?

In order to progress with the development of qualifications for fire safety personnel, it is necessary to follow the following three processes:
 A. Identify the roles applicable to the fire safety section. The National Fire Protection Association (NFPA) codes identify four types of roles which can be used as guidelines and is listed as:

1. Fire inspector: An individual who conducts fire code inspections and applies codes and standards.
2. Plan examiner: An individual who conducts plan reviews and applies codes and standards.
3. Fire investigator: An individual who has demonstrated the skills and knowledge

Emergency Training Solutions (ETS)	Fire Protection Association of Southern Africa (FPASA)	Tshwane University of Technology (TUT)	Southern African Emergency Service Institute (SAESI)	Institute of Fire Engineers (IFE)
<ul style="list-style-type: none"> Plan Examiners Fire Inspection and Code Enforcement Fire Investigator 	<ul style="list-style-type: none"> Fire Prevention and Safety Strategies Advanced Fire Prevention Fundamentals of Fire Investigation Advanced Fire Investigation Techniques CFPA Europe – Fire Safety Engineering CFPA Europe – Ordinary Diploma in Fire Prevention 	<ul style="list-style-type: none"> National Diploma: Fire Technology B-Tech: Fire Technology M-Tech: Fire Technology 	<ul style="list-style-type: none"> Fire Fighter 1 and 2 Fire and Life Safety Educator 1 and 2 Public Information Officer Fire Investigator Fire Officer 1 and 2 Higher Certificate: Fire Technology Diploma: Fire Technology Higher Diploma: Fire Technology 	<ul style="list-style-type: none"> Level 2 Certificate: Fire Science, Operations and Safety Level 3 Certificate: Fire Science, Operations, Fire Safety and Management Level 3 Diploma: Fire Science and fire Safety Level 4 Certificate: Fire Science and Fire Safety

The current qualifications and providers in South Africa

Limited National Qualifications Framework (NQF)-aligned tertiary education available for fire services		
Higher Education Quality Committee (HEQC) qualification types	NQF levels	Quality Council For Trades and Occupations (QCTO) qualification types
Doctoral degree: (professional)	10	Not available on QCTO
Master's degree: (professional)	9	Not available on QCTO
M-Tech: Fire Technology	8	Occupational certificate level 8:
B-Tech: Fire Technology	7	Occupational certificate level 7:
National diploma: Fire Technology	6	Occupational certificate level 6:
Higher certificate:	5	Occupational certificate level 5: Currently called National Certificate: Emergency Services Supervision: Fire and Rescue Operations
National certificate	4 Grade 12	Occupational certificate level 4: Fire and Rescue Operations
Intermediate certificate	3 Grade 11	Occupational certificate level 3
Elementary certificate	2 Grade 10	Occupational certificate level 2
General certificate	1 Grade 9	Occupational certificate level 1

Limited NQF-aligned tertiary education available for fire services

- necessary to conduct, coordinate, and complete an investigation.
4. Fire marshal: A person designated to provide delivery, management, and/or administration of fire protection and life safety related codes and standards, investigations, education, and/or prevention services for local, county, state, provincial, federal, tribal, or private sector jurisdictions as adopted or

- determined by that entity.
- B. Identify the job levels applicable to the fire safety section and once again the NFPA codes can be used can be used as guidelines and is listed as:
1. Inspector I: An individual at the first level of progression, conducts basic fire inspections and applies codes and standards
 2. Fire inspector II: An individual at the second or intermediate level of

- progression, conducts most types of inspections and interprets applicable codes and standards
3. Fire inspector III: An individual at the third and most advanced level of progression, performs all types of fire inspections, plans review duties, and resolves complex code-related issues
 5. Plan examiner I: An individual at the first level of progression, conducts basic plan reviews and applies codes and standards
 6. Plan examiner II: An individual at the second or most advanced level of progression, conducts plan reviews and interprets applicable codes and standards.

C. Identify the educational subjects or courses applicable to the fire safety section and its personnel. Examples can be:

- Fire engineering science (hydraulics and chemistry)
- Fire engineering (fire dynamics)
- Fire engineering (fire models)
- Fire engineering (design and assessment)
- Fire protection engineering (active)
- Fire protection engineering (passive)
- Smoke control
- Interaction between fire and people
- Egress and risk assessment

NQF-aligned tertiary education that we need for fire safety		
HEQC qualification types	NQF LEVELS	QCTO qualification types
Doctoral degree: Fire safety technology	10	Not available on QCTO
Master's degree: Fire safety technology	9	Not available on QCTO
Bachelor's degree: Fire safety technology	8	Occupational certificate level 8: Fire safety
Advance diploma: Fire safety technology	7	Occupational certificate level 7: Fire safety
Diploma: Fire safety technology Advanced certificate: Fire safety technology	6	Occupational certificate level 6: Fire safety
Higher certificate: Fire safety technology	5	Occupational certificate level 5: Fire safety
National certificate	4 Grade 12	Occupational certificate level 4: Fire and rescue operations
Intermediate certificate	3 Grade 11	Occupational certificate level 3
Elementary certificate	2 Grade 10	Occupational certificate level 2
General certificate	1 Grade 9	Occupational certificate level 1

NQF-aligned tertiary education that we need for fire safety

- Building engineering
- Building construction for the fire service
- Building regulations, codes, standards and legislation
- Fire prevention practices
- Fire safety risk assessments
- Community risk reduction
- Codes and inspection procedures
- Fire investigation (origin and cause determination)
- Building plan examination
- Fire and life safety educator
- Public information officer

After the above mentioned processes have been followed a career path for the fire service and its personnel needs to be develop.

Unfortunately, this will not be an easy task taking into consideration the different types of fire services in the country, their functionality and staffing levels available. However, without the 'skeleton', no meat can be put on as the bones are providing the backbone and direction needed with developing qualifications.

An example of such a career path is listed in the table below:

Proposed way forward

We need to realise that no fire service in South Africa is a mirror image of each other and that is due to:

- Different municipal classifications (metro, district, local)
- Different organisational structures (size of staff complement)
- Different risks in area of jurisdiction (farm land vs petroleum depots)
- Different topography in area of jurisdiction (built-up vs rural)

There is no professional body representing the fire service in South Africa and although there is a fire service directorate in the Department of Cooperative Governance and Traditional Affairs, they cannot attend to all issues due to limitations of staff. The Fire Brigade Board is not functioning as desired and perhaps the new Fire Brigade Services Act will address this shortcoming via the route of a professional body. This will greatly assist with developing careers and qualifications needed for the service and gazetted in legislation to be adhered to by all.

A mind-set needs to take place at top management level in fire services to move towards prevention, protection and education instead of response as this will contribute to a more safe community and lesser fire losses which have huge impacts on the economy.

No specific tertiary qualification exists for fire safety personnel and this can be achieved via:

- Research international qualifications and convert adapt them for the South African environment
- Compile and draft a 'new' qualification or expand the current tertiary qualification available to cover more fire safety areas and submit for approval by the South African Qualifications Authority (SAQA)
- Engage tertiary education institutions to provide 'distance learning' on this program throughout South Africa
- The current short courses as provided by eg FPASA, ETS and SAESI/IFSAC can be included in the 'new' qualification as this approach is standard in the USA degree programs

As no career path exists for fire services, there is an urgent need that one be drafted for all sections in the service. This career path needs to be based on roles rather than ranks and needs to be included as a regulation in terms of the new Fire Brigade Services Act.

The envisaged goal for a fire safety qualification can be achieved by establishing a small working group to draft a career path for fire safety and there after a qualification using capable and competent persons. ⚠



Example of such a career path

The disaster search dog; the ultimate tool to locate the scent of live buried victims



By Neels de Klerk, station commander: fire safety, Breede Valley Fire, Rescue and Disaster Management Services

Search and rescue (SAR) dogs date back to as far as the 1660s in the St Bernard Pass in the Alps

Being Spiderman or Batman and doing the almost impossible is actually not so far reaching if you and your disaster search dog (DSD) are well trained when responding to a collapse structure or any disaster scenario.

- sudden sounds
- Must not be easily distracted
- Willing to listen
- Must be able to trust and use its excellent nose
- Must be agile, bold, energetic, determined and have the strength to work in the most difficult conditions.

History of search dogs

The use of search and rescue (SAR) dogs date back to as far as the 1660s in the St Bernard Pass in the Alps between Switzerland and Italy. Dogs were used to accompany guides through the pass to help with trapped persons in the snow. SAR dogs were then later used by the British, German and Americans to locate wounded soldiers during the First and Second World Wars. The American Rescue Dog Organisation was only founded in 1972 and the use of search dogs has since spread all over the world.

The first disaster search dogs in South Africa for the use by fire departments, was only trained in 2009.

Specific qualities of a good disaster search dog:

- High play drive (loves to play with some sort of toy)
- Non-aggressive towards people
- Non-aggressive towards other dogs
- Must not be bothered by loud

Understanding their unique noses

A dog's nose does not only dominate their faces but also their brains as well. They rely more on their smell to interpret their world as much as you depend on sight. Much like humans the inside of their noses are bony scroll shaped plates, over which air passes. A microscopic view of this organ reveals a thick, spongy membrane that contains most of the scent-detecting cells, as well as the nerves that transport information to the brain. In humans, the area containing these odour analysers is about the size of a postage stamp. If you could unfold this area in a dog, on the other hand, it may be as large as 60 stamps or just under the size of an A4 paper.

Though the size of this surface varies with the size and length of the dog's nose, even flat-nosed breeds can detect smells far better than people. See table below indication the number of receptor cells in a dog's nose comparing to humans.

Species	Number of scent receptors
Human	5 million
Dachshund	125 million
Fox terrier	147 million
German Shepherd	225 million

A dog's brain is also specialised for identifying scents. The percentage of the dog's brain that is devoted to analysing smells is actually 40 times larger than that of a human! It's been estimated that dogs can identify smells somewhere between 1 000 to 10 000 times better than nasally challenged humans can.

The human body sheds approximately 40 000 rafts, cornflake shaped cells, each minute. A combination of sweat and bacteria on these skin rafts gives a distinct scent. The scent of each human is also different as the particular scent may depend on the person's diet, blood type, emotional process, hormone balance etc.

Disaster search dogs are trained to detect these rafts when they are working on rubble piles. They are there for scent detectors and not victim locators. These dogs will indicate the spot where the live human scent is present.

The handler

A dog's nose is irreplaceable but they still need a handler that would be able to direct them over the rubble to make sure all search areas are covered. This search team, when working well, could save SORTeams an enormous amount of time when time is limited during disaster scenarios.

A search and rescue dog handler should have several attributes including: honesty, courteous, respectful, dependable, professional, safe driving habits and record and in decent physical shape.

If you can tick the following positively you might be considered as a candidate dog handler:

- Candidate should exhibit ability to work independently and unsupervised
- Candidate should be expected to have facilities to properly and safely house a departmental canine
- Candidate should have a proper aptitude toward animals
- Candidate should be of high calibre from within the department
- Candidate should have a keen ability to communicate professionally with the public
- Candidate should have proficient

report writing and record keeping skills

- Candidate should also exhibit a calm professional manner in dealing with stressful situations
- Candidate is in good physical health
- Is the candidate's family open to having a working canine in the house and are they supportive?
- Does the family understand that the handler and canine maybe called out at any time of day, interrupting family events, holiday celebrations, etc?
- Will the neighbours be a problem, such as complaining about barking or not liking canines in the area?

Communication between dog and handler

If handlers do not understand how dogs think, communication will probably break down totally. Dogs do learn the meaning of some words but are very quick to learn sounds, routines and body language. During training it is of utmost importance that handler adhere to giving the same commands, follow the same routines when the dog is directed to search and trust that their dog will do what it is trained to do. During searches the handler only gives commands when required to make

sure the search area is covered or if he spots safety concerns. The dog is left to use its best device, its nose, to detect live human scent. By barking when the find is made, the dog communicates to the handler.

Communication between dog and handler is crucial as access to rubble piles is usually extremely limited for the handler and dogs often work without the handler in sight.

Current status

The Breede Valley Fire Department, as part of its SORT capability and the Western Cape SORT strategic plan, has recently qualified two disaster search dog teams. These teams attended part time training sessions over an 18-month period and were evaluated on a similar standard to the FEMA Type 2 Disaster Search Dog evaluation process. "We, Breede Valley Fire Department in partnership with the Detection Dog Training Institute, have also developed a standard suited for South African environment," said Neels de Klerk. Some parts of wilderness search programme were included because these dogs would also be used to search along riverbanks during flood scenarios as these are quite prominent types of incidents locally. ⚠



Briefing of handler before the evaluation



Muriel



Communication between Daisy and handler

Lions River Fire Protection Association



Baloyi Thusi, Bobby Hoole, Khulekani Madlala and Nelson Maduna

few years, which has resulted in a change of the demographics of the traditional farming base. The rural population is reducing to an extent and an increasing number of people are finding employment off farm. This is making it increasingly difficult for fire services, local government as well as private entities, to respond to incidents within a satisfactory timeframe in order to provide the highest level of protection to the community. Generally response to fire incidents is made by the commercial timber growers as well as commercial farmers in the area, with very limited assistance being offered at present from the local municipal fire service.

The Lions River Fire Protection Association (LRFPA) is situated in KwaZulu-Natal and is responsible for the coordination and management of rural fire activities undertaken within the boundaries of the uMngeni and Impendle Municipalities. Fire protection officer (FPO), Bobby Hoole said, "The mission of the LRFPA is to provide a cohesive, enthusiastic fire protection association trained and equipped to meet the needs of the community in an efficient, effective and professional manner."

The LRFPA was established in 2005 in terms of the National Veld and Forest Fire Act 101 of 1998 with offices based in Curry's Post. The aim of the LRFPA is to allow the participants to enhance effective fire prevention, protection, suppression and other fire control measures within the respective areas at risk from uncontrolled fires for the good of the local community in general. The LRFPA is responsible for ensuring facilities and resources are available for the reduction, readiness, response and recovery from any forest or rural veld fire incident.

Structure

There are six local municipalities within the Umgungundlovu District, of which there are four active FPAs within the district and their area of operations covers the majority of the district par the city and immediate surrounds of Pietermaritzburg.

All FPAs work closely together. Lions River FPA is a paid up affiliate of KwaZulu-Natal Fire Protection Association (KZN FPA) and KZN FPA assists with facilitation and coordination functions per its obligations and in respect of large fire incidents in the area. KZN FPA is located at the Sappi Shafton Airfield in the Karkloof area of KZN Midlands, approximately six kilometres away from Lions River FPA.

Area of operation

The area of operation is centred on the town of Howick and with the rural areas of Hilton, Birmamwood, Merrivale, Karkloof, Curry's Post, Mount West, Tweedie, Lions River, Dargle, Lidgettton, Balgowan, Nottingham Road, Fort Nottingham, Lower Lotheni, Boston and Impendle forming the subareas within the area of operation. The total area of the uMngeni and Impendle region is approximately 250 000 hectares. Howick, itself is a thriving rural town enjoying a strong and varied industry and retail base and primarily incorporates a service based population. The area of operation is made up of both light and heavy industry, dairy processing, furniture manufacturing, timber related agribusiness, hospitality, commercial agriculture as well as large tracts of commercial timber plantations and open grazing lands.

The area has had an increase in rural residential and smallholding subdivision development in the past

Risk profile

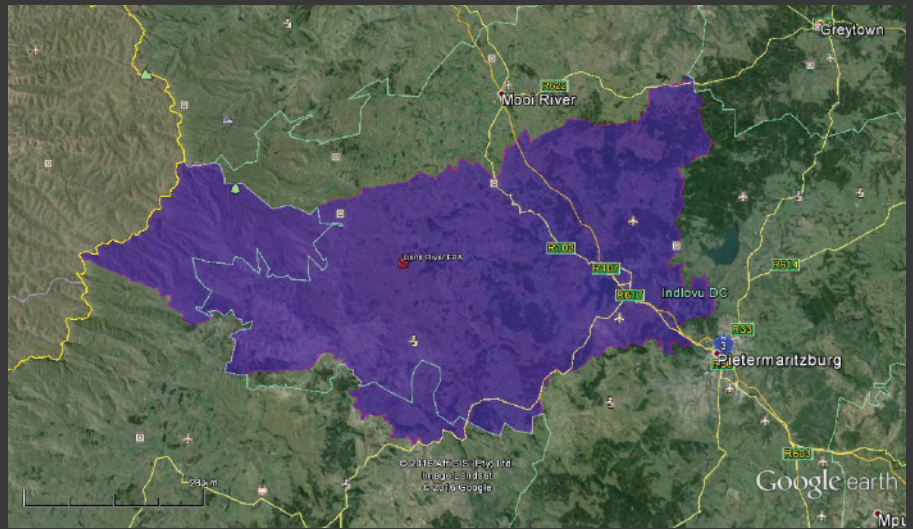
The risk profile of the region includes commercial forestry 25 percent, veld grazing and nature reserves 70 percent and large dairy pasture areas assist with risk mitigation. The area of operation is predominately undulating agricultural grasslands, which are used mainly for grazing with cropping carried out in various parts of the area as well as large tracts of timber plantation, all high risk with regard to the spread of fire. From 1 June to 31 October, it is generally the dry winter months with peak risk period late July and the month of August. Drought conditions have resulted in veld grasses turning very quickly after light frost. This has increased the risk for 2016, especially with the onset of the fire break burning season.

The areas where fires mostly occur seem to move from area to area, depending on local circumstance. Labour and other land disputes have also caused a few unwanted fires. With over 85 percent of all landowners in the FPA area being a member of the FPA, fire events are generally small and well attended to by all.

The primary causes of fires include fire break operations, burning on the day prior to bad fire weather, which is generally accounted to a non-member, fire breaks escaping from the fire crews, Eskom line sway, which causes an arc and sparks or labour and land disputes.

Previous annual losses due to wildfires and forest fires include:

- 2013: 103 uncontrolled fire events, 2 772 hectares burnt
- 2014: 103 uncontrolled fire events, 4 313 hectares burnt, with 1898 hectares being burnt on three days of high fire danger
- 2015: 74 uncontrolled fire events, 1 407 hectares burnt, with one fire of 700 hectares burning on one day of high fire danger
- 2015: one fatality as a farm manager suffered from smoke inhalation and a heart attack whilst attending to an uncontrolled fire event around the homestead.



The Lions River Fire Protection Association's area of operation

Management and staff complement

The LRFPA employs a FPO, namely Bobby Hoole. The FPO manages the FPA, monitors compliance, assists members and ensures compliance. The chairman and executive committee is responsible for the management of the FPA. The administrator is responsible for all database base management and finance management. The FPA also employs four fire fighters.

Other resources are either contracted or supplied via volunteers such as local farmers and landowners to ensure that an effective and efficient service is provided across the area of operation. The LRFPA is governed by an executive committee, which has representatives from various stakeholder groups such as agriculture, forestry, Department of Agriculture, Forestry and Fisheries (DAFF) and landowners. The

committee is responsible for the governance of the association and the service delivery is delegated principally to the fire protection officer. Coalface service delivery is currently limited, contractors and volunteers, however, plans are afoot to increase the offering to members and the community in general.

Key partners to LRFPA include, Firehawk Electronic camera detection, the uMngeni Municipality, the Umgungundlovu District Municipality and the KZNFFPA. All organisations provide essential services such as communication centres, equipment and training resources. The LRFPA is legislatively empowered not only to set standards to which landowners within the area of operation must adhere to but also has a key support and audit role.

Equipment

Fire fighting equipment managed by the LRFPA, include:

- One three ton 2 000 litres bulk water carrier with fire equipment,
- Two fully equipped 4X4 vehicles,
- Two equipment trailers,
- Three fully equipped LDV drawn water carriers,
- A farm radio network and 24/7 control room for emergencies, members are linked to this network.

Furthermore, the LRFPA camera detection area recently installed a new high definition (HD) camera at a new location, bringing the number of cameras monitoring for smoke and fire to 17 in the area, primarily within the forestry areas but with good visuals over extended areas of the FPA.

Fire risk mitigation objectives of LRFPA

The fire mitigation objectives of LRFPA include, dedicated person(s) to drive the objectives and strategy of the FPA as well as the aim for 100 percent participation from all landowners to be a member of the FPA. Furthermore, the ability to talk to a collective and that all landowners sing off the same hymn sheet. Compliance, monitoring and enforcement of Act 101 and the rules and regulations of the FPA is of paramount importance as there needs to be consequence for poor actions.

LRFPA aim to assist landowners with assessing their risk and therefore communication is key. As a result of coordinated efforts and collective buy in, 2007 saw 29 000 hectares burnt versus 2015, in which 1 407 hectares was burnt



The camera detection control room

A-OSH Expo South Africa 2016

A-OSH Expo was held at Gallagher Convention Centre in Johannesburg, South Africa from 24 to 26 May 2016. A-OSH was co-located with the Securex, both organised by Specialised Exhibitions Montgomery.

The exhibition included 160 plus exhibitors from 13 different countries, seminars and conferences, three days of networking and business deals. The exhibition had three objectives for exhibitors and visitors alike, which was networking, learning via free-to-attend seminars and demonstration as well as creating an opportunity for visitors to purchase directly from exhibitors.

Visitor attractions included an educational programme, a new products display, which exhibited the latest industry-related technology. Additionally, Fire Protection Association of South Africa (FPASA) hosted an InFires seminar, which provided visitors with feedback on projects, in which FPASA has been involved. The South African Intruder Detection Services Association (SAIDSA) Tech Man competition, which involved 20 of the top certified technicians in South Africa competing to install an intruder alarm system within a specified time, according to strict criteria. Participants were judged on neatness, correct standards and installation techniques. An additional

visitor attraction was the business match-making programme, sponsored by Ideco, which entailed visitors signing up prior to the event, to benefit from prearranged meetings with exhibitors best suited to fulfil their needs.

Fire and Rescue International was not only a media partner of Securex 2016 but also an exhibitor at the show. Exhibitors most applicable to the fire, rescue and emergency services included, Arteco, exhibiting fire detection systems. Bosch Security Systems, which included video fire detection systems, which allows for fast fire and smoke detection, proves to be robust against false alarms, covers large monitoring

- ▶ The LRFPA is focused on the achievement of the following objectives:
 - To inform and train the community on the risks of fire and to ensure fire prevention and planning is used to mitigate fire in the area
 - For the LRFPA area of operation to enjoy the respect and support of our community
 - To ensure planning and resources are in place to proactively ensure communities within the LRFPA area of operation are appropriately protected in the context of rural fire reduction, readiness, response and recovery
 - To ensure fire suppression is coordinated and effective
 - To ensure minimum equipment and personnel standards are met or exceeded while not compromising operational efficiency or effectiveness
 - To ensure landowners are educated about forest and rural fire prevention
 - To implement a personnel fire fighter training programme, from a minimum of basic training to crew leader and specialised courses
 - Provision of quality maps to our committee volunteers and/or fire wardens to assist them in their work
 - Radio network coverage across the Midlands to effectively combat emergencies and for the protection for the members and the general community.

- Establish relationships and management systems with sister agencies such as provincial government departments, commercial forestry and local government fire services and to ensure appropriate levels of hazard reduction are achieved
- Manage and coordinate all fire suppression operations within its area of operation
- To develop joint development control arrangements with our municipalities to ensure the LRFPA and the local municipalities work together efficiently to plan low risk developments
- The executive committee made

up of landowner members work as a team that is a passionate and progressive, ensuring a proactive organisation, which has an increasing profile and making a significant contribution to the regional fire initiative.

Challenges

Some challenges faced by LRFPA include funding, state landowners not compliant with legislation, which are generally non-members of the FPA. It is noted that the local municipality has been a member of the FPA since 2008 and provide a grant in aid to the LRFPA, this is a vital lifeline to ensure the ongoing existence of the FPA. 🚒



The incident command centre



A-OSH and Securex 2016

area and offers quality performance under low-light conditions. FREMTAC Fire and Rescue exhibited fire fighting equipment and foams as well as rescue equipment. Additionally, FREMTAC Fire and Rescue announced the launch of the Fire Rescue Safety Blade in South Africa. The blade is manufactured by Desert Diamond Industries in the United States of America and is a leader in the development and manufacturing of metal cutting discs. These blades were on display by FREMTAC Fire and Rescue at Securex. FPASA exhibited the activities conducted by the association, which include fire training courses, technical

services, a fire fighting competition and insurer services. Additionally, FPASA had a fire prevention and safety competition, in which the winner was granted a fire protection and safety course, sponsored by FPASA.

Imperial Armour exhibited some of the latest in personal protection equipment (PPE) within the fire and emergency sectors, specifically Imperial Fire, which is a specialised division, dedicated to the manufacture of protective fire fighting gear and equipment. U.Protec Apparel Tech Co had on exhibit their range of

flame-resistant garments. Additionally, the show included a China Pavilion, which accommodated international suppliers of fire fighting equipment and gear such as Shaoxing Hongrun Fire Control Equipment Co, Dongguan Hop Industrial Co, Shaoxing Newidea Fire Safety Equipment Co and Shangyu Xingli Fire Fighting Equipment Co.

After 23 years of experience in the security and fire sector, Securex 2017 will be hosted on 30 May to 1 June 2017 at Gallagher Convention Centre, Johannesburg and will be running alongside A-OSH Expo. ▲



Sixth annual Africa Health Exhibition and Congress, South Africa



Africa Health Exhibition and Congress was held at the Gallagher Convention Centre, Midrand, Johannesburg, South Africa on 8 to 10 June 2016. It was the sixth annual expo and congress, which saw 8 000 plus healthcare and trade professionals attending.

Some of the highlights of the show included more than 500 exhibiting companies from 57 countries around the world showcased their latest advances in healthcare. Attendees

benefited from international products from 15 country pavilions namely United States of America, Belgium, Germany, Brazil, United Kingdom, Austria, Pakistan, Spain, India, China, Taiwan, Turkey, Switzerland, South Korea and Italy.

Free-to-attend workshops were presented in particular the GE Healthcare's Clinic-in-a-can amongst many others. These relocatable clinics are designed and built to serve patients in remote or isolated environments or in areas where a more traditional hospital is impractical. Clinic-in-a-can has an

international presence with clinics in, Haiti, Sierra Leone, Nicaragua, Nigeria, Kenya, South Sudan, United States of America, United Arab Emirates, Saudi Arabia and the Philippines. These clinics are also used domestically for disaster relief, relocatable clinics as well as for isolation wards.

The Enable Community Foundation and 3D Life Prints partnered with Africa Health and gave a hand to those without. The aim of the partnership is to close the manufacturing gap in developing countries with the help ▶



Africa Health 2016

▶ of self-made, custom and affordable 3D printed prosthetics.

Each year, a nominated charity benefits from the Africa Health Exhibition and Congress. This year organisers decided to partner with Childhood Cancer Foundation South Africa (CHOC) as its official charity for this year's event. According to Carl

Queiros, chief executive officer (CEO) of CHOC, the partnership with Africa Health and the subsequent income that it brought in will go a long way in supporting the organisation's efforts. Queiros said, "We truly believe that this will help us towards reaching our goals of supporting individuals, families and communities in the treatment of children with cancer as well as to

advocate for early diagnosis and access to specialist treatment centres around the South Africa."

Queiros adds that CHOC relies heavily on the private sector and individuals for funding to continue its work, "We are very grateful to the Africa Health Exhibition and Congress 2016 for this partnership."



Zero talent

By Wayne Bailey

So you say you really don't have anything to offer on the job. You have no talents. Well, there is hope for you. Below are three things you can work on now to be ready for the next promotion. If you do have a talent to offer the fire service, this will help put on a bright shine on that gift.

1. Being on time

Being on time is not showing up at 6h50 to start your shift if your work day begins at 7h00. I've always heard on time is five minutes early. Shakespeare said, "Better three hours too soon than a minute too late." When you're late to an appointment, work or on a date with your spouse, girlfriend, boyfriend, you're saying they are not important to you. One fire department's rookie class policy is if you're late two days or more, you're out of the program no matter what, unless approved by the chief. When you're early for appointments, it shows you have discipline and that's important in our line of work.

2. Work ethic

Will Smith, the actor, said, "I've viewed myself as slightly above average in talent and where I excel is ridiculous, sickening work ethic." I have to agree with him because I find myself in that same predicament. When I hire someone for a job, I will hire someone with five percent talent and 95 percent 'Go Getter' attitude. I can't work with someone the opposite. We would call them a preadonis or narcissist.

3. Effort

When someone shows effort that tells me they are trying. Napoleon Hill said, "Strength and growth come only through continuous effort and struggle. Effort is needed for everything in our life. This reminds me of a story of the butterfly.

Once a little boy was playing outdoors and found a fascinating caterpillar. He carefully picked it up and took it home to show his mother. He asked his mother if he could keep it and she said he could if he would take good care of it. The little boy got a large jar from his mother and put plants to eat and a stick to climb on, in the jar. Every day he watched the caterpillar and brought it new plants to eat.

One day the caterpillar climbed up the stick and started acting strangely. The boy worriedly called his mother who came and understood that the caterpillar was creating a cocoon. The mother explained to the boy how the caterpillar was going to go through a metamorphosis and become a butterfly. The little boy was thrilled to hear about the changes his caterpillar would go through. He watched every day, waiting for the butterfly to emerge. One day it happened, a small hole appeared in the cocoon and the butterfly started to struggle to come out.

At first the boy was excited but soon he became concerned. The butterfly was struggling so hard to get out! It looked like it couldn't break free! It looked desperate! It looked like it was making no progress! The boy was so concerned he decided to help. He ran to get scissors and then walked back (because he had learned not to run with scissors...). He snipped the cocoon to make the hole bigger and the butterfly quickly emerged!

As the butterfly came out the boy was surprised. It had a swollen body and small, shriveled wings. He continued to watch the butterfly expecting that, at any moment, the wings would dry out, enlarge and expand to support the swollen body. He knew that in time the body would shrink and the butterfly's wings would expand.

But neither happened!



Wayne Bailey

The butterfly spent the rest of its life crawling around with a swollen body and shriveled wings.

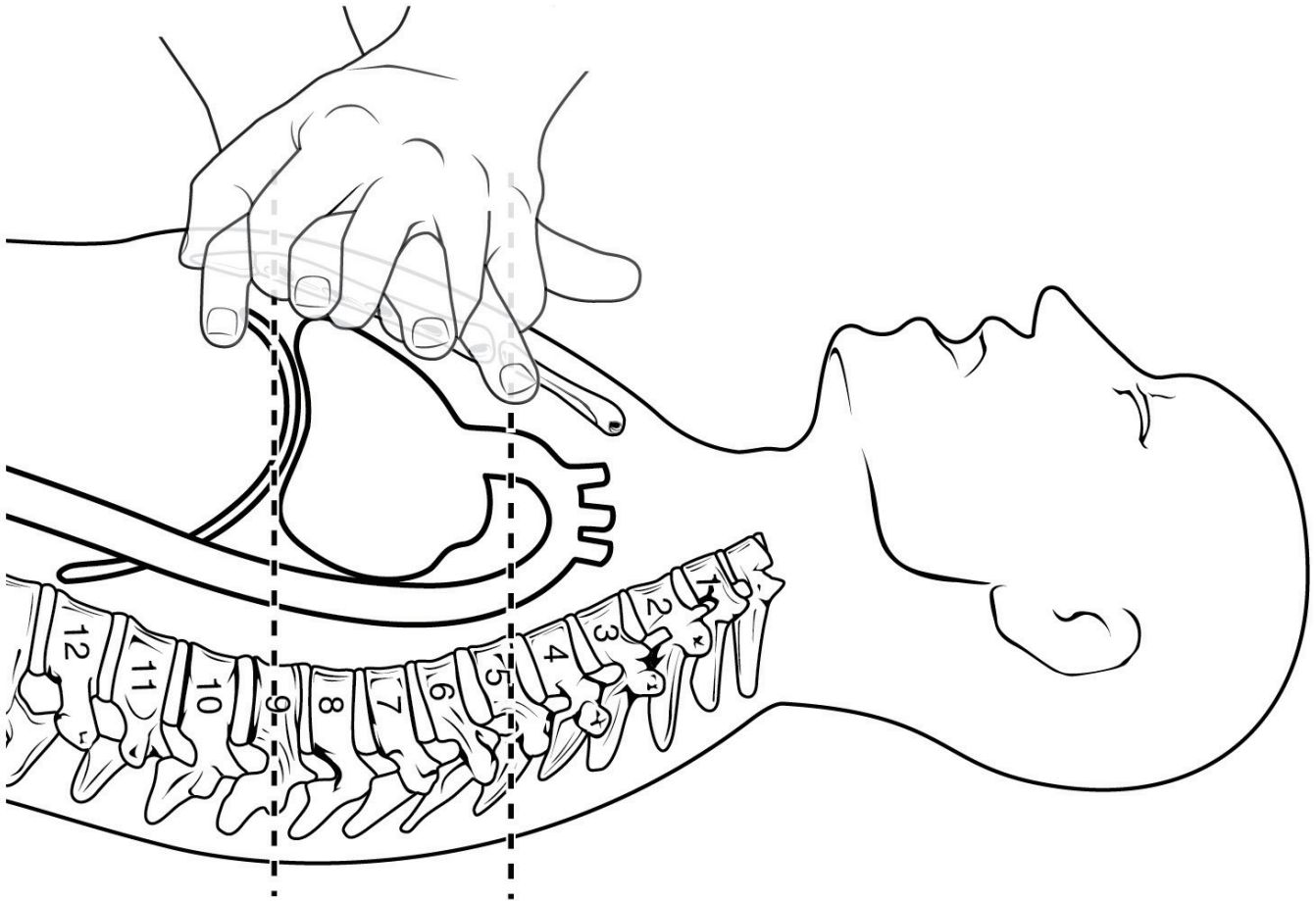
It never was able to fly...

As the boy tried to figure out what had gone wrong, his mother took him to talk to a scientist from a local college. He learned that the butterfly was SUPPOSED to struggle. In fact, the butterfly's struggle to push its way through the tiny opening of the cocoon pushes the fluid out of its body and into its wings. Without the struggle, the butterfly would never, ever fly. The boy's good intentions hurt the butterfly.

As you go through school, your fire service career and life, keep in mind that struggling is an important part of any growth experience. In fact, it is the effort and struggle that causes you to develop your ability to fly and exceed in what you put your hands to. ⚠️



The history of cardiopulmonary resuscitation (CPR)



Cardiopulmonary resuscitation, also known by the acronym CPR, is an emergency procedure performed in an effort to manually preserve intact brain function until further measures are taken to restore spontaneous blood circulation and breathing in a person who is in cardiac arrest. It is a basic but proven first aid skill, practiced throughout the world. It is an effective method of keeping a victim of cardiac arrest alive long enough for definitive treatment to be delivered, usually defibrillation and intravenous cardiac drugs.

Prior to the inception of cardiopulmonary resuscitation, there had been some techniques to keep people alive developed

in the 18th Century, both in Japan and in Europe. It was not until the mid-20th Century that James Elam and Peter Safar discovered and published the truly effective method known as CPR. Safar conducted research on existing basic life support procedures including controlling a person's breathing airway by tilting back his or her head with an open mouth and using mouth-to-mouth breathing. He combined these with a procedure known as closed-chest cardiac massage to become the basic life support method of CPR.

Throughout his life Safar was hesitant to take credit for 'inventing' CPR. The way he saw it, he merely brought to light effective

procedures that humans had already discovered, putting them together into what he called "the ABCs" ie maintaining a patient's airway, breathing and circulation. He worked hard to popularise the procedure around the world and collaborated with Norwegian toy maker Asmund Laerdal to create 'Resusci Anne', the CPR training mannequin. Laerdal now is a medical equipment manufacturer.

Safar also created the first guidelines for community-wide emergency medical services or EMS; he founded the International Resuscitation Research Centre (IRRC) at the University of Pittsburgh, which he directed until 1994 and he was nominated three times for the Nobel Prize in medicine.

2016

July

29 – 30 July 2016

Grinder Challenge 2016

Fire fighter competition with categories such as age, gender and relay team. For all professional, volunteer and seasonal fire fighters involved in municipal, aviation, military, petrochemical, ports authority and freight rail fire services

Venue: North Beach Amphitheatre, Durban
Contact: Aghmat Steel, eThekweni Fire Brigade
 Email: aghmat.steele@durban.gov.za
 Tel: 031 311 5922

29 – 31 July 2016

Fire Service Explorer Weekend

Fire service explorer weekends allow members of participating explorer posts to gain practical experience in the field of firefighting and emergency medical service. The 12-hour program includes activities and instruction on fire and EMS topics, including fire prevention, personal protective equipment, hose and ladder evolutions, search and rescue, firefighter survival, basic rescue skills, accident victim extrication and spinal immobilization. First-time participants focus on basic skills, with more advanced skills being taught each year that the candidate returns

Venue: Academy of Fire Science
 Montour Falls, NY
Contact: Joshua Brott
 Email: Joshua.Brott@dhses.ny.gov

August

8 - 13 August 2016

South Atlantic FIRE RESCUE Expo

Visit hundreds of exhibitors showcasing their latest products and services. Over 200 000 square feet of expo space makes this one of the largest fire service shows on the East Coast

Venue: Charlotte Convention Centre,
 501 South College Street, Charlotte,
 NC 28202

For more information visit:
www.southatlanticfirerescueexpo.com/contact/

14 - 16 August 2016

Queensland mining industry health and safety conference

This conference continues to be one of the largest health and safety conferences in the southern hemisphere. The purpose is to present the latest information on issues that are critical for the continuing health and safety of the workforce

Venue: Jupiters Gold Coast, Queensland,
 Australia

For more information visit:
www.qrc.org.au/conference/

17 - 20 August 2016

IAFC's annual conference and Expo FRI 2016, Fire-Rescue International

FRI, the annual conference and expo of the IAFC, has provided senior-level leadership training to fire chiefs for 140 years. As an organization, the IAFC represents the world's leading experts in the first responder community. The IAFC's commitment to excellence is seen throughout FRI—from the classroom to the expo, the IAFC delivers when it comes to quality and value

Venue: Henry B. Gonzalez Convention Centre,
 San Antonio, Texas

For more information visit:
www.iafc.org/micrositeFRIconf/About/index.cfm?ItemNumber=6597&navItemNumber=6595

30 August – 1 September 2016

AFAC 2016

The Australasian Fire and Emergency Service Authorities Council (AFAC) and Hannover Fairs Australia, are delighted to announce a new partnership. Combining the strengths of both organisations the partnership will deliver AFAC16 under a renewed focus to embrace and support all fire and emergency agencies to achieve their goals and preserve public safety

Venue: Brisbane Convention and Exhibition Centre

For more information visit:
www.afaconference.com.au/contact-us/

September

5 - 6 September 2016

Aerial Fire Fighting Asia Pacific 2016

Tangent Link brings the third Aerial Firefighting Conference to the Asia Pacific region to discuss, debate, learn and acquire the skills and lessons-learned for safe aerial fire fighting

Venue: Adelaide, Australia

For more information visit:
www.tangentlink.com/

7 – 9 September 2016

IFSEC International

IFSEC Southeast Asia continues to be the platform for all security, fire and safety professionals to access the latest solutions

Venue: Kuala Lumpur, Malaysia

For more information visit: www.ifsecsea.com/

7 - 9 September 2016

Intersec Buenos Aires

International fair displaying security, fire protection, electronic security, industrial security and personal protection

Venue: La Rural Predio Ferial, Buenos Aires,
 Argentina

For more information visit:
intersec.ar.messefrankfurt.com/buenosaires/en/visitors/welcome.html

9 September 2016

Marsh First Aid Challenge

Venue: SA Emergency Care, Ardeer Road,
 Modderfontein

Contact: Marlene van der Merwe
 Email: marlene@crm-training.co.za
 Tel: 011 060 7585

8 - 10 September 2016

UKRO National Rescue Challenge

Teams will be able to display their skills within the following disciplines: RTC extrication, trauma, USAR, rope, water rescue and for the first time animal rescue

Venue: HFRS Headquarters, Eastleigh,
 Hampshire, UK

Contact: Event Manager: Steve Barrow
 Email: rescuechallenge2016@hantsfire.gov.uk

12 – 16 September 2016

Electra Mining Africa 2016

Discover all the latest in products, services, technologies and trends at the largest mining, industrial, electrical and power trade show in Southern Africa. It's 4 shows in 1.

Venue: Expo Centre Nasrec, Johannesburg,
 South Africa

Contact: Veda Koekemoer
 Email: veda@specialised.com

22 – 23 September 2016

ECSSA 2016: The Prehospital Emergency Care Conference

The conference will explore prehospital emergency care challenges, professional developments and

clinical advances. The programme will cover a range of relevant EMS topics across all levels of care, and includes original scientific contributions from local and international speakers

Venue: Cape Town

For more information visit:
www.ecssa.org.za/conference.aspx

23 September 2016

Marsh fire fighter challenge

Venue: Cape Town

Contact: Marlene van der Merwe
 Email: marlene@crm-training.co.za
 Tel: 011 060 7585

26 September 2016

Air Medical Transport Conference 2016

The Air Medical Transport Conference (AMTC) is specifically designed to provide leadership, to educate, to inform, to cultivate friendships and to supply up to the minute information on the latest techniques and innovative approaches to emergency medical transport practice from the experts in your field

Venue: Charlotte, NC US

For more information visit:
www.aams.org/events/amtc/

28 – 30 September 2016

Fire and disaster Asia 2016

Fire and disaster Asia (FDA) 2016 will be a showcase of an extensive range of specialised rescue and disaster management equipment, products and associated services

Venue: Singapore

For more information visit:
www.firedisasterasia.com.sg/

29 September – 2 October 2016

ISAF fire and rescue 2016

International fire, emergency, search and rescue exhibition

Venue: Istanbul Expo Centre, Istanbul, Turkey
 For more information visit: www.isaffuari.com/en/

30 September – 1 October 2016

Toughest Firefighter Alive - George

The fifth South African Toughest Firefighter Alive Championships will be hosted by Eden District Municipality, in partnership with George Municipality and the firefighters for Excellence Foundation in George, South Africa

Venue: George, South Africa

Contact: Mark Smith
 Cell: 071 676 4272
 Email: Mark.Smith@capetown.gov.za

30 September 2016

Marsh fire fighter challenge

Venue: KwaZulu-Natal

Contact: Marlene van der Merwe
 Email: marlene@crm-training.co.za
 Tel: 011 060 7585

October

3 – 7 October

EMS World Expo 2016

North America's largest EMS conference and trade show, EMS World Expo, hosted in partnership with NAEMT, will bring over 5 100 EMS professionals together in New Orleans for an industry-leading event

Venue: New Orleans, Louisiana

For more information visit: www.emsworldexpo.com/

6 – 8 October 2016

Florian 2016

Trade fair for fire brigades, fire and disaster control

Venue: Dresden, Germany

For more information visit:
www.messe-florian.de/en/

Firemen don't have a chance

When the first fire trucks are delayed 40 seconds in traffic, people say
"It took them 20 minutes to get here."

When the truck races at 40 mph, it's
"Look at those reckless fools."

When four men struggle with an eight-man ladder
"They don't even know how to raise a ladder."

When firemen open windows for ventilation to reduce heat in fighting a fire
"Look at the wrecking crew."

When they open the floor to get at a blaze
"There goes the axe squad."

The chief stands back where he can see and direct his men, people say
"He's afraid to go where he sends his men."

If they lose a building
"It's a lousy department."

If they make a good 'stop' folks say
"The fire didn't amount to much."

If lots of water is necessary
"They are doing more damage with the water than the flames."

If a fireman gets hurt
"He was a careless guy."

If a citizen gets hurt
"It's a crazy department"

If a fireman inspects a citizen's property
"He's meddling in somebody's business."

If he wants a fire hazard corrected
"I'll see the mayor."

If he gets killed and leaves a family destitute
"That's the chance he took when he joined the fire department."



SAESI 2017

Southern African Emergency Services Institute

29 Oct - 3 Nov

Expo Centre NASREC, Johannesburg

The 31st SAESI Conference, Exhibition, Training Events and Challenges will be held at the Expo Centre, NASREC in Johannesburg from 29 October to 3 November 2017.

The programme will include:

- Conference
- Exhibition
- Gala dinner
- Cocktail evening
- SAESI EXCO meeting
- Fire Fighter Challenge
- Vehicle extrication
- High angle rescue
- Emergency medical rescue
- Badge swapping evening
- Fun run
- World record attempt
- Meet and greet
- And much more!!

Save the date!

Conference programme, exhibition layout and details on the training events and challenges will be released shortly.

A Protective Foam Blanket in Less than 60 Seconds...



PRO/pak with
Medium Expansion Nozzle

...REALLY!

PRO/pak[®]

- Class A, AFFF & AR-AFFF
- 0.1% to 6% Injection Ratios
- Low or Medium Expansion Finished Foam
- 9.5L Foam Reservoir
- 3 bar to 34 bar Operation



Pretreatment



Extrication



Spill Control

With one tank of 1% concentrate the PRO/pak can make 56,775 L of finished foam using only 946 L of water in 21 minutes based on 60:1 expansion from the medium expansion nozzle.



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