

# FIRE AND RESCUE INTERNATIONAL

Integrated fire, rescue, EMS and incident command technology

Volume 2 No 7



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# Comment



Lee Raath-Brownie

We are proud to present the 19th edition of **Fire and Rescue International (FRI)**. This edition features the usual local and international news round-up, practical know-how and advice, profiles of a fire service, fire protection association and a charity organisation, discussions around fire safety and wildfire investigation and a case study testing multiple ignitions to develop high-intensity fires for use in prescribed burns. We trust you will enjoy reading this issue and share it with your colleagues!

**Cover profile**

Our front cover this month features SafeQuip, a leading supplier of fire fighting equipment, headquartered in Cape Town, South Africa. The company signed a new distribution agreement with Davey Water Products, Australia.

**FRI Images photographic competition**

An impressionable black and white photograph of a fire fighter won one of our readers R2 000. See page 3 for details. **CONGRATULATIONS!**

Submit your high-resolution photograph featuring a rescue, emergency, incident or fire scene and win R2 000 cash!

**News section**

The recent Super Typhoon in the Philippines leads the news section followed by operational cutbacks for the South African Air Force, an innovative foam system, a motorcycle ambulance for the African market, the recent Australian bush fires, 2012 US fire fighter injuries, several motor vehicle accidents and the new superstorm-ready vehicles for the Fire Department City of New York, amongst others. We also feature the NSRI's new CEO, the new state-of-the-art jet ski donated to the NSRI, a new generation rescue boat, and MAN Truck and Bus' new parts distribution centre.

**Fire service**

We profile Cape Town International's Airport Rescue and Fire Fighting facility and also feature Werner van Rensburg, Fire and Rescue manager of ACSA Cape Town.

**Lifting tactics**

Colin Deiner discusses the operational aspects of lifting tactics and working with airbags. Deiner details the various types of airbags, airbag components and capacities and highlights the importance of cribbing. Basic rules for lifting, controlling the lift and calculations for cribbing capacity forms part of this hands-on discussion. Deiner also describes the safety considerations during lifting exercises and issues around patient care.

**High school fire fighter certification program**

We take a look at the recently introduced North Carolina fire fighter certification program.

**Training**

City of Cape Town's Epping Training Academy is featured in this edition. The FRI team visited the centre and chatted with Walter Petersen, Cape Town's Fire and Rescue Service training head.

**Wildfire investigation**

Rob Erasmus of Enviro Wildfire Services writes in this first of a five part series about the critical role wildfire investigations can play in reducing future wildfires.

**Fire safety**

Rodney Eksteen, an expert in introducing fighting fire with education, discusses the development and implementation of evidence-based fire prevention programmes. Eksteen details the Learn Not To Burn program, causal factors in fire and burns, the creation of the messages and the target audience.

**Umbrella fire protection association (UFPA)**

We profile the KwaZulu-Natal Umbrella Fire Protection Association and detail its structure, fire statistics, operational aspects, biome and resources.

**Chaplaincy Alert Western Cape**

The Chaplaincy Alert Western Cape is featured as this month's charity organisation and we look at its operations, statistics, challenges and the difference they make in Cape Town.

**Johannesburg International Motor Show 2013**

FRI journalist, Sylvester Haskins, visited the Johannesburg International Motor Show 2013 and reviews the technology and vehicles launched.

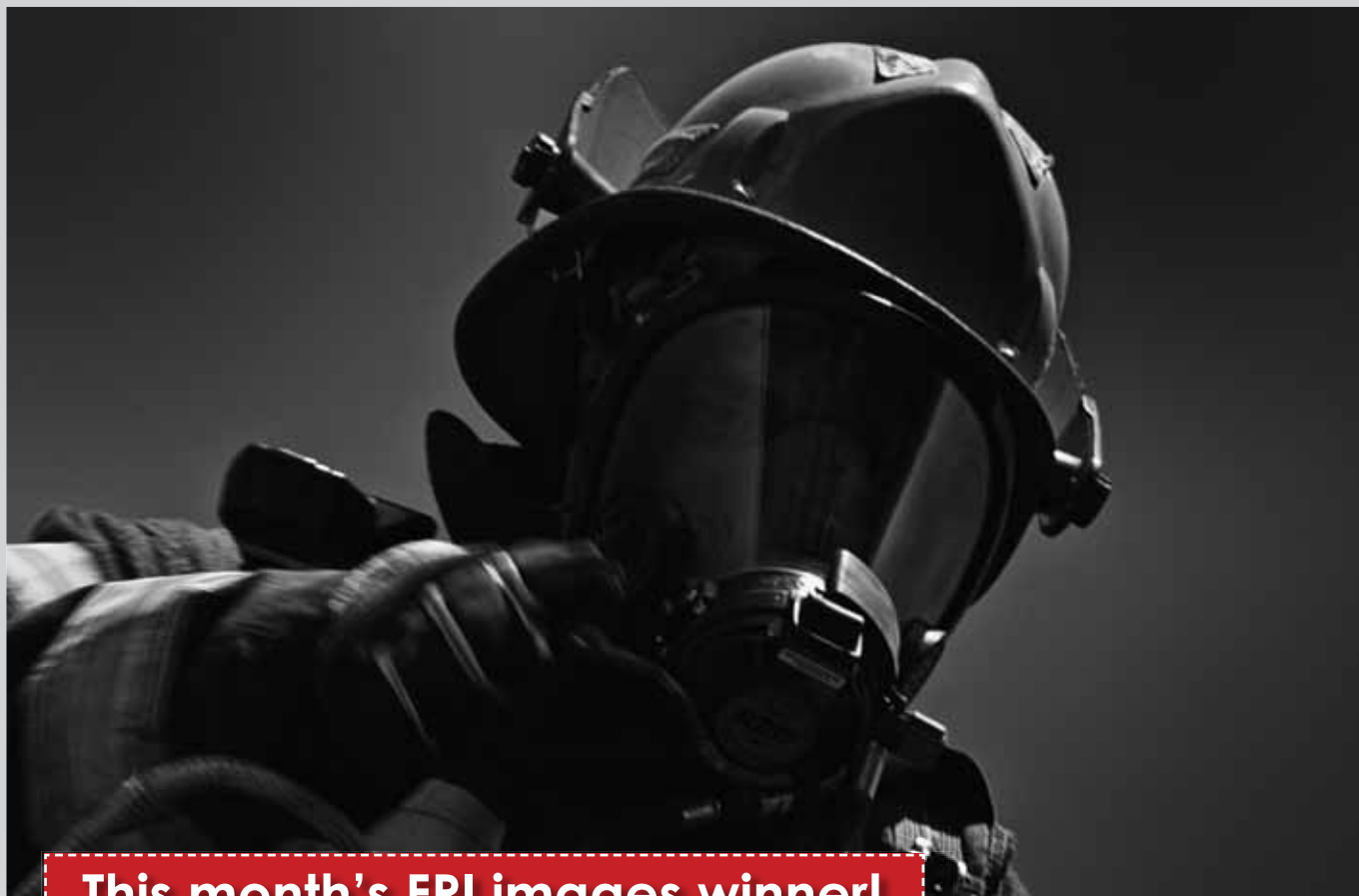
**Case study**

Our case study written by renowned scientist Dr Winton Trollope features the results of the multiple ignitions tests on a field scale for the development of high intensity fire under mild weather conditions. Do not try this at home!

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

Lee Raath-Brownie  
Publisher





**This month's FRI images winner!**

### Congratulations to

**Simon McDonnell** for his *"Helping hand"* photo taken with a Canon 5d Mark III, using a 28-300mm lens with an ISO of 125 and a shutter speed of 1/200 sec with a 8.0 f-stop.

**Well done!**

#### Photo description:

Taken at the recent SAESI competition at NASREC, this image is of one of the team members during the SA Emergency Care Challenge.

**Simon McDonnell wins this month's prize money of R 2 000!**

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

Fire and Rescue International (FRI) has introduced a monthly photographic competition to all its readers. This exciting competition 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.za.**

**>>ENTER NOW!**





A water transfer solution is provided by Davey Water Products Floodfighter pumps

# SafeQuip leverages its fire fighting interests



SafeQuip brand manager for Davey, Malcolm Corns

**T**oday considered the leading manufacturer and wholesale distributor of fire fighting and water-related equipment in southern Africa, SafeQuip has for over three decades pioneered innovative solutions in various industries.

With an extensive range of SABS-approved products, fire fighting and water related equipment manufacturer and distributor, SafeQuip, delivers a one-stop shop solution for all fire fighting requirements, as well as products for the transfer, conservation, treatment and filtration of water, servicing some

of the toughest environmental and climatic conditions on the continent.

SafeQuip has leveraged itself as a leading supplier of fire fighting equipment through accessing and supplying international quality products for the southern African market. The company's headquarters in Cape Town, South Africa is the base in a national footprint of branches and extensive dealer network throughout Southern Africa.

Now more than ever, SafeQuip reflects a business culture of dependable, innovative fire fighting and water solutions throughout southern Africa, reports SafeQuip brand manager for Davey, Malcolm Corns.

"SafeQuip is committed to providing quality products supported by the best service and advice when and where people need them," says Corns.

Through an exclusive association with Australian water treatment, transfer, conservation and filtration specialist manufacturer, Davey Water Products (Davey), SafeQuip is now able to provide some of

the world's most efficient, reliable and innovative products to the agricultural, fire protection, home and garden, community and commercial, irrigation, rainwater harvesting and purification industries.

"All of this is backed up by our extensive after sales service and customer support structure. With our extensive industries' expertise, our passion for power, performance and innovative techniques and our continued relationships with professional workers, gives us unique insight and working perspective. Our desire for new thinking and innovation has resulted in a comprehensive range of products that meets the needs of all our customers," states Corns.

SafeQuip signed a new distribution agreement with Davey in September this year after the Australian company saw many similarities between the Australian and South Africa market conditions.

Davey realised that it could grow its footprint in this country by entering into a strategic partnership with a distributor that is well-positioned and already operates within key market channels. ▶



Two five-series fire fighter pumps supplied by SafeQuip



The petrol and diesel self-priming Davey Floodfighter pump



The Davey FireFighter self-priming pumps in a frame

► Davey international business development manager, Gary Dryden, says that the correct partnerships are essential as the manufacturer, distributor and client all have to benefit from the relationship in order for it to be a success. He says, "SafeQuip is well known locally and will promote our products to suitable channels such as agriculture, forestry, fire fighting, construction, domestic use and many others."

### Pump solutions

SafeQuip will be making a limited range of products that both Davey and SafeQuip anticipate will thrive in the southern African market.

The range will include home pressure systems, water transfer pumps, fire fighter pumps, flood fighter pumps, pressure tanks and water treatment units, rainwater harvesting and purification equipment, among other pump products and applications.

The flagship fire fighting products to be supplied by SafeQuip in the local market is the Davey Firefighter self-priming pumps range. The pumps are available in a single stage and high-powered single stage and the twin stage and high-powered twin stage variants.

"Traditionally, the Davey Firefighter has been known as South Africa's leading fire fighting engine driven pump and over the years has become a product with a single focus," states Corns. He adds, "These products, or more so the range, can also be used to assist with fire fighting tanker-to-tanker water transfer, high-head general water transfer, sheep jetting, irrigation, boom spraying and travelling irrigators."

Features of the Davey Firefighter pumps include a choice of three or four-way discharge port for

easy installation with a choice of plumbing sizes. The units have a polyester coated pump casing exterior and interior, for added corrosion resistance, as well as self-priming of up to six and seven millimetres for more versatile installation options.

The Davey Firefighter range also has low-oil protection capability as engines won't start or run if oil levels is inadequate thus protecting the engine. Electric start models have electric starter and recoil starter fitted, enabling a choice of starting method, even if the battery is flat or removed.

### Ideal pumps

The Davey portable fire fighter pumps and SafeQuip's range of mobile skid units can be loaded onto bakkies and manoeuvred in difficult terrain making it ideally suited for South African conditions, reports Corns.

The Davey fire fighter pump range has been widely used in South Africa for various applications, which include general water transfer and traditional fire fighting functions.

The pumps have a unique impeller design for longer seal life, reduced engine wear and easy access. Independently floating neck rings ensure optimal performance is maintained even after long periods of abuse. A thrust balance drum and equalisation holes in the impeller extend the engine life of the pump.

### Pump configurations include:

- Single and twin stage models for higher and lower performance needs
- Honda petrol or dedicated diesel engine options, making it ideal for areas without electricity
- Hand (recoil) and electric start
- Viton seals as an option for

extended life in spraying applications

- Choice of suction sizes of 3,8 centimetres to five centimetres
- Bayonet style priming and drain ports for fast and easy access

### Floodfighter pump

The engine driven flood fighter pumps manufactured by Davey will also be supplied by SafeQuip to the Southern African market.

The Davey Floodfighter pump is used in various applications including septic tank pump-out, tank filling, irrigation, water transfer and dewatering and is manufactured in either diesel and petrol engine. It features a heavy duty cast iron open impeller and diffuser to extend pump life when pumping dirty water with some solids content.

The Floodfighter pump is manufactured with a corrosion resistant marine-grade aluminium casing, suction and discharge port for longer life and feature mechanical shaft seal for long life. The diesel models are equipped with special hard-faced seals for extra-long life with dirty water and the units also have a powder coated, steel-roll frame with anti-vibration mounting for easy transport.

Davey is currently focusing on getting the support structure in order, says Dryden. He says that the company will continue to look at ways of expanding its product range in southern Africa, while at the same time build up a suitable level of stock and dedicated support materials and services.

"There are enough similarities in the market to suggest that if we get it right in terms of product quality, supported by excellent service offered by SafeQuip, with us supporting their efforts, we will be successful in this market," states Dryden.▲



# Super Typhoon hits Philippines and displaces 500 000 people

**Winds gusts of 380 kilometres per hour caused widespread devastation in the Philippines**

The Philippines was struck by one of the most powerful storms ever recorded on land in November this year, leaving about half-a-million people displaced in the city of Tacloban in Leyte Province, Philippines.

Super Typhoon Haiyan unleashed the might of its fury on 8 November whipping up sustained winds of 315 kilometres per hour and gusts of 380 kilometres per hour.

The frightening weather conditions forced more than a million people to flee the flooding villages and raised fears of widespread casualties in Tacloban, which is a city of 220 000 people.

Philippines authorities conducted mass evacuations of 800 000 people before Haiyan made landfall in Tacloban and surrounding regions. However, the great reach of the storm surge meant that many still perished.

UN disaster assessment team head, Sebastian Rhodes Stampa, said that there was a danger of relief efforts focusing solely on Tacloban when other parts of Leyte Province and Samar Island in central Philippines were in need of aid. "We'll be here for some time to come," said Stampa.

Super Typhoon Haiyan caused widespread damage on the neighbouring Samar Island, where 100 homes were flattened and 248 transmission towers and 198 electricity poles were damaged.

In Tacloban, the local airport looked like a muddy wasteland of debris, with crumpled tin roofs and upturned cars. The airport tower's glass windows were shattered and air force helicopters were busy flying in and out at the start of relief operations.

The US military indicated that it would provide support 'on an unprecedented scale' in the Philippines, following the extent of the devastation in Tacloban and Samar.

The aircraft carrier, USS George Washington and about a half dozen other US ships, including a destroyer and two huge supply vessels arrived in the Philippines a few days after the typhoon hit the country. The USS George Washington expanded search-and-rescue operations and providing a platform for helicopters to move supplies.

US vessels, along with two P-3 aircraft were being used to survey the damage from the sky so that planners can assess where aid is most needed, the US naval 7th Fleet reported.

The commander of the US marine contingent in Tacloban, Brigadier General Paul Kennedy, said after a helicopter flight over the city, "I don't believe there is a single structure that is not destroyed or severely damaged in some way. Every single building, every single house."

International media reports state that mass burials were being held as many of the dead were still lying along roads six days after the devastation in Tacloban and Samar Island.

In Tacloban, survivors sifted through debris in the dark wading through murky puddles formed after frequent, heavy rain showers, huddling around small fires cooking food in the Philippine city that is some 575 kilometres southeast of Philippines capital city, Manila.

Filipino soldiers distributed rice and water on trucks, as chainsaw-wielding teams cut debris from blocked roads. Thousands more swarmed the city's damaged airport, desperate to leave or to get treatment at a makeshift medical centre.

Philippines defence secretary, Voltaire Gazmin said the country's President, Benigno Aquino was 'speechless' when he told him of ▶



► the devastation the typhoon had wrought in Tacloban.

### Death toll

According to a Tacloban city hall bulletin, the death toll had reached 4 000 in the devastated coastal city of Tacloban alone. However, the Philippine's National Disaster Risk Reduction and Management Council (NDRRMC) said that there were a total of 2 360 confirmed deaths, while other reports from the ground put the figure higher.

President Aquino dispelled the initial death toll estimate of 10 000 in the aftermath of the Super Typhoon, saying that this was an overstated figure by local officials who were in a state of 'emotional trauma'. President Aquino said that the estimated death toll would be closer to 2 500.

The Philippines does not have sufficient resources on its own to deal with a disaster of this magnitude. As a result, the US and other governments and humanitarian agencies were mounting a major relief effort in the country, said Philippine Red Cross chairman, Richard Gordon.

### Relief aid

Aid workers struggling to help survivors of the Super Typhoon described the situation as bleak, one week after the storm tore into the country.

On 13 November, UN's World Food Program distributed rice and other items to nearly 50 000 people in the Tacloban area. The UN launched an appeal for \$301 million from the global community to help relief efforts in the typhoon-hit areas of the Philippines.

A spokesperson for Medecins Sans Frontieres (MSF) said the logistical issues of distributing aid were enormous. MSF relief aid worker, Henry Gray, said workers who had visited Guiuan, in eastern Samar, described the situation faced by the 45 000 people on the island as 'bleak'.

"What we saw there was that a public hospital had been, basically, destroyed," said Gray.

The UK government sent the aircraft carrier HMS Illustrious, more than \$32 million in aid, a team of medical experts and a transport aircraft.



More than one million fled villages in the typhoon-hit city of Tacloban, Philippines



Governments and international agencies sent food, water and supplies to the Philippines

South African disaster response group, Rescue South Africa, travelled to the Philippines to assist in the disaster relief projects underway in Philippines, as did South African humanitarian and disaster relief group, Gift of the Givers.

Japan was preparing to send up to 1 000 troops, as well as naval vessels and aircraft, to the Philippines. The east-Asian country pledged \$40 million in a disaster-relief grant to the Philippines, in addition to an earlier \$10 million pledge.

President Aquino faced mounting pressure to speed up the distribution of aid as survivors grew increasingly

desperate and angry over the speed of aid distribution, which has been hindered by looting, a lack of fuel for rescue vehicles and debris-choked roads.

As international aid poured into the Philippines, the country's Department of Foreign Affairs (DFA) stated that most of the donations will not be handed over to Philippine government agencies.

The US Marines were reportedly instructed not to let Philippine Government officials and politicians touch the relief goods that were to arrive in Samar, reported US media. ▲



*Air Force Base Ysterplaat's 22 Squadron face operational cutbacks in the use of its Oryx helicopters*

# Operational cutbacks; seemingly a growing trend for the SAAF

The Western Cape may have to do without the assistance of helicopters from the South Africa Air Force (SAAF) for fire fighting efforts of municipal and provincial agencies in the province.

This point was made in the provincial legislature in October during a debate on disaster management by Anton Bredell, Minister of Local Government, Environmental Affairs and Development Planning.

Bredell said he would be writing to Defence and Military Veterans Minister, Nosiviwe Mapisa-Nqakula, about the non-availability of rotorcraft to assist in fire fighting efforts this summer.

"We are worried about the national government's ability to support us in this regard," Die Burger quoted him as saying.

This indicates that the Air Force Base Ysterplaat's 22 Squadron will suffer operational cutbacks in the use of its Oryx helicopters, which should be deployed as part of the SAAF Mission that states: "We provide deployable

multi-role capabilities for the South African National Defence Force (SANDF) in service of our country".

It comes hard on the heels of the squadron not being able to supply a Super Lynx maritime helicopter to the Navy as an added asset aboard the SAS Spioenkop, which was on her six-week west coast patrol that coincided with the Sea Power Africa symposium in Dakar in November this year.

In July, it was revealed that allocations for SAAF search and rescue operations had also been cut, with such skills in danger of being lost to the SAAF.

"Mountain flying is a high risk activity as any pilot will tell you. Hoisting out of a helicopter is also a very high risk activity," a person close to the SA Search and Rescue Organisation (SASAR) said in July, when the search and rescue allocation cutback became known. Do both in an Oryx at night in dubious weather and risks increase exponentially.

"If these cuts are prolonged, we may end up losing this capability

altogether. And that means South Africa becomes incapable of safely fulfilling our UN agreed mandate under SASAR to provide aeronautical search and rescue in our area of responsibility."

Similarly, the skill needed to fill a Bambi bucket with water and fly it to a designated drop zone with raging flames and strong winds is another component of aerial fire fighting that has to be regularly maintained or lost.

The SAAF's A109 light utility rotorcraft fleet is also feeling the financial pinch with a number of aircraft essentially grounded. Pilots have had to face reconversion to gain currency at some future stage when funding is available for flying hours.

Tight budgets have been the order of the day for the Air Force. At this year's Air Force Day parade, SAAF Major General, Jerry Malinga, told a pre-parade media briefing that financial and other constraints had not prevented the SAAF from successfully completing each and every task assigned to it. ▲



# National Sea Rescue Institute (NSRI) announces new CEO

*Dr Cleeve Robertson and Ian Wienburg*

**D**r Cleeve Robertson took over the helm of NSRI from Ian Wienburg on 1 September 2013 with Wienburg remaining in the wings for a year to ensure a smooth transition.

No stranger to sea rescue, Dr Robertson was the official NSRI chief medical advisor and as such is a familiar face in the boardroom and at the rescue bases around the country.

He vacates the position of senior manager medical services: emergency medical services for the Western Cape, a position that he has held since 2001, to head up Sea Rescue.

As well as specialising in emergency medicine, Dr Robertson is a qualified commercial surface supply diver and commercial diving supervisor, diving medical examiner and a national sports diving instructor.

The publications he has authored for both diving and EMS remain in use after many years by emergency service providers.

In the 1980's he obtained his boat skippers license, then instructors, and since 1987 he has been able to test

skipper competency up to nine-metre class vessels for commercial, sport and recreational use.

He is also a boat surveyor through SASCA and serves as a South African Maritime Safety Authority (SAMSA) medical examiner.

Because of the shift work required of an emergency medical services doctor, Dr Robertson has never been on regular NSRI boat crew, but when called upon by Sea Rescue to assist with medical calls at sea, he has always volunteered his services.

His work for Sea Rescue – from assisting with Sea Rescue operations, doing medicals for the volunteers and always being available when needed, has made him as much a part of the NSRI volunteers as the red wetsuits.

"The NSRI presents me with a unique opportunity of fulfilling my passion for patients and the marine environment," said Dr Robertson. "I was rescued by the NSRI in 1986 after a yachting mishap on Robben Island ... so I still have a debt to repay!"

"The irony is that Ian Wienburg was part of Station 3 that came to our rescue!" he said.

Ian Wienburg joined NSRI in 1974 as a volunteer and moved up the ranks from crewman to coxswain. For many years he was part of the management committee of Station 3, which in those days was in Three Anchor Bay.

Wienburg was appointed CEO of NSRI in 1994. Well known for his unconventional approach he has chosen to step back and invite new blood into the organisation.

"The first day of spring was the ideal day for a spring clean and new direction," said Wienburg.

Wienburg will remain involved in NSRI in the field of fundraising, which is his unique forte.

"With my new role in Sea Rescue I hope to have a little more time to pursue my passion for sailing," says Wienburg.

NSRI is run by 941 highly skilled, unpaid volunteers at 32 bases around the coast and on three inland dams. Donations, bequests and sponsorships cover the annual running cost of R25m. The volunteers save NSRI a salary bill in excess of R250m per annum. NSRI began in 1967 as a humanitarian service, at no charge to the public.▲



# Foam: fast and simple

From wildfire applications to securing hazardous material spills, Pro/pak is perfect for rapid foam applications

**T**ask Force Tips' production and delivery of the Pro/pak portable, foam injection and application system has dramatically simplified foam-making challenges experienced by emergency responders worldwide. The introduction of this system of this product has solved many complex fire ground operational issues.

The creation of finished foam on the fire ground has long been a major challenge involving foam agents, injection systems, engine pressures, hose lays and nozzle performance. The Pro/pak integrates all of these components into one easy to use package for maximum performance, reliability and durability.

The Pro/pak functions equally well with Class A foam agents from 0,01% up to 1,0%, or AFFF and AFFF-AR concentrates at 1,0%, 3,0%, or 6,0% ratios.

Everything the fire fighter needs is contained in one package that attaches to the end of a 25mm or 38mm fire hose. The Pro/pak has a high impact nine and a half litre foam reservoir with a built-in eductor that can be set to the ratio of foam or wetting agents being used. A large, easy-open fill port has an indicator to show the type of liquid concentrate in the tank. The flow is controlled by a twist grip valve/carrying handle.

Select the discharge velocity that meets the requirements for inlet pressures between 40 and 500psi (3 to 34bar). The nominal flow is 12 gpm at 100 psi (45l/min @ 7bar).



*Pro/pak is compact, versatile and includes all components to make foam quickly hazardous material spills, Pro/pak is perfect for rapid foam applications*

A shoulder strap is included for extended operations. The Pro/pak portable foam system is supplied with three different quick connect nozzles, a discharge hose and a cap. The straight-stream nozzle gives maximum reach and penetration. The low-expansion nozzle works well with Class A and B foam solutions where reach is more important than expansion ratio. The medium-expansion nozzle

produces dense foam that is best for vapor suppression and longevity.

The Pro/pak can be used when time is critical and a small blanket of foam is needed. For example: With one tank of 1% concentrate the Pro/pak can make up to 56 775 litres of finished foam using 946 litres of water in 21 minutes, based on 60:1 expansion from the medium-expansion nozzle. All Pro/paks are manufactured of high impact engineering plastic with metallic components of hardcoat, anodised aluminum and stainless steel.

The PRO/pak is ideal for just some of these following fire fighting situations;

- Vapor mitigation of a flammable liquid spill using AFFF or AFFF-AR with the medium expansion tip
- Pretreatment protection of a structure using Class A foam with the low or medium expansion tip
- Quick extinguishment of deep-seated nuisance fires using Class A foam with any of the tips
- Creation of wet-lines and for use in mop-up operations using Class A foam in the wildland urban interface

With over 10 000 units delivered to fire suppression agencies worldwide, the Pro/pak has simplified the once complex task of foam application operations. ▲

For protection of property threatened by oncoming fire, nothing beats the capability of the PRO/pak. Its small size and portability allow faster Class A foam application and wider coverage than a fixed system.



**Multiple units allow firefighters to operate simultaneously off one truck, so they are available sooner to move on to the next structure.**



Everything you need is contained in one package that attaches to the end of your 25mm or 38mm fire hose. The PRO/pak has a high impact 9.5 l foam reservoir with a built-in inductor that can be set to the ratio of foam or wetting agents being used. A large, easy-open fill port has an indicator to show the type of liquid in the tank. The flow is controlled by a twist grip valve/carrying handle. Select the discharge velocity that meets your needs for inlet pressures between 3 to 34 bar. The nominal flow is 45 l/min @ 7 bar. A shoulder strap is included for extended operations. The PRO/pak Portable Foam System is supplied with three different quick connect nozzles, a discharge hose and a cap. The straight-stream nozzle gives maximum reach and penetration. The low-expansion nozzle works well with Class A and B foam solutions where reach is more important than expansion ratio. The medium-expansion nozzle produces dense foam that is best for vapor suppression and longevity. Use the PRO/pak when time is critical and you need a small blanket of foam. For example: With one tank of 1% concentrate the PRO/pak can make 56,775 l of finished foam using 946 l of water in 21 minutes, based on 60:1 expansion from the medium-expansion nozzle.



**The PRO/pak Makes Foam And Limited Water Supply Go Further.**



**Low expansion nozzle makes wet and sloppy foam to penetrate burning Class A materials making it ideal for mopping-up operations. Medium expansion nozzle provides longer-lasting, thick, shaving-cream like foam for pretreatment ahead of a fire front.**



### PRO/pak Portable Foam System

- Available with 25mm straight coupling or 38mm angled coupling
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# Age-old air-tankers

## used by US Forest Service draws criticism



In 2009, the US Forest Service sought \$2.5 billion to buy 18 to 28 aircraft. The funding was denied by its parent agency, the Department of Agriculture.

The department's inspector general acknowledged that the Forest Service needed new planes but said the proposal was poorly prepared and did not include enough data.

The Associated Aerial Firefighters Advisory Group chairman and former tanker pilot, Walt Darran, said the problems stem from a lack of leadership.

"The Forest Service only changes the way it does business after a high-profile death," he said. "Any improvements that have been made in this industry have been bought with blood."

In 2002, a 46-year-old Lockheed C-130 tanker dropping retardant on a fire near Lake Tahoe broke apart when its wings folded up like a bird's. The crash killed the three crew members. A camera crew captured the accident and the footage was shown on the nightly news across the nation.

Another fire plane, this one 57-years old, broke apart during a Colorado fire one month later, and an investigative panel was convened to examine the industry.

The panel's 60-page report released in 2002 said that the Forest Service's safety standard was unacceptable and that its oversight was lacking. It recommended that the agency foster a closer relationship with the aviation industry to improve the safety of its fleet. By 2004, the Forest Service had removed 33 tankers from its fleet.

The Forest Service says it is trying to modernise. It issued contracts to seven companies this year; most of those planes are not yet ready to enter service. Although the contracts call them 'next-generation' planes, they aren't so new, stated a US media report.

One of the aircraft was pulled from an aviation museum in San Bernardino, where it had been on display for 10 years. ▲

Many of the tankers used by the US Forest Service are retired military aircraft that are costly to maintain and dangerous to fly, according to a US media report in September this year.

The US Forest Service fleet, which drops retardant to give fire fighters on the ground crucial time to put out raging wildfires, is too old and ineffective for continued use in the agencies wildfire fighting operations.

Former pilots, government officials, fire fighter advocacy groups and the California Department of Forestry and Fire Protection have all made demands that the Forest Service replace these planes.

"It's pathetic," says Tony Kern, former Forest Service chief of aviation. "We have brave aviators using ancient technologies and as a result they're losing their lives. It's a horrifying fact that won't change unless government action is taken."

In conditions where wings break off and engines catch fire, stressed pilots make mistakes. Since 2001, tanker crashes have killed 22 aviators. Six aerial fire fighters died last year, while engaged in wildfire fighting efforts. The old aircraft take a beating from

the turbulence, updrafts and hot ash they encounter on fire fighting missions and they are difficult to keep flight-ready.

Over the last decade, the service reduced its fleet from 47 to just 12, all operated by businesses under federal contract.

### Insufficient budget

The agency has exceeded its \$1-billion annual budget for fighting wildfires seven times since 2002. About \$50 million a year is spent on deploying the large tankers.

California, with 23 smaller air tankers, is one of four states that have their own fleets to supplement the Forest Service's fleet.

Fire fighters know they can't count on aerial support; there are too few planes. Half the times a Forest Service air tanker was requested last year, the answer was no: They were all fighting fires elsewhere.

"We're doing the best we can, realising we can't do it on the cheap," said Tom Harbour, the Forest Service's director of fire and aviation management. "When you look forward, by golly, do we have a problem. We need more aircraft and much more capability."



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# Motorcycle ambulance fills gap in patient referrals in Africa

*A total of 420 units of the eRanger ambulance were supplied to Tanzania in 2010*

**E**mergency medical services in Africa's poorest countries face an uphill battle, sometimes quite literally, as traditional motor vehicles and ambulances are unable to access rural and mountainous regions of these third world countries.

In steps the eRanger ambulance project, which has been supplying customised motorbike ambulance units to African countries, such as Uganda and Kenya, where Government health services battle to manage patient referrals, specifically maternal emergencies, in remote villages and poor communities.

Speaking to Fire and Rescue International from his native-UK, where the idea was first conceived, eRanger founder and manufacturer, Mike Norman, says that the decision to manufacture the ambulance units in South Africa was influenced by former South African president, Nelson Mandela.

"The reason they are built in South Africa is that our principle funder, Prince Bandar Bin Salta of Saudi Arabia, is a very good friend of Madiba," states Norman. "Madiba

asked for a meeting and we flew to Johannesburg and had a meeting at his place. He said, basically, 'could the motorcycle ambulance be made in the Eastern Cape'."

The eRanger ambulance has proven to be a cost-effective option for the referral of patients to regional hospitals and health centres, particularly in rural areas and villages in Africa that have little or no transport.

In a mountainous village community in Mbale, Eastern Uganda, medical patients and women in labour have to walk long distances to give birth, many times with tragic consequences.

According to a pan-African news agency, the introduction of the motorbike ambulances in Uganda has helped 'curtail most maternal deaths during child delivery'.

The Partnership Overseas Networking Trust, a non-governmental organisation (NGO) operating in Bugis region, Mbale purchased seven eRanger motorcycle ambulances, starting with two in December 2010. The organisation has partnered with local governments to introduce the service to the communities.

The ambulances are stationed at health centres located in the poorest communities. Health workers are trained to operate and maintain these motorcycle ambulances.

The eRanger ambulances are better equipped to navigate narrow footpaths in the rural areas of Uganda where the maternal mortality rate is at 435 per 100 000 live births, according to Uganda's Ministry of Health.

Mbale district health officer, John Baptist Waniaye, says that the budget of the local health centre in Mbale is not able to sustain vehicles to transport patients from villages to the hospital or health centres. In terms of cost, motorcycle ambulances are a cost-effective solution for the villages in Mbale, states Waniaye.

## **Manufacturing eRanger**

The eRanger ambulances are manufactured in King Williams Town in the Eastern Cape, South Africa, where eRanger project founders have collaborated with South African automotive manufacturing company, Fabkomp, to produce the eRanger ambulances used across Africa. ►





Maternal mortality rates in poor African villages could be reduced by using the eRanger



The eRanger mobile clinic

▶ eRanger founder, Norman says that Fabkomp already had the infrastructure for engineering and the expertise to build these vehicles. "We used a section of the Fabkomp facility. I did the training and we worked together on the project," he says.

The eRanger was designed as a generic village vehicle. Norman says that he was fortunate to win a Shell World Aware Award in 1999 after working on the vehicle for three years, which led to the initial funding of the project by Prince Bandar of Saudi Arabia.

"That gave us the funding to start up in the UK initially, with the intention of getting manufacturing done in Africa. The first motorcycle ambulance from production went into Malawi in 2001. It was commissioned for a project specifically on a study around maternal mortality," explains Norman.

#### Alternative to 4x4's

Norman says that the eRanger ambulance is a practical alternative to using 4x4 vehicles in rural communities.

Fuel consumption terrain and driver ability dependent is in the region of 20 to 30 kilometres per litre and, in terms of durability, the bikes are still running after six years with high kilometres on the clock. According to Norman, this is owing to regular maintenance and strict management at the point of use.

eRanger offers users of the motorcycle ambulances basic maintenance and driver training and assists in the setting up of a management structure. This ensures that regular maintenance occurs and has been done in countries via the appropriate Government Ministry, to ensure sustainability of the programme.

Norman says, "We train drivers to operate the vehicle safely and to do the basic maintenance of the vehicle, such as repairing the motorcycle chains, the tyres and other maintenance tasks. The operators are recruited by the NGO's that purchase the bikes, as they work with the local communities and understand the culture."

The running costs of the eRanger is in the region of about 12 and 14 cents (US) per kilometre, which would exclude driver expenses.

A total of 1 500 units of the eRanger ambulance has been sold to date since 2001, reports Norman. He says, each ambulance covers a population of 25 000, which covers scores of people, considering 1 500 units are already used across the continent.

Norman says that there are significant projects and programmes that are underway in Africa for the eRanger vehicles.

"We currently have huge interest in the motorcycle ambulance, most recently from a few different African countries including Nigeria, Kenya and Swaziland. In Swaziland we have had a request for the ambulance to be placed at each of the 52 rural clinics operated by the country's national health department," states Norman.

The ambulance has been used in about 22 countries in Africa to date.

In South Africa, the Minister of Health met with the eRanger founders with the idea of possibly rolling out these motorcycles in South Africa's rural communities. Norman says that a subsequent trip by health officials was

made to the manufacturing facility in King Williams Town.

To date, the Oliver Tambo Municipality in the Eastern Cape has been the only South African public entity that has acquired the ambulance to date, with 17 eRanger vehicles ordered in 2002 by the municipality.

#### Fire motorcycle

Norman says that eRanger have explored the use of the eRanger motorcycle as a fire fighting unit.

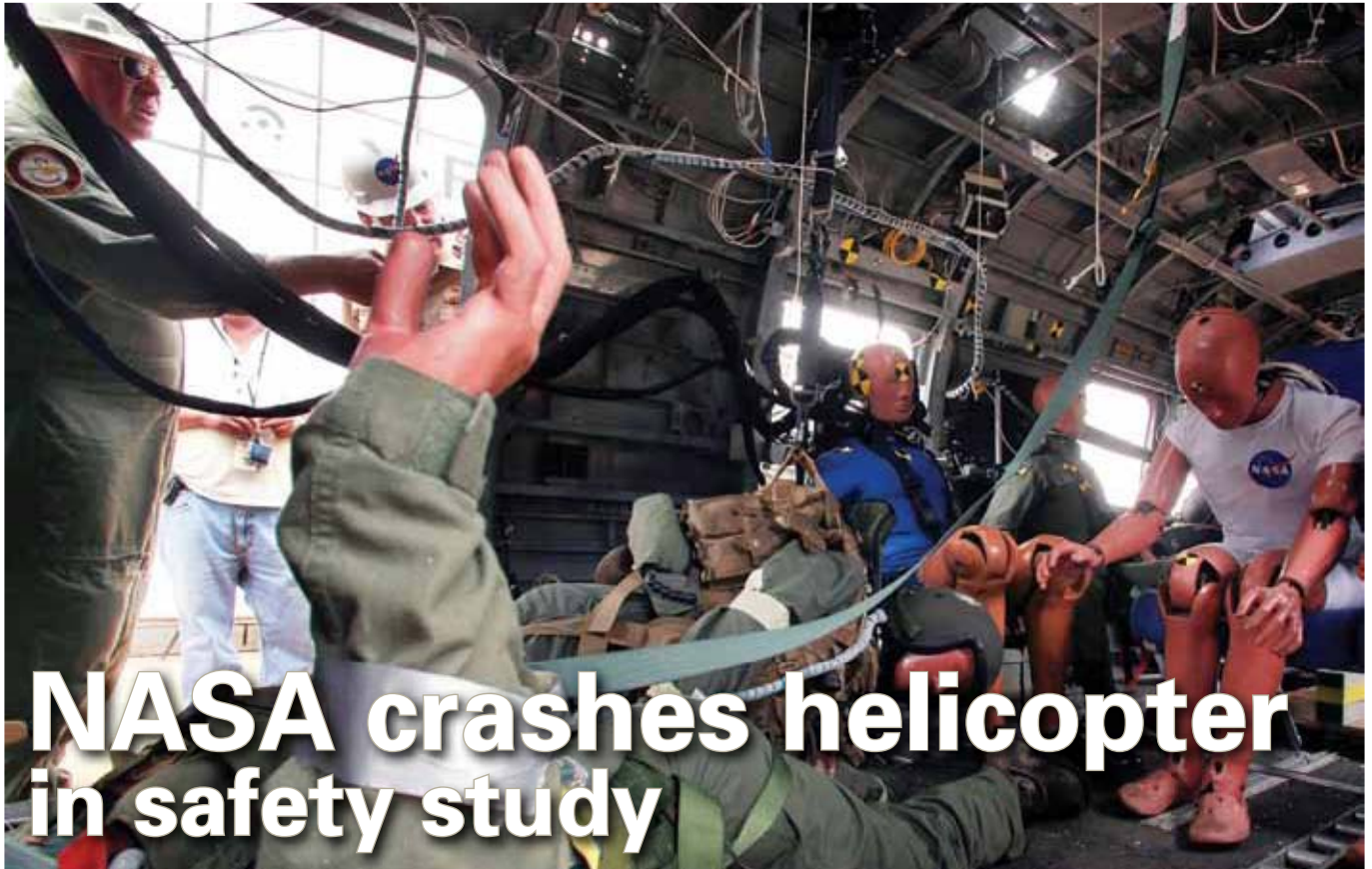
"We did look into the idea of a water carrier with pump and facilities to hook it up to a hydrant. We had fire extinguisher and entry fire fighting equipment. It actually worked. We had the fire service in East London look at the vehicle. We were quite happy to develop variants," explains Avery.

Nothing has come of this exercise, however, this will be a project that the eRanger manufactures will look at pursuing in the future.

Norman mentions that the eRanger was built specifically for aid and development, but with the organisation seeks to develop the vehicle after receiving great interest in commercial industry.

The eRanger has been selected as one of 15 sustainable ideas for the health industry in developing countries in the inaugural 2013 World Innovation Summit for Health (WISH) in Qatar in December.

Avery is gratified by this invite, saying, "It will be placed among other innovative ideas that help people in the health sector in developing countries." ▲



# NASA crashes helicopter in safety study

*NASA crashed a helicopter with 13 crash test dummies in safety test*

NASA researchers dropped a 13-metre long helicopter fuselage from a height of about nine metres to test improved seat belts and seats, as well as advance experimental techniques and crashworthiness data, on 28 August this year.

NASA collaborated with the US Navy, US Army and Federal Aviation Administration (FAA) on the transport rotorcraft airframe crash test bed full-scale crash tests at Langley's Landing and Impact Research Facility.

"We have instrumented a former Marine helicopter airframe with cameras and accelerometers," said NASA lead test engineer, Martin Annett. Almost 40 cameras inside and outside the helicopter recorded how 13 crash test dummies react before, during and after impact.

In a press statement, NASA reported that onboard computers recorded more than 350 channels of data as the helicopter is swung by cables, like a pendulum, into a bed of soil during the test.

Just before impact, pyrotechnic devices released the suspension cables from the helicopter to allow free flight. The helicopter was set to hit ground at about 48 kilometres per hour. The impact condition represents a severe but survivable condition under both civilian and military requirements.

For the first time ever in any test, technicians installed a video game motion sensor in the helicopter. NASA test engineer, Justin Littell, said that this was done to determine whether this would be useful as an additional way to track the movements of the dummies.

Another crash test of a similar helicopter equipped with additional technology, including composite airframe retrofits, is planned for next year. Both tests are part of the Rotary Wing Project in the Fundamental Aeronautics Program of NASA's Aeronautics Research Mission Directorate.

The Navy provided the CH-46 Sea Knight helicopter fuselages, seats, crash test dummies and other experiments for the test. The Army contributed a litter experiment with a crash test dummy.

The Federal Aviation Administration provided a side-facing specialised crash test dummy and part of the data acquisition system. Cobham Life Support St Petersburg, a division of Conax Florida Corporation, also contributed an active restraint system for the cockpit.

NASA will use the results of both tests in efforts to improve rotorcraft performance and efficiency, in part by assessing the reliability of high performance, lightweight composite materials.

Researchers also want to increase industry knowledge and create more complete computer models that can be used to design better helicopters.

The ultimate goal of NASA rotary wing research is to help make helicopters and other vertical take-off and landing vehicles more serviceable, able to carry more passengers and cargo quicker, quieter, safer and greener. Improved designs might allow helicopters to be used more extensively in the airspace system.▲

# Fire consumes 300 000 tons of sugar at Brazil port

*A raging fire destroyed 180 000 tonnes of raw sugar at the Santos port in Brazil*

**A** raging fire at the warehouses of Brazilian sugar trader, Copersucar's, sugar terminals at the Santos seaport ignited about 180 000 tons of sugar on 18 October this year.

The fire destroyed much of the port warehouses owned by Copersucar, which is the world's largest sugar trader.

Santos port authority, Codesp, which manages day-to-day operations at Brazil's main port, reported that the fire started in the warehouse conveyor system, which transports sugar through Copersucar's warehouses.

Some of the overhanging conveyor belts that transport sugar between the warehouses and eventually to waiting ship's, appeared to have

topped over or were lying on the pavement alongside some of the warehouses.

Television footage in Brazil showed a three-story high mountain of sugar engulfed in flames inside a warehouse, which lost most of its siding and roof to the flames.

The fire appeared to have been preceded by an explosion, an event not uncommon with bulk commodities like grains or sugar. The dust and gasses emitted by such bulk commodities are extremely combustible, according to media reports.

Fire fighters eventually contained the blaze, which was expected to keep smouldering for two days, with warehouse facilities being totally destroyed in the blaze, noted Codesp. ▲



*Fire fighters battled to contain a blaze at a sugar terminal at a seaport in Brazil*

## Six fatalities in Eastern Cape pharmaceutical lab explosion

An explosion at a pharmaceutical laboratory in the Eastern Cape, South Africa, resulted in the death of six people in October this year.

The explosion at Rolfe Laboratories' pharmaceutical factory in Middelburg, Eastern Cape sparked a fire and the evacuation of the building.

The blast injured several people, 14 of whom were critically injured and hospitalised following the incident. Three succumbed to their injuries in

hospital and these deaths follow the death of three other people who died after the explosion at the Rolfe Laboratories.

Rescue workers searched the area for those that were trapped after the explosion, which caused damage to a part of the building.

The last casualty of the blast passed at the Dora Nginza Hospital in Port Elizabeth on October 23. Thirty-five people sustained burn wounds in the incident and were taken to the

Wilhelm Stahl Hospital in Middelburg for treatment.

Eastern Cape provincial health department spokesperson, Sizwe Kupelo, confirmed that another 14 people were still critical and in hospital in the days following the blast.

Kupelo reported that the injured were transferred to the Dora Nginza and Livingstone hospitals in Port Elizabeth and the Cecilia Makiwane Hospital in East London.

Police were investigating a case of arson. The estimated damage to the pharmaceutical factory had not yet been determined. ▲



# Over 100 fire fighters battle bush fire in Australia

*Bush fires in Australia called on 2 000 fire fighters and significant aerial support*

**B**ush fires in New South Wales (NSW), Australia, forced authorities to issue an emergency warning for people to leave the area, amidst strong winds and soaring temperatures in October this year.

Over 2 000 fire fighters were battling the blazes across a vast area in NSW and were backed by 95 helicopters and reinforcements from other states.

"We are entering what is typically the hottest and driest period of any given day," said NSW Rural Fire Service (RFS) commissioner, Shane Fitzsimmons.

"The temperatures are climbing and are expected to climb and maintain their peak throughout the coming hours. The worse of the weather is still to come."

The RFS reported that there were 59 fires burning across NSW in October, which destroyed more than 200 homes.

The NSW government declared a state of emergency enabling it to order evacuations, hoping to avoid a repeat of the 'Black Saturday' fires of 2009 in Victoria state that killed 173 people and caused more than \$3 billion in damage.

NSW Emergency Minister Michael Gallacher advised locals to drive down to the city metropolitan area and 'let the fire fighters do what they can do to protect the community'.

In Sydney, thousands of locals were urged to evacuate their homes in October, as dry winds threatened to fan a firestorm in mountainous bush land around Sydney, where fire fighters battled to control blazes, which raged for more than a week.

Fire fighting crews were backed by helicopters and aircraft, as they battled to protect homes and properties in the Lower Portland area west of Sydney, according to Australian broadcaster, ABC.

Fire conditions were at its worst in October, prompting authorities to warn of more property losses and advise residents in other regions of Sydney to abandon their homes.

Police arrested several children suspected of starting a number of different fires. Other fires were sparked by power lines arching in strong winds, according to the RFS.

The bush fires in NSW have been the most devastating the Australian state has seen in decades after tens of thousands of hectares were burned and hundreds of homes destroyed.▲



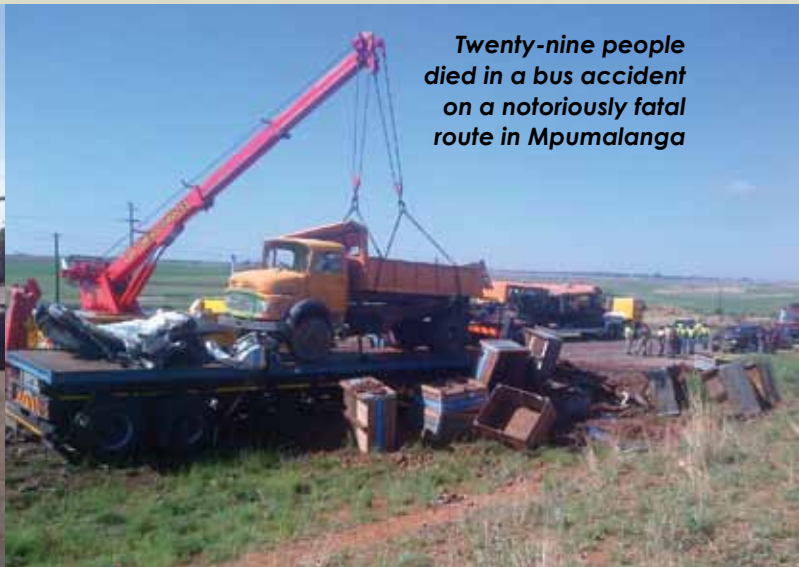
*Hundreds of homes were destroyed after bush fires tore through Australia in October*

# Bus and truck collision results in mass death toll

**A bus and truck collision claimed 29 lives in Mpumalanga**



**Twenty-nine people died in a bus accident on a notoriously fatal route in Mpumalanga**



A bus collided with a truck in Mpumalanga, South Africa, resulting in the death of 29 people in November this year, reported Mpumalanga's provincial safety department.

Eleven other people were severely injured in the collision in Kwaggafontein, Mpumalanga on a stretch of road that has been known for its fatal accidents.

Mpumalanga safety department spokesperson, Joseph Mbuza, said that three of the people involved in the crash died on arrival at the Kwamhlanga Hospital.

A bus was stationary on the Moloto Road in Kwaggafontein as the truck involved in the collision was approaching, Mabuza told media. "The truck driver did not see the bus until it was too late. The truck driver swerved to the right to try and avoid the bus," he said.

As the truck swerved there was another bus approaching and the two vehicles collided head on.

Mpumalanga Premier, David Mabuza, expressed shock and sadness over the deaths of the passengers. "Indeed we are shocked by such a huge number of deaths and on behalf of the provincial government I offer our deepest and most sincere condolences to the bereaved families," stated Mabuza.

He also called on law enforcement agencies to help reduce road accidents so Government could concentrate on service delivery.

The Moloto Road is a route that is notorious for deadly collisions. Around 50 000 people commute to work in the city of Pretoria daily along the narrow and potholed route near the town of Kwaggafontein that is 100 kilometres east of Pretoria.

Transport vehicles using the road are often overloaded and unroadworthy, while drivers are prone to speeding.

Eighteen people were injured in a separate collision on the same route only a month earlier, in September this year. ▲



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# Close to 70 000 US fire fighter injuries in 2012

*Overexertion was among the leading causes of fire fighter injuries in the US in 2012*

**T**he US National Fire Protection Association (NFPA) report states that nearly 70 000 injuries to fire fighters occurred in the line of duty in 2012.

The latest of the NFPA's US Fire Fighter Injury Report highlights the injuries sustained by fire fighters while on duty based on data collected from US fire departments that responded to a 2012 National Fire Experience Survey.

The NFPA report notes that fire fighter injuries have declined over the past

three decades, hovering around roughly 100 000 from the early 1980's through the early 1990's.

The US Northeast region reported a higher number of injuries per 100 fires than other regions of the country on the fireground, which is the operational area at the scene of a fire.

In 2012, 69 400 fire fighter injuries occurred in the line of duty, reports the NFPA. Of these injuries, 31 490 occurred during fireground

operations. The leading causes of the injuries sustained by fire fighter were reported as being overexertion, straining, falling, slipping and jumping.

The major types of injuries sustained during fireground operations were strains, sprains and muscular pain at 55,2 percent of the overall injury count.

This was followed by wounds, cuts, bleeding and bruising that accounted for 12,2 percent of all injuries sustained by fire fighters. Thermal stress and burns, made up the remaining injury types, at 5,8 percent and 5,7 percent, respectively.

An estimated 13 820 fire fighter injuries occurred during other on-duty activities, reports the NFPA. This includes 4 190 injuries while responding to or returning from an incident, 7 140 during training activities and 12 760 occurred at non-fire emergency incidents.

The typical non-fireground injuries were strains, sprains and muscular pain.

In addition to injuries, the NFPA reports that there were 8 150 exposures to infectious disease and 19 200 exposures to hazardous conditions. ▲

*A NFPA reports shows that 69 400 fire fighter injuries occurred in the US in 2012*



# INTERNATIONAL INCIDENT COMMAND SYSTEM TRAINING

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| Course Title                                      | Course Detail  | Date and Tarrif   |
|---|--|---|
| Basic Air Operations                              | Basic Understanding of the different functions of Air Operations<br><b>Objectives:</b><br>Describe the aircraft types and capabilities Aviation Management & Safety  | 17 March 2014<br>Working on Fire Academy<br>R 5 90.00 (Excl Vat)  |
| Helicopter Management                             | Management of Helicopters during incidents and project operations<br><b>Objectives:</b><br>Identify the basic structure of Agency and Internal aviation policies and helicopter managers responsibilities  | 18 – 21 March 2014<br>Working on Fire Academy<br>R 3 800.00 (Excl Vat)<br><b>Pre-requisite:</b><br>Basic Air Operations |
| Single Engine Air Tanker Manager (Bomber)         | Describe the support functions of a Single Engine Air Tanker (Bomber) Manager within the aviation organization or Bomber base and occasionally within an Incident Management Team framework  | 18 – 21 March 2014<br>Working on Fire Academy<br>R 3 800.00<br><b>Pre-requisite:</b><br>Basic Air Operations            |
| Aerial Supervision                                | Describe the role and responsibilities of and Air Tactical Group Supervisor, Helicopter & Bomber Coordinator<br><b>Objectives:</b><br>Effective utilisation of aircraft to meet incident objectives and coordination between aviation and ground recourses | 24 – 28 March 2014<br>Working on Fire Academy<br>R 5 400.00 (Excl Vat)  |
| Incident Safety Officer                           | Describe the role and responsibilities of an Incident Safety Officer within an Incident Management Team during an Incident<br><b>Objectives:</b><br>Assessing and maintaining incident safety  | 17 – 21 March 2014<br>Working on Fire Academy<br>R 5 400.00 (Excl Vat)  |
| Liaison officer                                   | Liaising and communication with different Agencies, Stakeholders and Communities during incidents  | 17 – 19 March 2014<br>Working on Fire Academy<br>R 3 000.00 (Excl Vat)  |
| Intermediate Incident Command System (All Hazard) | Describe the Incident Command System organization and supervisory roles on single or multiple agency/jurisdictional incidents  | 24 – 28 March 2014<br>North West University – Potchefstroom<br>R 5 400.00 (Excl Vat)                                    |



## Contact:

Michelle Kleinhans • michelle.kleinhans@wofire.co.za • 013 744 9328 or 078 272 9089

# Cancer incidence higher among fire fighters than in whole US population



Asbestos is a major cause of mesothelioma cancer among US fire fighters

The US Fire Administration (USFA) and the National Institute for Occupational Safety and Health (NIOSH) released the findings of a study that examined mortality patterns and cancer incidence among a group of fire fighters in October this year.

The objective of the research project by the USFA and NIOSH was to clarify the relationship between fire fighter occupational exposures and cancer. Upon examining a group of 29 993 career fire fighters, researchers found that cancers of the respiratory, digestive and urinary systems accounted for the higher rates of cancer seen amongst the group.

The study population were fire fighters that were employed between 1950 and 2009 in the US cities of San Francisco, Chicago and Philadelphia.

Researchers found that the population of fire fighters in the study had a rate of mesothelioma cancer, which is most commonly caused by exposure to asbestos, which was two times greater than the rate in the US population as a whole.

This was the first study ever to identify an excess of mesothelioma in US fire fighters. According to the study, fire fighters can be exposed to contaminants from fires that are known or suspected to cause cancer. These contaminants include combustion by-products, such as benzene and formaldehyde and materials in debris, such as asbestos from older structures.

These findings are generally consistent with the results of several previous, smaller studies. Because this new study had a larger study population followed for a longer period of time, the results strengthen the scientific evidence for a relation between fire fighting and cancer.

### Background

This NIOSH study, supported by USFA, was intended to fill gaps in current knowledge and inform ongoing efforts to further characterise the cancer risk associated with certain exposures.

In a second phase of the study, the researchers will further examine employment records from the same three fire departments to derive information on occupational exposures, and to look at exposures in relation to cancer incidence and mortality. Those findings, when completed, will be published in a future article. ▲



Samuel Kimaru

## More lives lost at infamous highway in Kenya

More lives have been lost in the Kenya's notorious 'black spot' on the Kericho Highway after two buses belonging to the same company collided on 5 November this year.

Five people were killed in the accident and several people were rushed to a nearby hospital with serious injuries, said Kericho traffic commandant, Samuel Kimaru.

Kimaru expressed fears that the death toll could rise as many involved in the two-bus collision were in a critical condition.

This latest incident follows another horrific accident at the black spot'

on 7 September, when six people lost their lives.

Kenya authorities are concerned with the number of fatal road accidents had been on a steady rise in the recent past raising fears of a lapse in enforcement of traffic regulations.

Over the years, the region earned the infamous reputation as a black spot after frequent accidents and cases of over-speeding and disregard of traffic rules by road users on the highway.

More than 2 000 people lost their lives in road accidents in Kenya since January this year. ▲





Troops search for survivors of a typhoon that hit a small island in south Japan

# Typhoon Wipha sweeps through small south Japan island

**T**yphoon Wipha, the eighth typhoon of the 2013 typhoon season, caused extensive damage in Japan in mid-October this year.

The typhoon killed at least 18 people with the south Tokyo island of Izu Oshima suffering the most casualties. Heavy rain triggered flooding and landslides that blocked roads and crushed houses on Izu Oshima, which is a small island 120 km south of Tokyo.

One woman died in Tokyo, but the Japanese capital was largely spared significant damage.

Nearly 12 centimetres of rainfall fell in just one hour on Izu Oshima as the storm sent large volumes of earth down mountainsides and caused rivers to burst their banks.

Extra police officers and soldiers, as well as helicopters were sent to the island, which has been a popular tourist destination with more than 8 000 residents, to help with the rescue effort.

More than 1 000 rescue workers searched through piles of mud, broken homes and debris for bodies on Izu Oshima. The island governor was criticised for not ordering an evacuation.

"I'd like to offer an apology because some people could have been saved

if the town had issued an evacuation advisory or order," said Izu Oshima mayor, Masafumi Kawashima.

The powerful typhoon wrecked numerous homes and motor vehicles. Police, fire fighters and military troops combined search and rescue efforts in search of survivors on the battered Oshima island.

"It is the strongest typhoon in 10 years to pass the Kanto (Tokyo area) region," said Japan Meteorological Agency's chief forecaster, Hiroyuki Uchida.

Yoshinoro Sano, a Japanese rescue spokesperson, said that they were hopeful of finding survivors on Izu Oshima. Around 280 houses were damaged on Izu Oshima, according to local officials.

In Tokyo, the typhoon led to schools closing more than 500 domestic and international flights were cancelled at Tokyo's Narita and Haneda airports. The national rail operator halted bullet train services in central and northern Japan.

Tokyo Electric Power Company (TEPCO), the main electricity supplier in Tokyo and central Japan, said blackouts affected more than 56 000 households.

Meanwhile, operators at the crippled Fukushima nuclear plant said they

detected increased radiation levels after rain from the typhoon made contaminated soil flow into a ditch leading to the sea, reported Japan's national broadcasting network, Nippon Hoso Kyokai (NHK).

Radioactive water had also overflowed from one of the tanks storing pumped-up groundwater, although it is not clear if this was related to the typhoon, reported NHK. ▲



A man walks past collapsed homes on Izu Oshima after landslides caused by Typhoon Wipha



# Tesla Model S suffers third fire in five weeks

*A 2013 Tesla Model S caught fire in November, the third such incident in five weeks*

The American automobile company, Tesla, has taken a public battering after it confirmed a third fire incident in its 2012 Tesla Model S vehicle in five weeks.

The automaker confirmed on 7 November this year, that a fire burned up one of its \$70 000-plus or about R700 000 Model S hatchbacks. It was the third such incident in five weeks and triggered calls for a federal safety investigation.

Tesla CEO and head of product design, Elon Musk, reacted to the incident on 12 November in a public address to calm fears that the Model S sedan may be fire prone. Speaking to media in New York, Musk said that despite the 'bad press' about the car, there is no reason to issue a recall on the vehicles.

"If you read the headlines, it sounds like Tesla's have a greater propensity to catch fire than other cars," Musk said. "In reality, nothing could be further from the truth," Musk asserted.

The incidents have triggered calls for a federal probe into the all-electric

vehicle that reaches a maximum speed of 209 kilometres per hour.

However, Musk says that the Model S is still the safest vehicle on the road and that there would definitely not be a recall of any of the Model S vehicles.

Musk, a South African by birth, maintained that Tesla cars are the safest automobiles on the road, saying that the average rate of fires in other petrol-fuelled cars is one in every 1 300 cars. This figure stands at roughly one in every 8 000 cars for Tesla vehicles, meaning that Tesla drivers are five times less likely to be in a car fire than a gasoline car, according to the automaker.

Musk went on to explain that in the three recent car fires, there were no serious injuries or deaths, adding that 'in the history of Tesla, we've never had a serious injury or death in any of our cars'.

Tesla contacted the driver of the Tesla that caught fire in Tennessee, after the underside of his Model S struck a 'three-pronged' in November. The driver believed the car saved his life and said that he 'would buy another one in a heartbeat'.

The Tesla Model S fire in Tennessee follows two other incidents; the first in Seattle, Washington, US and the second in Mexico. Both cars were in crashes, although the fires injured no one.

There are about 150 000 car fires in petrol vehicles annually in the US, according to the National Fire Protection Association (NFPA). However, safety officials have been tracking fires in electric cars, as well as airplanes, computers and other equipment, out of concern that lithium-ion battery systems might be prone to fires.

However, three fires associated with crashes of new cars, as opposed to older, battered vehicles produced under less-stringent safety standards, are a matter of concern, said Centre for Auto Safety, executive director, Clarence Ditlow.

Earlier this year, the NHTSA awarded the Tesla Model S a five-star safety rating, which is the highest safety rating a car can receive.

A review of the Tesla fire in Seattle by the NHTSA concluded it was caused by the accident rather than a vehicle defect.▲

# Next generation rescue boat

*The next generation rescue life boat built for the Royal Netherlands Sea Rescue Institution*



Sea rescue professionals in collaboration with Dutch naval architects unveiled a next generation fast rescue life boat in October this year.

Building on lessons learned from many years of designing fast maritime craft, Damen Shipyards, Delft Technical University and De Vries Lentsch Yacht Designers and Naval Architects teamed up for the design and build of the all-weather fast rescue life

boats for the Royal Netherlands Sea Rescue Institution (KNRM).

The most notable feature of this new vessel is its sharp 'axe-bow', which gives the vessel a finer entry to help reduce the punishing g-forces experienced in heavy weather, while providing more buoyancy in the bow. According to KNRM, this design is expected to reduce the g-forces by at least 40 percent, giving the vessel greater average speed to the scene

of a rescue and reducing wear and tear on the vessel and crew.

The Damen-built NH1816 fast rescue life boat was taken on a self-righting test at Damen Shipyards in the Netherlands on 30 October.

The rescue life boat requires a minimum crew of six, and carries a maximum 120 people. It is 19,3 metres in overall length and weighs 32,5 tons. ▲

## Flames rip through homes in Buffalo, New York

Raging flames lit up the early morning sky in Buffalo, New York, as an inferno set three homes ablaze leaving nearly \$200 000 worth of damage in its wake on 4 November this year.

Neighbours were forced to evacuate their homes as the fire spread from one home to three neighbouring houses on North Division Street in Buffalo.

The fire started at about 01h30 proved to be tough to fight, said Buffalo Fire Department division chief, Michael Biasilla.

He said that a tree stopped crews from battling the blaze from above. "We faced tough conditions. We had three houses going at the same time and we were really pretty limited with space," he said.

Wes Adams, homeowner of one of the neighbouring houses that caught fire, returned home hours after the fire to see what he could save. He said that the flames spread fast, charring the roof of his house so that the sunrise could be seen shining through.

Director of Development for Peaceprints, a religious organisation

that runs the third house affected by the fire, Mike Oberst, said that the fire damage to his house and the neighbour on the other side was 'pretty devastating'.

Neighbours say the house that began the blaze had been vacant for some time, but they believe a squatter may have been inside. The house has now been marked for emergency demolition after it was completely destroyed in the blaze.

Fire fighters began sifting for answers to determine what caused the fire. ▲



# New state-of-the-art jet-ski donated to the NSRI

*Safmarine sales and commodity manager, Steve Simpson and NSRI CEO, Dr Cleeve Robertson*

The National Sea Rescue Institute (NSRI) reports that it has received a brand new Rescue Runner, sponsored by an anonymous donor and transported to South Africa from Sweden by international shipping company, Safmarine.

The Rescue Runner, which is jet-ski used by Sea Rescue when a fast craft is needed in difficult conditions, was delivered by steel carrier trucking company, GF Trucking in Cape Town in November this year.

This state-of-the-art craft, that can reach a speed of 40 knots, represents the latest in sea rescue technology globally, reports NSRI.

The Rescue Runner has been designed specifically for rapidly reaching people at risk in the surf and evacuating them quickly and effectively. According to the NSRI, a Rescue Runner can be launched at swimming beaches and can be used by a single rescuer.

It is jet propelled, which allows it to be used in a bathing area without placing other bathers at risk. A Rescue Runner can carry four people at a time, but can also be used as a floating platform for up to eight people until larger rescue boats arrive.

"A big thank you to John MacDonald, of Safmarine, Craig Garrow, of Pronto Clearing and Godfrey Fisher, of GF Trucking, who organised the safe delivery of this vessel at no cost to Sea Rescue," stated the NSRI on its website.▲

## Man, unintentionally, sets fire to wife at fuel station in US

The US National Fire Protection Association (NFPA) urged drivers to exercise caution while filling the tanks of their vehicles at fuel stations after a woman sustained second degree burns when her husband flicked a cigarette lighter at a fuel station in Georgia, USA.

The man set fire to his wife unintentionally at the gas station after flicking the cigarette lighter at the fuel station in Georgia on 16 October this year. The incident

was initially reported on by a local online news portal in Georgia, which stated that the man, who has been charged with reckless conduct, allegedly ignited the cigarette lighter while filling his pick-up truck.

Fire officials reported that a fuel vapour explosion occurred, resulting in second- and third-degree injuries on his wife's legs, arms, back, and head. The man suffered minor injuries to his hand, according to news reports in Georgia.



### **Horrific fire at fuel station in US highlights safety necessities at pumps**

The NFPA urged motorists not to get in out of their cars when refuelling as this action could cause static electricity and spark a fire.

"Don't smoke, light matches, or use lighters while refuelling," said the advisory note on the NFPA's webpage.▲

*New York's fire department invested in a new fleet of Superstorm-ready vehicles*

# New Superstorm-ready vehicles unveiled by FDNY

The Fire Department City of New York (FDNY) showed off its new superstorm-ready equipment that it has invested in over the last year.

In October this year, FDNY fire commissioner, Sal Cassano, unveiled the state-of-the-art, trucks, rescue boats and trailers that are designed to help New York's Bravest weather out major storms and save people.

During Superstorm Sandy, fire fighters handled 94 serious structural

fires and rescued more than 500 New Yorkers.

"This new specialised equipment and this group of newly promoted fire officers, demonstrates the department's unwavering commitment to always improving our preparedness and the life-saving services we provide," the fire commissioner said of the six-million dollar investment in a statement.

The biggest additions to the FDNY's fleet are the six high-axle vehicles that can work in 134-centimetre

deep waters. The fire department said the \$175 000 trucks will help with evacuations in deeply flooded areas. Cassano also demonstrated a 3,9-metre long Swift Water Rescue Pod, which includes equipment that fire fighters can use to get through deep waters including inflatable rafts, ropes and waders.

The fire commissioner said 80 FDNY members learned new training procedures to improve search and rescue tactics during extreme weather conditions. More training will take place in 2014, stated Cassano.▲

# Ingula accident claims six lives

An accident at State-owned power utility Eskom's Ingula pumped storage construction site, near Ladysmith, in KwaZulu-Natal resulted in the death of six workers on 31 October this year.

The parastatal reported that a working platform in the incline high-pressure shaft, which connects the top dam to the powerhouse, failed, leaving six dead and several people injured.

Public Enterprises Minister, Malusi Gigaba, called on Eskom to leave no stone unturned in determining the

cause of the incident and to ensure that any such possible accidents in future were averted.

Amidst concerns that alleged negligence may have been behind the incident, the National Union of Mineworkers (NUM) released a statements saying construction supervisors and senior officials allegedly refused to allow workers to use the monorail that operates inside the pipes to transport employees and working tools. Workers instead had to use steps to move up and down the inclined slope.

The employees killed and injured in the accident in October were reportedly walking up the pipe when they were hit by the uncontrolled sliding monorail.

The first 333-megawatt unit of the Ingula pumped-storage scheme, located within the Little Drakensberg mountain range and comprising an upper dam and a lower dam, was expected to be commissioned in the first quarter of 2014, with the remainder of the units starting commercial operation later that same year.▲

# New Parts Distribution Centre opened by MAN Truck and Bus



MAN Truck and Bus AG CEO, Anders Nielsen and MAN Truck and Bus South Africa executive chairman, Geoff du Plessis.

## MAN Truck and Bus' new Parts Distribution Centre in Germiston, Johannesburg

Networked with other MAN logistics locations, the new PDC enables improved supply of spare parts to a growing base of operational centres in subequatorial Africa.

"The new facility has been designed to comfortably allow for future expansion of MAN Truck and Bus SA into the subSaharan region, particularly as MAN's global strategy gains momentum with the introduction of new models," says MAN Truck and Bus South Africa executive chairman, Geoff du Plessis.

He says that the new facility will also be geared to comprehensively support existing and forthcoming truck and bus derivatives from MAN and Volkswagen.

**M**AN Truck and Bus South Africa announced the opening of its new proprietary parts distribution centre (PDC) in Germiston, in the East Rand of Gauteng, South Africa, in November this year.

The truck manufacturer's new facility, which has been in construction for the past 12 months, has been designed to house greater inventories of MAN and Volkswagen truck and bus spare parts and to expedite swifter speed-of-delivery to MAN Truck and Bus South Africa's sub-Saharan customer base.

The new flagship MAN parts distribution centre, a Super Group facility designed and built by commercial property developer, Intaprop, is equipped to meet growing market demand in the sub-equatorial African region.

"The introduction of new systems for procurement and parts supply-chain management, along with the expansion of our global spare-parts logistics network, is enabling us to progressively meet the needs of our growing African customer base," says MAN Truck and Bus AG CEO, Anders Nielsen.

The new PDC is custom-built to MAN specifications and comprises 17 000 square metres of warehouse space with 1 000 square metres of office space, at a total investment of R180 million.

The warehouse will operate on MAN's advanced parts platform system and features a new racking system, as well as a 1 600 square metre, three-level mezzanine area for smaller parts.

MAN Truck and Bus AG marketing, sales and services executive board member, Heinz-Jürgen Löw, says, "This PDC is fully integrated in MAN's organisation information technology (IT) systems, allowing stocks to be centrally scheduled, with MAN's dealer network given full support in ensuring optimum parts availability for their customers."

To limit its carbon footprint, the new building incorporates a specially-designed roof to allow as much natural light as possible into the warehouse. It is also fitted with special lighting and thermal insulation to reduce the building's overall energy requirements.

MAN Truck and Bus AG CEO, Anders Nielsen, says that the PDC symbolises the expansion of MAN's global spare-parts logistics network to fulfil the demand for parts worldwide. "Within the network of other MAN logistics locations, this PDC will ensure a fast and smooth supply of spare parts, in particular for the Southern African region, and further improve it," says Nielsen.

The close proximity of the PDC to OR Tambo International Airport and state-of-the-art warehousing technologies will enable MAN's central parts division to improve on its customer service delivery record.

Du Plessis says that urgently needed parts can now be flown from MAN's international production centres and be couriered customers with greater efficiency and speed, providing MAN's support division with an enviable competitive advantages.▲

# New order imposed on train freight industry

**A**fter the derailment of a cargo train in Quebec, Canada, earlier this year, in which dozens of people were killed and raising questions about rail safety, US freight regulators imposed emergency rules to prevent parked trains from breaking loose.

Regulators said they were responding to the accident in which a 72-car locomotive, containing crude oil, rolled from a stop into the town of Lac-Megantic on 6 July this year, causing the worst rail disaster in Canada in a century.

Forty-seven people died in the resulting explosion, which also levelled about 40 buildings in small town in Quebec.

The Federal Railroad Administration (FRA) made an order in early August that prohibits operators from leaving trains carrying hazardous materials unattended without prior authorisation. Employees would have to tell dispatchers the number of hand brakes used. Workers responsible for securing trains would also have to participate in daily job briefings according to the mandate from the FRA.

In a public statement announcing the order US transportation secretary, Anthony Foxx, said, "While we wait for the full investigation to conclude, the department is taking steps today to help prevent a similar incident from occurring."

The Lac-Megantic incident demonstrates the substantial potential for danger that exists when an unattended train rolls away and derails resulting in the sudden release of hazardous materials, stated the FRA order.

Railroads must comply with the US order within 30 days, and violations will result in enforcement actions. Under a related safety advisory issued by the FRA and the Pipeline and Hazardous Materials Safety Administration, the regulators said using multiple crew members enhances rail safety and urged railroads to review their staffing for shipments of dangerous cargo.

The FRA order emphasised that US rail transport remains "extremely safe." In 2011, there were 20 reported accidents in which hazardous material was released out of 2.2-million shipments, according to the agency.

While the FRA said rail transportation was safe, it cited a number of instances in which it found railroads didn't comply with existing rules for braking on trains.

"With limited resources, FRA can inspect only a small percentage of brakes and vehicles for regulatory compliance," the order states. "However, even with its limited resources, FRA has recorded nearly 4 950 securement defects in the course of its inspections since January 2010, an average of approximately 1 483 defects a year."▲



*The La-Megantic train crash demonstrated the dangers of roll away freight trains*

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The need for a European Forest Risk Facility has increased dramatically due to climate change

# Risks towards forests can present an opportunity as well as a danger

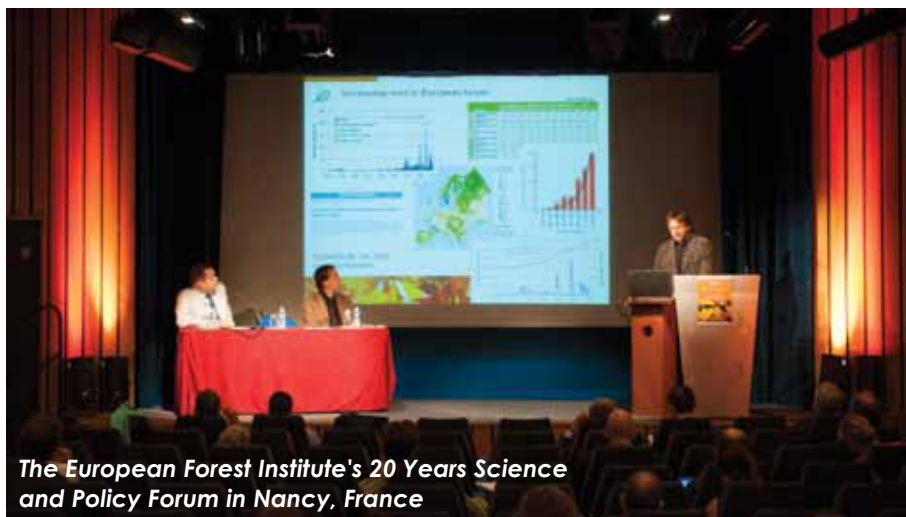
By Anu Ruusila, head of communications, European Forest Institute

The European Forest Institute's 20 Years Science and Policy Forum brought together a record crowd in Nancy, France. Almost 250 forest scientists and experts came together from all over Europe to network and contemplate the future of our forests. The European Commissioner for Environment Dr Janez Potocnik congratulated the European Forest Institute (EFI) on its dedication to European forests and the work it has accomplished during the last two decades. EFI's Director Risto Päivinen stated in his opening remarks that "EFI has created a unique international network of experts, which has become a model for other sectors and countries".

The day included a keynote presentation on 'European forests and forest policies for the 21<sup>st</sup> century – ready for risks and opportunities' from Dr Gert-Jan Nabuurs, Alterra, Wageningen University. Dr Nabuurs pointed out the emerging challenges that face the forest sector in Europe. These include a vulnerable forest resource, which shows a declining increment for the first time since 1960 and a sector that faces large socio-economic challenges before it can meet the needs of the bio-economy. Other keynotes came from Mr AV Panfilov, Russian Federal Forestry Agency, who spoke about Russia's needs for efficient forest policy and from Kriton Arsenis, Member of the European Parliament.

The discussions on risks and challenges continued the following day, with a seminar that dealt with a proposal to establish a facilitation platform – 'a European Forest Risk Facility' under the leadership of EFI. A start-up project will investigate how such a facility may provide added value and improve the information and understanding of biotic and abiotic risks affecting European forests. It will also look into options for supporting the collaboration and coordination of relevant national bodies to develop joint actions, and measures to prevent, mitigate and control risks. It aims to build a unique European network of experts on forest risks during the course of the project. The one-and-a-half-year start-up project is funded by the German Federal Ministry of Food, Agriculture and Consumer Protection.

"The need for the risk facility has increased dramatically due to climate change. In Central Europe, storms have caused extensive damage and forest fires are an almost yearly occurrence in Southern Europe and in Russia. These issues create a lot of work nationally as well as regionally and EFI's mission is to gather information and knowledge together in order to provide policy support" said the Institute's deputy director, Marc Palahí.▲



The European Forest Institute's 20 Years Science and Policy Forum in Nancy, France





Cape Town airport's MAN/Rosenbauer 8x8 Bush Panther fire engines

# Cape Town's cutting edge

## Airport Rescue Fire Fighting facility

In a recent visit to Cape Town, South Africa, Fire and Rescue International met with Airports Company South Africa, Cape Town International Airport (ACSA, CTIA) Fire and Rescue manager, Werner van Rensburg, to gain insight into the airport's rescue and fire fighting (ARFF) service.

Airports Company South Africa currently operates nine airports in South Africa and these include Cape Town International Airport, OR Tambo International and King Shaka International. The airport holds a category nine airport operators ranking, based on the International Civil Aviation Organisation (ICAO's) recommended standards and practice rating system.

"The airport's Fire Fighting and Rescue department is fully capable to respond to incidents that occur at the airport and any major incidents are commanded by the most senior ARFF officer, who implements the airports prevailing incident command system (ICS) and

the Airports Disaster Management Plan," said Van Rensburg.

All main incidents at the airport follow the Major Incident Medical Management and Support (MIMMS) system. The aim of this system is to learn how major incidents are managed and the protocol for the delivery of any medical support that is needed. "The best medical treatment is offered to all injured persons by means of MIMMS," said Van Rensburg.

Cape Town International Airport is constantly involved in fire seminars, meetings and new equipment demonstrations. "The airport complies with international recommendations and standards relating to fire operations and fire suppression techniques and tactics," added Van Rensburg.

### Airport preparedness

The ARFF preparedness at the airport is managed on a three-phase system



Werner van Rensburg

Phase one is an emergency that can be handled either completely by the airport community, or with limited outside assistance. This is relative to the size or magnitude of the emergency.

Phase two describes any emergency that can be handled, either completely by the airport community ▶



Deon Cloete



The MAN Bush Panther readied for the aircraft fire simulator exercise

▶ with limited or selective outside assistance. Based on the magnitude of the emergency, the airport may require assistance. The support services are placed on standby.

Phase three is the full emergency response where external participants and the airport community will be required to respond to the scene.

"The airport Aerodrome's preparedness plan encompasses a variety of special services required to respond to the airport at a predetermined rendezvous point," said Van Rensburg.

#### Airport external role players:

- City of Cape Town Fire and Rescue Services
- City of Cape Town Metropolitan Police / Traffic
- Western Cape Emergency Medical Services
- City of Cape Town Disaster Risk Management
- Provincial Disaster Risk Management
- Provincial Disaster Risk Management
- South African National Defense Force
- Forensic Pathology Services
- South African Police Services
- State Security Agency
- Provincial Traffic Department

#### Internal airport response:

- Contract Aviation Security Services
- RED Cross Air Mercy Service
- Air Traffic Navigational Services
- South African Civil Aviation Authority (SACAA)

- Respective Airlines
- Ramp Handling Agents

#### Executive committee

CTIA's fire and rescue department has received immense support from the management team at Cape Town International airport. Their role in the organisation is valued by all. ACSA Group executive and general manager for CTIA, Deon Cloete, started at the organisation as a fire fighter.

"We made a conscious decision two years ago to review the Fire and Rescue Service, according to the Civil Aviation Authority (CAA) regulations," said Deon Cloete.

Cloete says that a fire and rescue forum within ACSA is tasked with making recommendations to advance the services offered. The recommendations are passed on to an operations committee (opscom), of which Cloete is a member.

The fully-fledged recommendation exercise is repeated every two years and includes the various emergency services in Cape Town, including the City of Cape Town's Disaster Management. "Fire and rescue a critical part of our operation," added Cloete.

#### Outsourcing service

Cape Town International Airport's Fire and Rescue outsources a few specialist services from entities. These include external hazardous material technicians for any major hazmat accidents at the airport.

The airport also utilises large and small crane operators for wreckage recovery. It has emergency medical services, such as Air Mercy Service available and Melomed's 24-hour medical response services to facilitate any emergencies. ER24's ambulance service are also utilised by the airport.

Apart from these, CTIA Fire and Rescue is equipped to respond to all the common emergency scenarios at the airport, which include hydraulic and electrical failure. Other common incidents that the service is equipped to respond to include minor aircraft crashes, major aircraft technical problems aircraft hijacking, bomb warning and possible communicable disease emergencies.

#### Stand-alone fire facility

In 1997, the airport fire station relocated from the international terminal to a self-standing location. The relatively new fire fighting quarters located at the airport grounds include the following features; ten offices, six bedrooms for fire fighting personnel, a well-equipped training room and training grounds.

"The airport invested in its operational personnel, there has been substantial increase from a mere 37 to a whopping 74 professional fire fighters in recent years", stated Van Rensburg. This follows ACSA's drive to increase fire fighter numbers at the airport and to upskill all its fire fighters from in-house training to national and internationally recognised training and certification. ▶

▶“The up skilling programme includes training all personnel in fire fighting one and two, hazmat operations, advance aircraft fire fighting and aircraft construction, as well as managing critical assets and MIMMS, to name a few,” explained Van Rensburg.

**ARFF personnel and training**

Cape Town International Airport employs shift controllers who supervise daily training drills, vehicle and equipment repairs, as well as marshalling operations. Other personnel employed by the airport’s ARFF service include training and development officers, emergency response planning, as well as fire prevention and bird and wildlife officers.

The airport adopted a fire management structure that aligns with municipal fire stations in the country. “In the event of the airport having to work in tandem with multi agencies, the fire manager will then know their rank structure,” added Van Rensburg.

**Cape Town International Airport capabilities table:**

| Item                                | Required                | CTIA - Current      |
|-------------------------------------|-------------------------|---------------------|
| Staffing levels                     | 12                      | 12 – 17             |
| Water                               | 24 300 litres           | 45 000 litres       |
| Foam compound                       |                         | 6 000 litres        |
| Vehicles                            | 3                       | 4                   |
| Response to further point of runway | Not exceeding 3 minutes | Within 2:00 minutes |

**Fire equipment**

There is a newly designed simulator which simulates an aircraft engine fire, by making sure that fire fighters and rescue teams are best equipped and suited to deal with any eventuality or emergency.

The airport has state-of-the-art MAN 8x8 Bush Panther fire engines, which features a 12 000 litre and 1 500 litre water and foam capacity, ▶



*Remote controlled fuel ignition system*



*The aircraft fire simulation control room*



*The aircraft takes flame*



*Fire fighters douse the fire on the simulation aircraft at the Cape Town International Airport*



The aircraft simulation site at the Cape Town International Airport



Cape Town International Airport's aviation incident command bus



Members of the ARFF personnel at Cape Town International Airport

▶ respectively. Van Rensburg said that the MAN fire tenders also have 500-kilogram dry-chemical powder (DCP) capability.

The vehicles are fitted with high capacity pumps, water and foam turrets with a throwing range of up to 80 metres. Other features include high-reach extendable turrets, piercing nozzle that is used to pierce or penetrate an aircraft's fuselage and discharge extinguishing media inside the cabin area and forward looking infrared (FLIR) thermal camera.

"The vehicles have a roof monitor discharge rate which at full outputs 6 000 litres per minute, with reduced output being 3 000 litres per minute and bumper monitor output at 1 000 litres per minute," explained Van Rensburg.

The fire engines also feature a bigger cab with a panoramic

windscreen and forward swinging, pneumatically-operated doors and self-contained breathing apparatus' (SCBA) integrated into the seats.

"The fleet within the business group is standardised and kept on equal par to ensure that the organisation stays abreast with the demands of the aviation industry," stated Van Rensburg.

Cloete says that ACSA's standardisation policy enables the organisation to leverage its resources and skills across airports. He says that various fire chiefs and different airport technical specialists convene on a regular basis and review standardisation. "We want all airports to operate at same level of competency and compliance," he said.

**Familiarisation programme**

Cape Town International Airport runs a familiarisation programme

for all external agencies, which involves various constituents and departments within the company's generic structure.

The familiarisation programmes involves a range of airport services and functions including aircraft familiarisation, ARFF capabilities and airport terminal facilitation that cover different aspects, such as the airport emergency crisis centre and sprinkler systems.

**Beyond compliance**

The airport takes pride in the fire and rescue service personnel; they are silent heroes within the organisation. As passengers you do not meet fire and rescue personnel unless there is a problem.

"These are good men and women out there, who are responsible for looking after the safety of passengers. We are very proud of them," concludes Cloete.▲

# Fire fighter to fire chief through passion and pride



Cape Town International Airport manager: Fire and Rescue, Werner Van Rensburg

Cape Town International Airport (CTIA) Airport Rescue and Fire Fighting (ARFF) manager, Werner van Rensburg, has developed a passion for the aviation and fire fighting industry, hence his current role as the fire chief of the international airport in Cape Town, South Africa.

The foray into the fire fighting industry happened rather fortuitously for Van Rensburg, as he recalls being persuaded by a friend to accompany him on an application for the service. "He convinced me to apply as well. This was in 1988 and I am glad to say that we are still good friends and both still in the fire service."

Van Rensburg says that after 25 'fruitful' years in the service, he remains passionate about the industry. He says, "I am very passionate about the aviation industry, especially the fire and rescue service. It is very dynamic and you need to be constantly aware and adapt to the industry needs and requirements."

This passion propelled him into his current role as the fire chief at the CTIA, a post which he took up in August 2009.

Van Rensburg started out as a cadet fire fighter at the Bloemfontein airport in the Free State, South Africa and thereafter he became a station officer. He then progressed to head of department of Fire and Rescue Bloemfontein.

Van Rensburg was fortunate to be placed under the instruction of the Bloemfontein fire chief, Willem Kruger, whom he says was his mentor over the years as a fire fighter.

However, the late South African Civil Aviation Authority (SACAA) chief inspector, H van Seventr snr, had the biggest influence on Van Rensburg. He says that the Van Seventr Snr had the biggest impact on his career path to attaining the fire chief role at CTIA, which Van Rensburg says is 'every fireman's dream' appointment.

Van Rensburg now implements all he has learned over the years as he leads the ARFF personnel at CTIA. He says the lessons and values he tries to instil in other burgeoning fire fighters are safety first, followed by discipline and a sense of fire fighting pride. ▲



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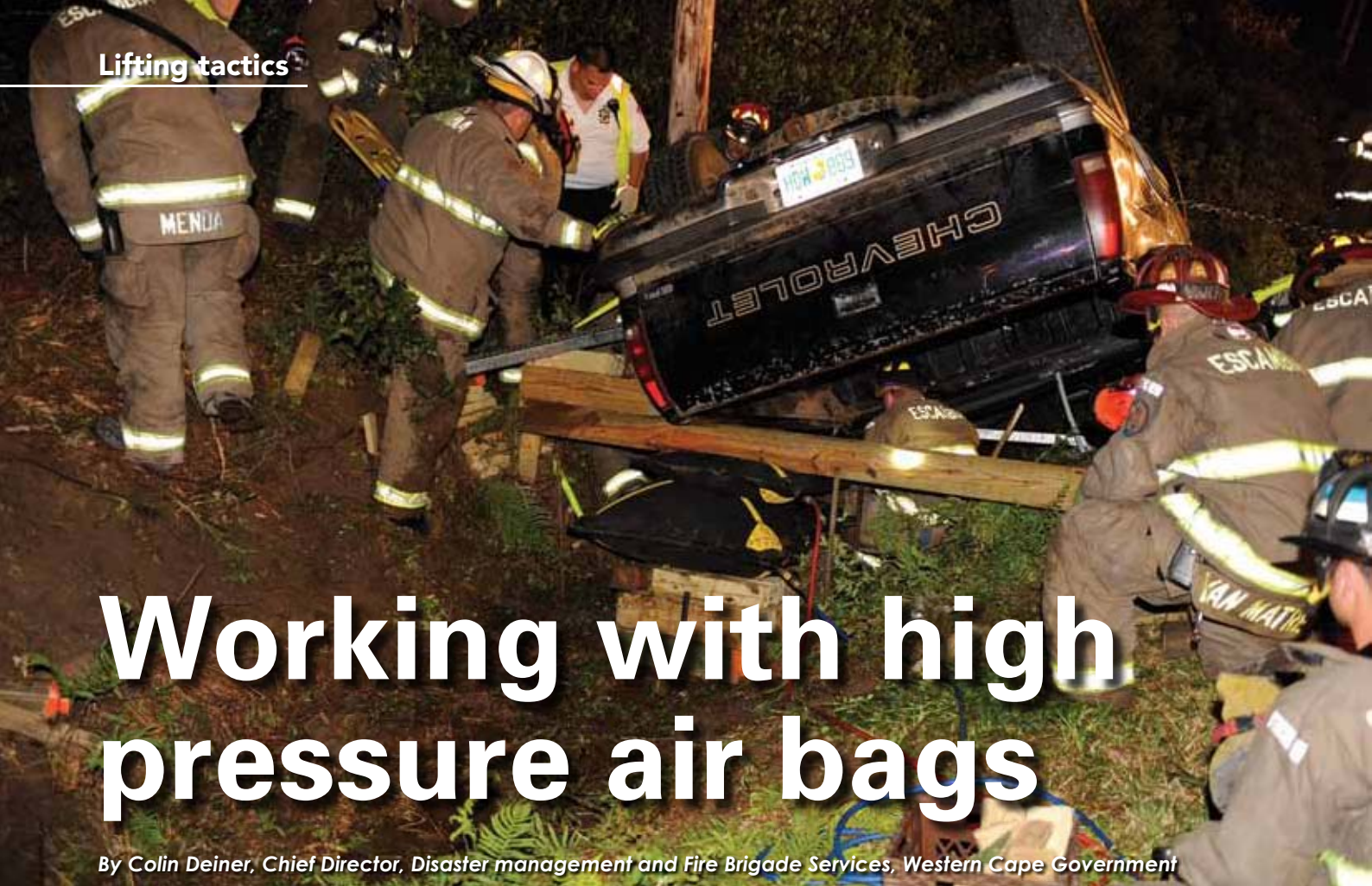
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# Working with high pressure air bags

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

*It is essential to crib properly in order to ensure that the load does not shift and potentially fall on the victims or rescuers*

The two biggest challenges that fire fighters will face: fire and gravity. We have dealt often and in some detail with fire over the last few months. This month we will discuss gravity, or how to defy gravity, maybe just for a short while.

During the course of your career as a fire fighter or rescuer, you will from time-to-time be called to an incident where someone is trapped by a heavy load. It could be a structural collapse, trench rescue, large motor vehicle accident or person trapped by heavy machinery. In many of the above cases your standard heavy hydraulic rescue equipment may not be the ideal tool of choice. Their size, shape and capacity might limit their use in confined spaces and with particularly heavy loads. Air bags provide the kind of versatility that you won't need every day but could give you that critical advantage that no other tool could give.

## Types of air bags

Air bags are available in two configurations: low pressure and high pressure. Low pressure bags are generally designed to provide higher

lifting heights with low tonnage capacity and are most commonly used to provide stabilisation of loads over a larger surface. Low pressure bags range in capacity from 0,5 to 1 bar.

High pressure bags provide much greater lifting force but have a limited height capability which sometimes requires that two or more bags must be placed on top of each other to achieve the desired result. High pressure bags are also made from thicker and more robust rubber and provide more resistance to possible mechanical damage than low pressure bags.

Both types are found in four main shape configurations, square pillow shape, rectangular pillow shape, cylindrical sidewall shape and rectangular sidewall shape.

The square pillow shape is used mostly for high pressure bags and offers the best power versus lifting height ratio. This shape is relatively stable at low lifting heights with heavy loads but become more unstable with lighter loads or at greater lifting heights when it assumes a ball-like shape.

The rectangular pillow shape is used for both high pressure and low pressure bags but does not provide as good a power versus height ratio as the square shape. This shape does however have the big advantage that when it inflates, it shapes like a log making it stable in one direction at any height.

The cylindrical side wall shape and rectangular side wall shapes are used for high lift bags and should not be considered stable at any height especially during the lifting process. Stability is only achieved at full lifting height when the sidewalls are fully extended provided the bag is not higher than its maximum diameter.

Airbag tie-downs are used in many air bag configurations to eliminate the instability caused by the 'pillowing' effect caused by airbags. This design does provide some stability to the bag but only after the maximum height is reached and the ties are under tension. Although a more stable platform is created here remember that you are dealing with massive loads and the lateral load stability must always be considered.▶



# StabiLift

The StabiLift is a rescue tool which has been developed in conjunction with The Swedish Rescue Services Agency Training School. SRSA required a tool which could be used to prop up cars that had been involved in road accidents whilst emergency personnel were working to free the car's occupants. The StabiLift is more than just a support prop, it can also be used as a lifting device.

Thanks to the The StabiLift's construction, it can be made to lift and take increased load during the rescue as circumstances require.



## Lifting and Stabilising all in one tool

**A number of accessories come with The StabiLift:**

- ››› a lifting bow and a four points support head
- ››› a lifting grab if there is a requirement to lift the vehicle off the ground or to remove the top from the vehicle
- ››› a safety belt to prevent the StabiLift from sliding if the working environment is slippery or unstable.

**The StabiLift has a number of advantages e.g.**

- ››› a removable crank handle (makes it possible to do halfrounds)
- ››› adjustable length through 12 different positions and the ability to lift by 60cm per revolution
- ››› simple construction
- ››› extremely fast to work with
- ››› extremely flexible, can be used in many accident situations and indeed many other areas of application.



# TEMPEST FIRE

[www.tempestfire.co.za](http://www.tempestfire.co.za)

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Coordination between fire fighters on the cribbing and on the airbag controls is a must

### ► Airbag components

The airbag system has five main components: the air supply, regulator, hoses, controller, remote shutoff valves and air bags. The air is normally supplied by a self-contained breathing apparatus (SCBA) cylinder. It can also be supplied by other sources such as the air system on a vehicle; however, this limits the position of the controller. The SCBA cylinder is ideal as it can

easily be transported into remote rescue areas.

The pressure regulator is attached to the air supply and has both high- and low-pressure gauges. The high-pressure gauge indicates the pressure coming from the air supply while the low-pressure gauge reflects what the pressure is that is being reduced by the regulator. The regulator has a control knob that is used to increase

or decrease the pressure that is being supplied to the rest of the system. When the equipment is stored, take care to ensure that the pressure gauge is lowered. The reason for this is, to reduce the pressure on the gauges tensioned spring that can wear out if not brought down. This constant tension on the spring can make it impossible to increase the pressure to the necessary output required to operate the system.

The controller is attached to the regulator and is capable of operating one or two airbags. When doing a high lift and operating two air bags, it is advisable to do it with a dual controller. The reason for this is that you will not inflate one bag fully before starting on the second one due to the instability that may occur. Inflating both bags to a certain point may show that they are not equally aligned and may call for a repositioning. Controllers are also equipped with low-pressure gauges and relief valves for each air outlet. The relief valve is designed to prevent the bags from being overinflated above their recommended operating pressure.

The final parts of the system are the pneumatic hoses that send the operating pressure to the specific air bags. Hoses are available in different lengths and colours. It is important that the hoses are different colours for each air bag being used in the lift. The operator of the controller may not be able to see the bags that he/she is controlling. By having different coloured hoses the person coordinating the lift can tell the operator which colour to inflate or deflate.

### Some basic rules for lifting

In the previous section I have mentioned the basic components of airbags. One of the most important components is one that doesn't connect to the system at all but must be available (in abundance) when any lifting evolutions are attempted. I am referring to cribbing. Always ensure that you have enough cribbing in the form of 4x4s (100mm x 100mm timbers), a good assortment of wedges and a few base plates to ensure a smooth surface on which to place your airbag.

I know cribbing takes up a lot of space and doesn't display very well on your rescue truck but you need to ►

► look past that. A rescue truck without cribbing is not a rescue truck, simple. As mentioned earlier, an airbag is by its nature unstable. The only way that the load can be secured and stabilised is to ensure that cribbing is placed strategically as the load is lifted. More on this later.

As in any heavy lifting evolution, there are a number of things to keep in mind when using air bags for lifting:

- Don't work directly in front of the bag. Should the bag be displaced laterally due to some uncontrolled load, it could do so at such force that it will shoot out at a high velocity and hit or injure whatever is in its way.
- When a part of the load is being lifted, no other part should come down as a result. This could place undue lateral pressure on the load.
- Never consider any inflated airbag as being stable.
- Don't ever stack low or medium pressure bags.
- Don't crib on top of an air bag.

### Air bag capacities

The maximum lifting capacity of a bag is always clearly indicated on the bag and is presented in tons. The lift capacity is based on the surface area of the bag. As the air enters the bag under pressure, this is spread evenly across the bag's entire surface and creates lift force. The greater the surface area, the greater the lift force, which results in increased lift capacity.

Air bags also have a maximum height to which it can be inflated. This is known as the 'lift height'. It must be, however, appreciated that the lifting capacity of the bag will decrease as the lift height increases. The maximum capacity can also only be achieved at the direct centre of the bag. All bags should be placed in such a way that maximum advantage is derived from this.

When two bags of the same capacity are placed on top of each other, the total capacity will not increase. Should two bags of uneven capacity be stacked on top of one another, the maximum capacity will be determined by the smaller bag. The only time you can increase the capacity of an airbag is by placing two bags alongside one another. This increases the surface area of the load to be lifted.



*Wedges are extremely versatile and are used mostly to fill the spaces that are not in contact with the load or the ground*

### Cribbing

As mentioned previously, cribbing is an essential part of air bag lifting operations. Cribbing is a temporary base to support the load as well as the airbags. It is essential for members to crib properly in order to ensure that the load does not shift and potentially fall on the victims or rescuers.

Although cribbing is available in a wide range of shapes, sizes and materials, the most common material is timber. In recent years there has also been a shift to composite materials. I personally prefer using timber for a number of reasons. Firstly, it's cheaper and easier to acquire. Secondly, it won't slip easily and will provide a warning when it is overstressed. And finally, you don't have to fill in all that paperwork if you lose one.

The various sizes of cribbing blocks will range from 50mm x 100mm, 100mm x 100mm and 150mm x 150mm. There is no specific requirement to the length of the cribbing and this will generally be determined by the type of air bags in your department, the rescue unit's carrying capacity or some other reason. A good standard length should however be in the region of 60cm. This will provide a stable base to work from.

Also ensure that you have a good supply of wedges available that are cut to standard lengths to ensure compatibility with the cribbing blocks. Wedges are extremely versatile and are used mostly to fill the spaces that are not in contact with the load or the ground.

The most common cribbing structure when using air bags is the box crib. Box cribs consist of a series of timbers placed perpendicular to one another to support a load. Box cribs are not just used to support and stabilise the load being lifted, but the air bags themselves.

Box cribs provide a strong, solid base and can be constructed from 100mm x 100mm or 150mm x 150mm timbers. The weight of the load will determine the size of the timbers to be used and if two or three timbers are used on each layer. Remember that you want to maintain a stable load at all times and the moment the height of the box crib exceeds the base by more than triple, it becomes unstable.

Calculating the capacity of the cribbing is reliant on a number of factors including the type of wood, dimensions and points of contact. The commonly accepted capacities for the various box cribs using a perpendicular load capacity of 500PSI are:

- 100mm x 100mm @ 2 timbers per layer (4 points of contact) = 12 tons
- 100mm x 100mm @ 3 timbers per layer (9 points of contact) = 27,5 tons
- 150mm x 150mm @ 2 timbers per layer (4 points of contact) = 30 tons
- 150mm x 150mm @ 3 timbers per layer (9 points of contact) = 68 tons

Take note that these loads are based on the weight of the load being distributed across all points of contact on the system. It will be reduced if the load is placed between the points of contact. ►



*Freeing a victim from underneath a bucket of the backhoe, by setting up for a lift of the arm of the backhoe using airbags at the top of the trench*

► When deciding on which type of timber to use for cribbing, I would prefer a softer timber. Softer timbers will bite into the surface of the load making it more stable. The soft timber is also better when working with an unknown load capacity because it will provide warning signs of failure. It will start to fail by cracking and splitting slowly and this produces a loud cracking noise.

### Safety

Safety will, as always, be the prime consideration when responding to incidents in which people are trapped by heavy loads. Look out for running machinery, leaking chemicals or fluids around the lifting surfaces and any sharp objects that may penetrate or damage a lifting bag. The most important safety consideration will be the possibility of a load shifting and becoming unstable.

Incidents requiring the use of airbags could be inside factories or buildings to which you can't get close with your rescue truck. Ensure therefore that all the equipment you might need is stored together and can be easily removed from the truck and carried to the work site. Don't forget the cribbing.

When assessing the load to be lifted, ensure that it is stable in the position it is currently in. You might need to anchor the load using steel rigging or wheel chocks. Next try to determine the surface from where the lift will be done. It should be as level as possible. The first layer of box cribbing must be constructed to spread the load evenly across the entire surface especially when you are working on soil, asphalt or similar surfaces.

Next, you will need to plan the positioning and possible upwards movement of the load. Ensure that the load will be able to move unobstructed into the direction you intend and take care that no cribbing is placed in the way of the airbags or load movement path.

Building a box crib will require working under the load. Rescuers must at all times avoid placing their hands under the load when placing the cribbing into position. Using one block to push another block into position is the generally accepted method of achieving this. Whilst doing this try to get each timber to overlap the next by a minimum of 100mm. You might need a lot of cribbing, make sure you have it.

### Patient care

Your patient will obviously be the main focus of the operation. You will want to release the patient from the load with the minimum lift. Make sure, however, that the amount of lift achieved is sufficient to release the patient entirely. You do not want to have to find that a foot is still trapped and end up trying to drag him/her out of the space only to cause further injury.

The victim's condition will be an indicator of how the extrication will proceed. In a highly unstable situation (it might happen), you might want to just get enough lift to drag him/her out of there whereas a more stable situation might require a slower more controlled evolution. The critical condition known as crush syndrome will most likely present when a person has been trapped for an extended period. Determining exactly how the victim is trapped should provide you with sufficient information to determine his/her medical condition and suspect the possibility of crush syndrome.

Getting your medical team in there to start treatment before the extrication is commenced will be ►

► vital if the victim is to survive. They will start administering fluids prior to any release of weight off the victim, in order to counteract the toxic condition that will be brought about by the crush injury. Fluid therapy is the first choice in the management of crush syndrome because the development of shock and acute renal failure can be avoided by the early provision of fluid resuscitation. Too many times I have seen an excellent rescue of a victim from a heavy load entrapment only to have the person die in hospital a short while later from shock, acute renal failure or other systemic complications.

The medical crew should also set up a treatment area in a space safely away from the load and ensure that it is equipped with all the resources needed for the treatment of a serious crush trauma injury. During the lift, the medic must at all times be in communication with the incident commander to make sure that the lift does not compromise the patient's condition in any way.

### Controlling the lift

As with any emergency response, incident command must also be established here. Although you will not need a large command structure for such an operation, communication and coordination is vital and a clear line of communication must be established between the team doing the lift and the medical team.

They are normally quite close to one another and this should not be a problem. There might, however, be a challenge when the person operating the regulator is stationed in a position remote to where the extrication is happening.

To add the incident command's headaches, the extrication might be happening in a confined space where he/she does not have sight of the incident.

The command staff should consist of the incident commander, a safety officer, a medical officer and a rescue officer.

The safety officer should always focus on all the safety aspects of the operation. If possible, place lookouts in strategic positions to monitor the lift, ensuring that there is no shifting of the



load and that it is being sufficiently cribbed.

He/she should also ensure that no persons are positioned so that they are exposed to any prevailing hazards. The moment the lift starts, people tend to get fixated on what is happening and might get distracted from their task. Care must be taken to ensure that this doesn't happen.

The medical officer will coordinate the medical management in the extrication sector, the treatment sector and the transport sector. I have already discussed the medical management of the victims and all that is necessary to add here is that all sectors under his/her control must focus on the continued emergency care as the patient moves through their hands. All sectors must focus on reversing the crush syndrome and it is therefore vital that they know what treatment was provided prior to the patient being handed over to them.

The extrication sector will have the most staff and need to be carefully coordinated. The person controlling the airbag regulator might need a few observers to monitor the lift. At least two people will be needed for the cribbing and they might have to be placed in various positions around the load. You will also need rescues to remove the victim and it might be advisable to have a 'gopher' to fetch additional kit from the staging area or rescue rig.

### Lifting the load

Once the lift starts, all the attention should be focussed on this.

Some important points to remember here:

- Lift slowly: This will allow the cribbing

to be placed and the medical management to be more effective. It also allows for better monitoring of the load and detection of any shifting thereof.

- Crib-as-you-go: Remember the golden rule: 'Lift one inch crib one inch'. This ensures that in the event of a failure, the load will only drop a very short distance.
- When using two stacked bags, inflate the lower bag only enough to allow the top bag to settle snugly into it. The main lift should then be done by the top bag. Should the top bag be fully inflated and the victim is still not free, revert to the lower bag taking care that it remains softer than the top bag.
- Sometimes you might need to elevate the bags to achieve a desired height. In this case, you might need to place the bags on a base of timber. This can occur when you have to lift a vehicle. When doing this make sure that your lifting bags are placed on a solid base. Never, never, place any blocks on top of a bag. Should such a timber become dislodged due to instability, the lateral force will turn it in a missile and it will ..... anything in its way.
- Only lift as high as is necessary to free the victim. The higher you lift the more unstable your load becomes.

### In closing

High pressure air bags are one of the most versatile tools in your rescue arsenal. Don't be afraid to train with them and use them. As with any rescue kit, it can't function on its own. Everybody needs to understand this and be comfortable with all the parts that make up the system.

Stay safe. ▲

# North Carolina high school fire fighter certification program

By Michael Caviness, certification specialist, North Carolina Office of State Fire Marshal

Four years ago, North Carolina had no high school fire fighter certification program but the groundwork was being laid for three pilot programs. These pilot programs were a collaboration between the North Carolina Department of Public Instruction (NCDPI) and the North Carolina Office of State Fire Marshal (OSFM) in an effort to improve graduation rates while also giving high school graduates the ability to become North Carolina certified fire fighters. While the goal for NCDPI was to improve graduation rates and offer another skilled trade for their students, OSFM saw this as an opportunity to reach and expose the profession of firefighting to a whole new generation and population.

## Background

In 2010, NCDPI was contacted by several communities who wanted to offer fire fighter programs to their students through Career and Technical Education (CTE). NCDPI contacted OSFM and together they began to work out a plan to offer North Carolina fire fighter classes through high schools with the exception of hazardous materials (this can easily be attained through the local community college).

The first component was to create a curriculum that the public schools could follow. All of the classes within the North Carolina Fire fighter 1 and 2 Certificate are based upon the NFPA 1001 Standard and were divided into three fire technology blocks (see course blueprint below). These blocks consisted of either six or seven fire fighter classes and could be offered in a semester format.

The next component was to solicit buy-in from all involved parties. Before a high school can offer the fire fighter certification program, an initial meeting must be held with representatives from OSFM, NCDPI, CTE Director, school principal and a supporting local fire department. At this kickoff meeting, all the rules and

expectations are presented to the high school and local fire department. This includes equipment, space, instructors, testing etc. If there is not complete buy-in from each agency, then the program is not allowed to proceed.



Once a program is approved to proceed, the final component is that the high school must hire an instructor that has already been approved to teach fire fighter classes from OSFM. This is a requirement from OSFM to maintain their accreditation standards. Because it is rare to find a teacher who is also certified as a fire fighter and a North Carolina fire instructor, these teachers are usually hired from professional fire departments and enter NCDPI through their lateral entry teacher program.

## Benefits

The program has become a great success. Currently, North Carolina has fifteen high school fire fighter certification programs in the State. By the end of the 2013/2014 school year, six more programs will be approved to offer the fire fighter program. Through this program many benefits can be seen. The most important benefit is, of course, the increased graduation rates. At one school,

an at-risk student asked to be in the fire fighter program but had missed over 20 days of school the previous year. The teacher counseled the student that to be in the class would mean a much greater commitment to school and accepted him on the student's word that he would improve. The student never missed another day of school, completed the program, and graduated high school. Another benefit of the program has been increased involvement in local fire departments. The students are encouraged to get involved in their community and many of them become junior fire fighters through their local fire departments. Other benefits include increased fire prevention awareness throughout communities, more diversity within the fire service hiring pool by reaching students that do not normally have contact with the fire service, and increased interest in fire associate degrees.

## CTE course blueprint for fire fighter

### Fire fighter Technology I

1. Fire department orientation and safety
2. Fire prevention, education and cause
3. Fire alarms and communications
4. Fire behavior
5. Personal protective equipment
6. Portable fire extinguishers
7. Fire hose, streams and appliances

### Fire fighter Technology II

1. Ropes and knots
2. Ladders
3. Forcible entry
4. Ventilation
5. Water supply
6. Sprinklers
7. Foam fire streams

### Fire fighter Technology III

1. Emergency medical care
2. Rescue
3. Salvage
4. Overhaul
5. Building construction
6. Fire control ▲

# State-of-the-art training facility developed by Cape Town's Fire Service

*The Epping Training Academy has trained 560 new fire fighters over the past last 28 years*

**T**he City of Cape Town Fire and Rescue Service (CTFRS) runs a state-of-the-art training facility at its fire fighter training school, Epping Training Academy in Cape Town, South Africa, which has trained and recruited an average of 20 fire fighters every year since its inception in 1985.

Following the amalgamation of seven different municipalities into one Metropolitan municipality, Epping became the official fire fighter training base for the entire City of Cape Town Fire and Rescue Service in May 2010.

Epping Training Academy head, Walter Petersen, who began his career in the service in 1984, says that during 2010, Cape Town's four training centres merged to form the amalgamated Epping Training Academy.

The City of Cape Town's Fire and Rescue Service was centralised in Epping as this was the only training facility that enjoyed full accreditation with the Manpower Act.

"This made more sense than upgrading and maintaining four centres. Staff and equipment were moved to Epping. The facility was upgraded and now has five lecture rooms," says Petersen.

The four training centres that existed prior to the formation of the Metro in 2010, each fell under the jurisdiction and control of a different municipality namely Milnerton Training Centre, Bellville Training Centre and Ottery Training Centre.

Prior to the formation of the 'Unicity', the training centre in Epping was always a stand-alone facility. "The other training centres in Cape Town were shared buildings and attached to fire stations," says Petersen.



*Cape Town's fire and rescue service training head, Walter Petersen*

In order to accommodate trainers from all the other training centres in the City, much of the infrastructure at the Epping facility has changed.

Petersen served as District head: Operations North and responsible for ten fire stations in the region, before being appointed as the training head of the Epping academy. He says, "In March 2012, in the absence of a training head, I was seconded to the Training Academy and was officially appointed as training head on the 10 June 2013."

## **Training base**

The Epping Training Academy currently shares premises with the Epping Fire Station; however, the academy has its own buildings and equipment. ▶



Epping Training Academy platoon commander, Mzuzile Makeleni



The modernised Epping Training Academy

► In addition, the training academy also trains existing and operational fire fighters, who are instructed on more advanced fire fighter programmes.

"During the last three years, an average of 35 new recruits have been recruited by the fire service per year and the academy trains approximately 400 to 1 000 existing fire fighters every year," says Petersen.

Petersen says that a rate of averaging 20 recruits every year since 1984, the academy has trained 560 new fire fighters over the past last 28 years. In addition to this, the academy has also provided advanced fire fighter programmes to about 11 000 professional fire fighters since 1984.

The fire fighter programmes include, first aid level three, fire fighter one and two, hazmat awareness, hazmat operations, respiratory protection, wildland fire fighting, fire investigation, confined space rescue, swift water rescue and trench collapse rescue.



The City of Cape Town has recruited an average of 35 new fire fighters each year over the past three years

### Upgraded facility

The Epping Training Academy currently has five lecture rooms, which were built following the upgrade of the facility.

The academy's lecture rooms are modernised facilities, with one recently being fitted with a state-of-the-art audio-visual Smart Board technology. The Smart Board system will allow the possibility of lecturing to crews at 30 fire stations simultaneously.

"We used a white board before. The facilitator used to write his notes when he lectures. Now the lecturer can link lectures to the internet and access information real time. It is much better for facilitator and students to interact on the Smart Board," explains Petersen.

Sophisticated fire fighter training equipment and facilities were also added to the academy, recently. Petersen says, "More live fire training, as well as trench collapse, confined space rescue and liquefied petroleum gas training, as well as flash-over simulator was added to the facility."

The Epping Training Academy's five lecture rooms can accommodate 100 trainees at a time, says Petersen. "It is centrally situated and has good infrastructure for fire fighting training and lots of room for infrastructure expansion," says Petersen.

### Recruitment

A recruitment drive is hosted by the City of Cape Town Fire and Rescue Service once a year and here fire fighter hopefuls attend specific dates and venues for evaluation, explains Petersen.

"We start off with physical assessments. Everything is done by elimination. Thousands of people respond to our adverts," states Petersen.

After the physical assessments candidates take a written test and if they are successful they are taken on inherent ►





Fire fighters engage in intensive training exercises at the Epping Training Academy

Epping Training Academy provides advanced fire fighting programmes

► assessments, such as claustrophobia tests and ladder climb (acrophobia test). This is followed by an interview process, medical examination and a criminal record check, says Petersen. “They are employed and given a trainee contract for eight months and must pass the training before being given permanent employment.”

Petersen says that there are a great number of applicants who attend the firefighter recruitment drive, thus making it a highly competitive process.

“It is fair to say that in a fire service that has been in existence since 1845, we pride ourselves in doing it right,” says Petersen.

Petersen says that the Epping Training Academy was initially designed for a male dominated environment, but with the intake of female fire fighters changes had to be made. New facilities were added to the site to accommodate female fire fighters.

The academy also had the potential to be developed further, says Petersen. “At the time, back in the ‘80’s and ‘90’s, ‘hot work’ training was all conducted in the yard of Epping Fire Station on a super structure of a vessel, named Foxtrot. Eventually Foxtrot made way for shipping containers, which are still being used.”

Petersen says that external training became a huge focus at the academy during this period in the mid-nineties for different industries. This focus was eventually changed to benefit professional fire fighters of the City of Cape Town with the advent of the Metropole.

There are 10 full-time instructors, four moderators, three divisional commanders, a training head, a senior fire fighter, administrative support, labourer support and a courier, all of whom are based at the centre.

Petersen says that all lecturers are highly skilled and have many years of experience. There are eight facilitators at

the platoon commander rank and a further two facilitators who are station commanders. The training academy moderators are also station commanders.

### **Epping Training Academy: Moderators -**

Glynn Shepherd  
Paul Myburgh  
Clarence van Roodt  
Are Tolken  
Mzuzile Makeleni  
Charles Oktober  
Sylwin Rossouw  
Warren Sam  
Mark van Jaarsveldt  
Denis Hiscock  
Dorian Wheatley  
Jacques Laubscher  
Wayne Sternsdorf  
Brent Murtagh

Platoon Commander  
Platoon Commander  
Platoon Commander  
Platoon Commander  
Platoon Commander  
Platoon Commander  
Platoon Commander  
Platoon Commander  
Station Commander  
Station Commander  
Station Commander  
Station Commander  
Station Commander

### **Accreditation**

The Epping Training Academy is accredited with the Local Government Sector Training Authority (LGSETA), which covers two full qualifications in the national qualification framework (NQF) four and five.

The academy is also internationally accredited through the South African Emergency Services Institute (SAESI), which it has had since 1995.

Training programmes are developed against the US National Fire Protection Association (NFPA) standards and the unit standards, which make up full qualifications. “We also follow the International Fire Services Accreditation Congress (IFSAC) route to satisfy our SAESI accreditation,” says Petersen.

The City of Cape Town Fire and Rescue Services is currently involved in discussions around opening the training academy to neighbouring fire services. ▲

# Are wildfire investigations really necessary to assist in reducing future fires?

By Rob Erasmus, Enviro Wildfire Services

*Unfortunately many people incorrectly believe that the origin and cause of fires of this scale cannot be determined*

**T**his is the first part of a five part series of articles on wild fire investigations.

"Effective management is based on developing strategies using facts as the foundation. Incorrect information results in misdirected efforts, equating to a wasting of resources, time and money."

This very strategy is applicable to a wide range of undertakings, including wildfire management. The current trend of fire departments and other organisations tasked with the management wildfires throughout South Africa is primarily reactive, ie responding to fire call outs.

While many profess to have successful proactive initiatives such as children's programmes, community outreach initiatives, etc, the majority are completely misguided simply because they have no idea who is starting the fires.

I provide a simple example. In a specific area, regular fires have been occurring next to a reasonably quiet road on weekdays between 18h00 to 20h00. It is presumed by the authorities that a) they must be caused by cigarettes, and b) it must be motorist

flicking out burning cigarette butts while driving home. Based on this fact-less presumption, cigarette smokers are targeted as being the bad guys and as it felt it is impossible to catch the culprits, the local fire department spends precious manpower and funds responding to these numerous fires throughout the season. They also promote a cigarette reporting hotline and are inundated with calls of people reporting cigarettes being discarded in a built up area.

Based on their misguided assumption no wildfire cause-investigations are undertaken in the area.

The truth of the matter is that someone is purposefully setting the fires next to the road for personal satisfaction reasons including developing and testing incendiary devices. They have been doing so for the past five years and continue to do so knowing that they will never be caught because the fires are never investigated. All the incendiary devices are destroyed by the first responders and the perpetrator receives much pleasure in seeing the fire fighters racing to the scene to stop the spreading of the fire in windy conditions. These fires may or may not cause large scale damage to property and could one

day result in the injury or death of a fire fighter, or a local landowner.

Based on experience and training, an investigator will know that the chances of a roadside wildfire starting in this area between 18h00 to 20h00 are extremely remote and while it is possible, it is highly unlikely that all the reported fires are as a result of discarded cigarettes. The hypothetical reasoning is as follows:

1. The area is east facing, so is in shadow from the afternoon onwards with low temperatures and moist fine fuels, which are not conducive to cigarettes starting the wildfire and
2. The area is close to the sea and during the summer received moisture-laden air in excess of 55% RH, which is again not conducive to cigarettes starting a fire, and
3. The road has approximately 40 vehicles travelling along it during the period, as compared to nearby roads that have 4 000 vehicles travelling along them with no ignitions

All factors, even prior to any investigations being undertaken indicate that it is not cigarettes, but malicious acts that are the cause of the fires. ►



Matches bundled with an elastic band placed at the scene afterwards as a decoy to the origin and cause of the fire



The handheld distress flare located some distance away that was the actual cause of the fire

► However, lack of qualified manpower ie fire investigators and insufficient funds are the reason why none of the fires are investigated and so the perpetrator is allowed to continue with his/her destructive acts. It is strange that the lack of funds is used as a reason when each fire fighting operation costs some 30 times more than an investigation when the cost of all the resources are considered ie aerial support, vehicles, staff.

Put simply, if any fire fighting organisation is serious about wishing to reduce unwanted wildfires, they need to consider determining the true cause of the fires based on facts and not through presumption. Presuming that it is smokers, children, delinquent youth, homeless people, or fire setters can result in efforts to prevent future fires being completely misguided.

Bear in mind that in 90% of cases if called in quickly enough ie before the origin has been contaminated or destroyed by suppression efforts, the origin and cause can be determined. With a sufficient number of fires investigated over time, accurate data and trends can be determined, as well as suitable evidence collected and in so doing building a case against a person or group that are maliciously setting wildfires, be it for whatever reason. These things take time, but one has to start somewhere.



The specific origin where book-matches were used to start a malicious fire. Can you see them ? Their location will be made known in the next article.

We are aware that investigations cost money, but they are a fraction of the cost of a fire fighting operation. The sooner the investigation is undertaken (as soon as possible after it has been reported), the lower the costs. For those fire fighting agencies that do not have suitably trained and experienced staff, they could consider entering into agreements with an investigation company that are usually willing to offer reduced rates with certain terms and conditions.

In conclusion, unless the true causes of wildfires in your area are determined through proper wildfire investigation,

you will continue to put effort into prevention initiatives based on assumption that might be completely off the mark. Put simply, wildfire origin and cause investigations are necessary if one wishes to reduce wildfires.

In part two of this five part series we will look at the short, medium and long term benefits of undertaking origin and cause wildfire investigations

For more information about wildfire investigations and exploring possible agreements for your area, please contact Rob Erasmus at [enviro@absamail.co.za](mailto:enviro@absamail.co.za). ▲

# Evidence-based fire prevention programme targeting high risk communities

By Rodney Eksteen, Assistant Director: Fire Brigade Services, Disaster Management and Fire Brigade Services, Western Cape Government



*The burn injury problem in South Africa is relatively unique and certainly very different to the US*

Each year, 25 million more people are living in slums and informal settlements (UNHABITAT, 2010). Fire risks are increasing due to high density building, new construction materials, more high-rise buildings and greater use of energy in concentrated areas (UNISDR, 2010). There are over 300 000 fire-related deaths per year (Mock et al, 2008), with over 95% of all burn deaths occurring in low and middle-income countries (LMIC). According to the Integrated Strategic Framework for the Prevention of Injury and Violence in South Africa, (DoH, 2012), the fire-related burn death rate in South Africa of 8,5 per 100 000, is greater than the world average of five per 100 000, and the African region of six per 100 000. In addition, the overall cost of insured property loss due to fire is estimated to cost the economy more than three billion Rand every year (Wood, 2013).

Although natural disasters cannot always be avoided, accidents or un-intentional burns are preventable (Bishara et al, 2009, Peck et al, 2009). Successful community-based fire prevention programmes have been

implemented internationally and have helped to lower the risk of fire related death and injury and improve resilience in these communities. In South Africa, there is a need for evidence based community fire prevention programmes targeting the specific high-risk communities.

The aim of this article is to describe the process and collaborative approach that resulted in the design, development and implementation of a comprehensive fire and burn prevention programme, targeting vulnerable populations using local fire and burn risk data. The Learn Not to Burn® preschool programme South Africa, draws on international best practices to equip children, families and educators with the knowledge and skills to protect themselves from fire and burns and aims to impact on the reduction fire related risks within poor and high risk communities.

Each community is different, disaster and injury causes need to be determined and the demographics of the community need to be understood if we ever intend on having an impact on risk reduction

and injury prevention. Having said this, it often becomes a daunting and overwhelming task to decide what to tackle first and how. Fire and burns are a social and economic, as well as a behavioural issue. Long term, sustainable change can be achieved by building little successes and by starting with those most at risk.

Unfortunately, for the most part, many disaster and fire prevention practitioners still provide prevention messages based on what we 'think' the public should know and in a way that we feel should apply to everyone – the so called 'one size fits all' approach.

It's easy to simply take a predeveloped fire prevention programme and implement it 'as is' in any and every community. Risk reduction and fire prevention programmes are often neatly packaged and visually stunning. Unfortunately there are very little, if any, variations or information on customising programmes to suite different communities, cultures and specific needs.

Organisations that have large and diverse populations often have problems focussing on specific communities at risk or areas where certain injuries are more prevalent. It is imperative to focus on the greatest risk or injury cause in a given community as the injury profile will differ from community to community. Unfortunately, with limited resources, time and know how, many organisations end up implementing the 'shotgun approach' and provide fire and injury prevention education on issues which may not be a leading cause of mortality or morbidity (death and injury) in a given community. Resources and know-how are even less when it is necessary to modify or customise an existing programme, or even developing one from scratch, to suite a specific community need.

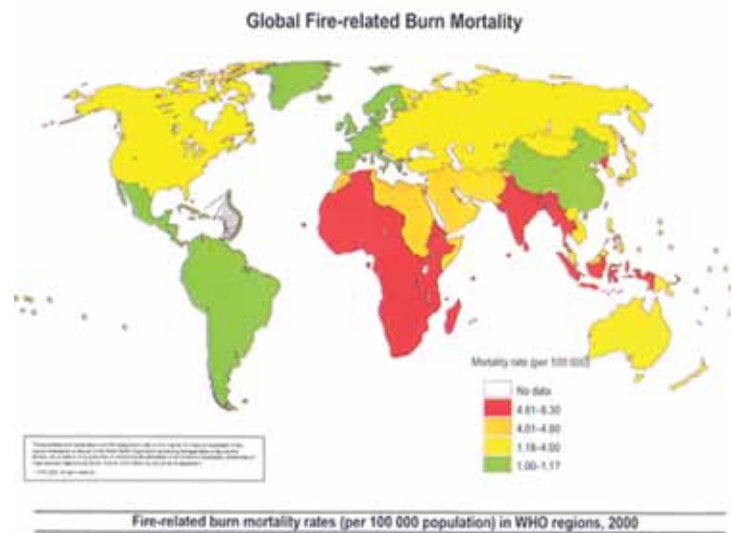
The development of fire and injury prevention messages provides ►

► direction and increases awareness of the problem, not to mention the focus on changing people's behaviours. Prevention messages that have been developed can also serve as the core for slogans, advertisements, written materials etc, even if just creating awareness around the need for education. In South Africa, the development of the public information, education and relations (PIER) system in early 2000, has helped to do just that. From a situation of very poor support and emphasis on fire safety education to a situation where there is national support and awareness of the problem. This, in part, was achieved by pushing information through any means to the public, but also Government officials and decision-makers. Catchy phrases and slogans seized by these officials as well as the media and the positive publicity it generated, created awareness and support for these programmes. We now have a situation where many fire departments and related agencies have full time fire and life safety educators and there is national support for curriculum development and careers in this field. Many of these messages are now being utilised by various organisations, some to even advertise safety products. Messages that have been developed for children are often just as effective on adults.

What follows is a brief description of a process that may be utilised to develop focussed messages for a fire prevention programme targeting a specific audience. The examples used refer to a programme that was developed with the support and assistance from the National Fire Protection Association (NFPA) and various risk reduction organisations in South Africa.

**First things first**

South Africa has the third highest burn injury rate in the world. Burn injury was most certainly an obvious place to start when deciding what injury issue to focus on. The National Fire Protection Association (NFPA) Centre for High-Risk Outreach supported the adaptation of the NFPA's Learn Not to Burn® (LNTB) preschool program for use across South Africa. Created in 1979, this programme has been used successfully in more than 50 000 classrooms world-wide.



**Map 1: Global fire related death rates**

In locations where it has been adopted, the lessons remembered by children have saved hundreds of lives. The Learn Not To Burn curriculum has been used in South Africa for approximately a decade. But we were not sure if the messages in the curriculum were completely suitable for the burn risks and common causal factors in South Africa. We also had, in many cases, very different cultures, languages and environmental influences. Therefore the first step of our approach was to determine the extent and causes of burns in South Africa.

**Identification of risk factors and causes**

Various organisations and experts were invited to form a coalition from the fire and emergency services, the Paraffin Safety Association, the Child Accident Prevention Foundation, the Medical Research Council, the Working on Fire programme and the Institute of Social and Health Sciences. The NFPA sent two injury prevention experts, Kwame Cooper from the Los Angeles Fire Department and Ernest Grant from the Jaycee Burn Centre in North Carolina to lead and direct the initial workshop in 2004. We also engaged the Red Cross Children's Hospital in Cape Town and the Johnson and Johnson Burn unit at the Baragwanath Hospital in Soweto. After a two-day workshop, it was clear that burns were a significant problem and although not the most common, traffic related deaths were higher; it certainly was in the top three causes of childhood injury related death. Burns were also an injury

issue that had not been addressed effectively by any organisation in the past with regards to prevention. We also identified young children as a particular age group at risk for burns, especially in rural communities and informal settlements. The peak time for burn injury related death was at 1h00am in the morning and between 22h00 and 6h00am. This indicated that much of these burns were perhaps caused by fire and were during sleeping hours.

**The Learn Not To Burn Team at the Department of Education in Johannesburg**

Other problems that were identified were that burn prevention messages differed, quite drastically, from region to region. Many fire departments were using the US LNTB curriculum, whilst other organisations had developed their own messages. There was no consistency with regards to messages and in some cases, messages were contradictory to others. Another problem was that all of these organisations had to rely on their own resources to get the message out. The fire department had to visit schools, which was great, but smaller departments, particularly in rural areas, just did not have the resources. Often it was these areas that were located in rural communities, which needed it most.

Because burns had a higher prevalence in the very young and very old, the participants identified the three to five-year old group as the priority. Acknowledging that there was no way that we could collectively ►



Madiba joined in at one of the events



As burns had a higher prevalence in the very young and very old, three to five-year olds were identified as the priority

► reach this target audience, we decided to develop a childhood fire and burn injury prevention curriculum for preschools.

Avoiding the reinvention of the wheel In 2005 another workshop was scheduled to take the next step in developing the programme further. This time the NFPA supported a request to send a well-known fire and injury prevention expert to facilitate the development of the specific burn prevention messages in South Africa. Edward Kirtley, from Oklahoma, who had several years of previous experience in developing other fire prevention programmes in South Africa, including the South African version of the Fire and Life Safety Educator (NFPA 1035) facilitated the workshop in Cape Town. Kwame Copper and Ernest Grant as well as an NFPA representative, Lisa Braxton, formed part of the international team.

It was important for us to follow the process of developing prevention messages from the outset, and not just modify existing LNTB messages. The burn injury problem in South Africa and particularly in the informal settlements is relatively unique and certainly very different to the US.

However, there are some similarities with certain cultural aspects of the Native American communities. The advice and facilitation from our international experts was vital, as fire and injury prevention education and particularly the development of structured prevention messages in South Africa is a relatively new field. For far too long we had been working with no formal, recognised methodology in developing specific prevention messages. Fire prevention education in itself is a relatively new concept and not well understood by senior officials and decision-makers.

Based on the previous workshop outcomes, the target audience identified for priority were the three to five-year age group coupled with the informal settlement fire and burn problem. Even though the environmental risks in these communities were very different to formal housing, many of the messages that were later developed would be applicable to the formal housing environment as well.

Due to the resource limitations in South Africa, it was agreed that the most effective means to get the 'biggest bang for our buck', would be to

develop a national childhood fire and burn injury prevention curriculum. A delivery system was already in place, support from national department of education had been received and this would also support existing and future initiatives by each coalition member and provide a recognised and supported "national standard" to work from.

### Elements to determine

The main injury problem and target audience (the people) had been identified. Other elements that were now required to be explored was the event itself (behavioural; causes of fire/burn), and the identification of interventions that could break chain of events. Finally, for this workshop, the development of the fire and burn injury prevention messages (create short appropriate messages) would follow.

### Problem: identification

There are many causal factors involved in fire and burns, probably too many to even consider. Priority was given to the main causes that were identified using data and information from the following sources in South Africa:

- National statistics
- Local hospital based research ►

- ▶ NGOs and other Government services
- Injury experts
- Community/public

Very specific data and details of injury causes in informal settlements are not readily available in South Africa. Detailed information from fire investigations are commonly focused on financial losses for insurance purposes or criminal acts and do not contain specific information on the human behaviour leading to injury related death or other life safety risks, such as escape routes in the home, smoking etc. However, through information that was available, community involvement and personal experience from fire fighters

and others, some of the main causes of these injury events were identified in the previous workshop and are listed as follows:

- Child left unattended and fire begins (unsupervised)
- Shack fire starts, child does not or cannot escape
- Spilled hot liquids from pot on stove
- Spilled hot liquids from table Paraffin (kerosene) stove/candle tips/falls over and starts fire
- Open flames of stoves causes clothing fire
- Stove not in proper working order
- Caregiver under influence of alcohol
- Criminal action to start fire (intentional)

While these identified events were not an exhaustive list, they painted a very accurate picture of the common risks and main causes of fire and burns in the informal settlement environment.

Burn injury chain of events (people and problem)

The next step was to prioritise the above main causes according to priority. The highest priority was given to the most common cause. Groups comprising representatives from each organisation were selected and each group was given a main cause to determine or hypothesise the injury chain of events.

**For example:**

| Specific Event  | Education   | Engineering                                     | Enforcement                                       | Economic Incentives              | Emergency Response                           |
|---|---|---|---|----------------------------------|--|
| Poor family build shack near urban areas for work opportunities                       |   | Safer low cost housing                          | Prevent informal development                      | Subsidised safer housing         | Law enforcement                              |
| Purchase cheap paraffin stove to cook food  | Develop campaign on Unsafe Stoves                           | Design safer stove                              | Prevent unsafe imports                            | Replace old with new safer stove | Customs / SAPS                               |
| Cover interior of shack with cardboard and newspaper to insulate from cold            | Promote safer building practices                            | Design affordable fire safe insulation material | Dwelling Inspections                              |                                  |  |
| Combustibles contact open flame of stove  | Campaign on safe cooking practices                          | Develop flame protection                        | Inspections                                       |                                  |  |
| Fire spreads rapidly to other combustibles  | Education on how to extinguish fire                         | Create barriers to prevent fire spread          | Inspections                                       |                                  | Fire Service                                 |
| Children left unsupervised and do not escape  | Promote Escape Drills In The Home.                          | Develop integrated smoke alarm                  | Social services                                   | Develop ECD centres              | Social Services                              |
| Child's clothes catch fire and is severely burnt                                      | Stop, drop & roll Campaign                                  | Flame retardant garments                        | Legislation to enforce flame resistant child ware |                                  | Implement Community Emergency Response Teams |
| Adult treats burn wound with traditional remedy (toothpaste, soap, metal cleaner etc) | Cool a burn with water / Stay Alive Till We Arrive campaign | Hydrogel  | Warning labels on common miss used products       | Provide piped water              | C.E.R.T. training                            |
| Delayed transport to hospital   | Promote Emergency Number                                    | Emergency medical Telemetry                     | Enforce single emergency number                   |                                  | Ambulance service                            |
| Child dies from burn wounds   | First Aid & CPR training                                    | Rehydration technology                          | Enforce standards for emergency care              |                                  | Advanced Life Support                        |
| Family rebuild shack as it was before   | Build a safer home campaign                                 | Increase spacing                                | Prevent informal development                      |                                  | Law Enforcement                              |



The development of fire and injury prevention messages provides direction and increases awareness of the problem



The Learn Not To Burn Team at the Department of Education in Johannesburg

- Once the injury chain of events have been established, interventions were listed (brainstormed) to break the causal chain at each level. These possible interventions were then listed under education, engineering, enforcement, economic incentives and emergency response to determine a multi-pronged approach to prevention. Our specific objective was to develop educational messages targeting the vulnerable group, which included providing the following types of actions:
- Prevention
  - Protection (response)
  - Persuasion (influence behaviours of others)

Messages were then developed emphasising the positive action or desired behaviour to be followed. Messages were then tested against the characteristics of the three to five-year old child. Elements of these characteristics included:

- Linguistic readiness (will they understand the message)
- Emotional readiness (as stress levels increase, decision making abilities decrease)
- Cognitive readiness (can they reason)
- Physical readiness (in terms of age/ability)
- Culturally appropriate (within value set they've been raised with)
- Language appropriate (idiomatic language/dialect)
- Child's locus of control (what they can/cannot influence)

The messages developed were then discussed and evaluated by the entire group and the most appropriate, based on the above

points where selected. The messages selected in order of priority were:

1. Stay away from hot things, they can burn you
2. Stay away from flames, they can burn you
3. Stay away from paraffin, it can hurt you
4. Matches and lighters are not toys, leave them alone
5. If your home is on fire, go outside and stay outside
6. If your clothes are on fire, stop, drop and roll
7. Cool a burn with water
8. The fire fighter is a helper

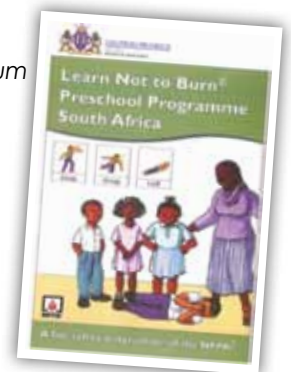
The messages were placed in order of priority to give importance to the behaviour that would provide the highest level of injury prevention. Messages one to four focus on prevention (primary prevention), whilst messages five to eight focus on response or protection (secondary prevention).

After reviewing the originally identified causes of fire and burns in the informal settlements, it was discovered that each of these eight messages provided an appropriate behaviour to prevent serious fire and burn injury for every main cause originally identified.

### Implementation

After this process was complete and the messages had been finalised, a curriculum developer was approached to design, develop and evaluate the resources for a national childhood fire and burn injury prevention curriculum for preschools using the current curriculum outline. Addressing the existing school curriculum had to

LNTB Curriculum implemented in Gauteng



focus on integration of these eight messages into the existing objective based outcomes and were not be an 'add on'. This would assist and motivate preschool teachers to use the burn injury prevention lessons to meet other outcomes as well, such as numeracy and literacy.

After discussions with the coalition members and the NFPA, it was decided that the programme would be known as the 'Learn Not To Burn Preschool Programme South Africa'.

### Conclusion

Initially there was a lot of anxiety, due to the magnitude of the fire and burn injury problem and the amount of potential causes. This 'paralysis of analysis', was fortunately overcome by an effective and committed coalition, but perhaps more importantly an effective and experienced facilitator in the development of fire and injury prevention messages. An enormous amount of time and money was saved through working together in a committed international collaboration.

Download the Learn Not To Burn South Africa programme from: [www.westerncape.gov.za/general-publication/fire-and-flood-awareness-campaign-under-Learn-Not-To-Burn](http://www.westerncape.gov.za/general-publication/fire-and-flood-awareness-campaign-under-Learn-Not-To-Burn).▲



**KwaZulu-Natal is one of the most fire prone regions in South Africa**

# Vast area of land fire prone in KZN

The KwaZulu-Natal (KZN) Province, South Africa, is one of the most fire prone provinces in the country with the coastal dune forests being the only low risk area in the province, according to the KZN Fire Protection Association (KZNFPFA) fire protection officer (FPO), Simon Thomas.

The KZN Province, which has an area spanning 94 361 square kilometres, consistently finds itself in the 46-60 'yellow' fire danger index (FDI), a fire danger ranking, which denotes that an open flame will start fires and mature grasslands and forest litter will burn readily.

"If you look at the fire risk map of South Africa the whole of the KZN is fire prone," reiterates Thomas.

The KZN's most active region by way of fires is the KZN midlands and southern KZN, an inland area that is also the largest region in the province. The preliminary fire statistics for the area shows an occurrence of 429 fires, with sixty-five of these incidents requiring air response, reports Thomas.

The inherent fire hazard in the KZN is exacerbated by excessive fuel load build-up, as well as the fire risk associated with numerous forestry and agriculture activities in the province.

The fuel type in these activities and the vast expanses of grassland are factors that contribute to the fire

risk that exist in the province. "We have hot, dry and windy days or Berg winds as they are referred to. This is mainly the case in late August into September and early October, before we get summer rains," explains Thomas.

To mitigate this fire risk, the region has a total of 24 registered FPAs in the province, which are all affiliated to the KZN umbrella fire protection association (UFPA).

Thomas says that the KZNFPFA was the very first recognised UFPA in terms of the National Veld and Forest Fires Act 101 of 1998. The KZNFPFA gained recognition as the official umbrella FPA for the province in 2006 and Thomas was appointed as the common fire protection officer (FPO) for the UFPA during this time as well.

The UFPA in the KZN consists of a compact management structure made up of the FPO, who is assisted

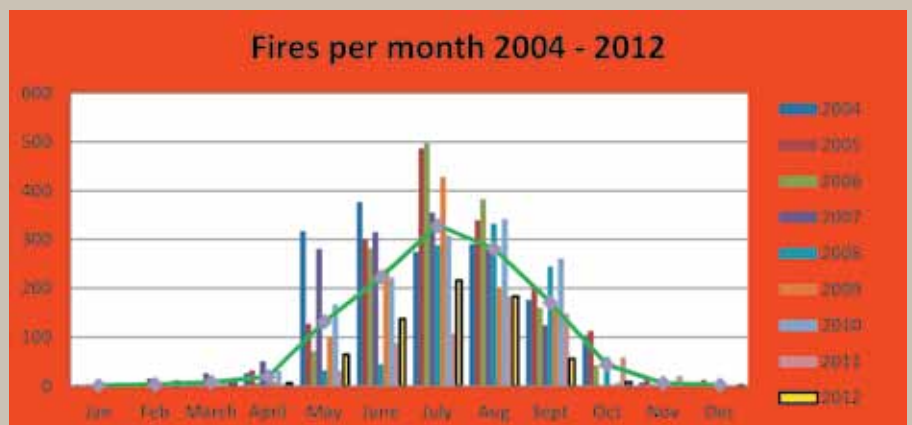


*Simon Thomas*

by dispatch officer, Maria Reynders and financial manager, Denise Bouwer at the KZNFPFA base, situated at the Shafton airstrip in Karkloof in the Midlands.

**Operations committee**

An operations committee (ops com) has been created to ensure that standard operating procedures (SOPs) are uniform throughout the province, reports Thomas. ▶



# Chaplaincy

## making a difference in Cape Town

**C**haplains Alert Western Cape (CAWC) is the official emergency services chaplaincy currently operational within the City of Cape Town, with its head office based at the Goodwood Fire Station, also the headquarters of the City of Cape Town Fire and Rescue Services (CTFRS).

CAWC began serving the City of Cape Town on 12 October 2012 and follows the formation of the

Emergency Services Chaplaincy of Southern Africa on 1 May 1996.

The Emergency Services Chaplaincy (Southern Africa) was officially formed to regulate, train, register and give direction to chaplains working with their local emergency services departments.

The Western Cape chaplaincy was set up as a separate entity by the Western Cape emergency services

department to serve the City of Cape Town.

CAWC chaplains are deployed and stationed at various fire stations throughout the Cape Metropolitan area and the goal is to eventually have at least one dedicated chaplain for each of the 30 fire stations within the Metro area. CAWC reports that the future goal of the organisation is to expand into the unserved surrounding municipalities of Overberg and Boland.

Currently, the chaplaincy functions operationally with the Western Cape provincial fire and rescue services, as well as the metropolitan police, traffic management, ambulance ►

► The ops com comprises all the FPA managers in the KZN and the committee has appointed integrated fire management (IFM) consultant for wildfires, Bobby Hoole, as its chairman.

KZN FPO Thomas has a seat on the operations committee, which is geared towards dealing with the operational issues for FPAs across the province. This differs from the provincial UFPAs function.

"The UFGA deals with matters on a provincial basis," states Thomas. He says that the main function of the umbrella FPA is to liaise with Government departments, both provincial and national level, while the FPAs engage with local municipalities.

Thomas says that the UFGA manages aviation resources in the province. There are four aviation bases in KZN and the base at the Shafton airstrip is the biggest of these.

The day-to-day management of the aircraft is done on local FPA level, but more strategic planning and negotiation is done at a UFGA level.

### Aviation resources

The UFGA manages 14 fixed wing bombers and seven spotter aircraft throughout the province. There are also two helicopters made available to the province, courtesy of Working on Fire (WoF) based in the province.

These aircraft are used for fire suppression and to mitigate the threat of wildfires, states Thomas.

"We apply initial attack. In some area's we have electronic detection systems in place, so if a camera picks up any smoke or fires the aircraft, is deployed immediately."

Thomas says that by taking this proactive approach, the UFGA can prevent the fire getting 'out of control'. He says that the cost of aerial fire fighting is high and the use of aircraft as an initial-attack mitigates the high aviation costs as a result.

Furthermore, an incident command system (ICS) has been adopted for the province. However, this has not been operational as yet. "A need has not arisen for this," says Thomas although it is used successfully at local FPA level.

The KZNFGA has drafted a mission statement for its aerial operations that reads: To safely apply aircraft as initial attack, to minimise losses resulting from veld and forest fires.

### Integrated fire management

Many of the KZN FPAs have dedicated WoF crews working in tandem with them. "They also move between FPAs if there is an incident in a specific region in that province," says Thomas.

In the event that an FPA requires additional assistance in a different region, WoF management would be contacted and ground fire fighting crews are moved between the FPAs.

WoF teams are not just involved in fire suppression activities. "They are also involved in fire awareness

programmes. Landowners can also request for assistance in burning firebreaks from the WoF teams," explains Thomas.

The FPAs also do periodic grass management burns across the province and the WoF crews assist in those activities, forming part of the UFPAs IFM strategy and approach across the province.

### Parastatal landowners

"One of the main objectives of the UFGA this year and in the future is to try and get parastatals and Government departments to join the FPAs so that veld management structures can be put in place," says Thomas.

He says that this would form part of the IFM approach, adding that all land owners need get on board and manage fires properly.

"This is our biggest challenge, to try and implement Act 101, which is very descriptive of what is required of a landowner. They must become more involved within the FPA structures within the province," urges Thomas.

To this end, the KZNFGA is currently liaising with State parastatals who are landowners and national Government departments, in order to get them more involved within the FPA structures in the province.

"This will ensure better management of fire risks in the province," concludes Thomas. ▲

► services, disaster management and other local government law enforcement agencies. Spiritual support is also provided to private emergency medical services (EMS) organisations such as Netcare 911 and ER24.

The leadership of the CAWC is headed up by chief chaplain, Reverend Linda Idas and the deputy chaplain, Alan Kelly. Rev Idas further lists the hierarchical directorship of the organisation, which consists of an honorary director in Pastor Ken Walbrugh and includes other administration members of staff who see to the management of the organisation.

Rev Idas says that the City of Cape Town is divided into three districts, namely North, West and East, which is overseen by district chaplains. "They are responsible for the chaplains within the respective districts," she says.

All of the chaplains serving under the CAWC have a background within various church denominations and are Christian volunteers. They are specially trained in crisis ministry, pastoral care and trauma counselling. Reverend Idas mentions that the CAWC has additional volunteer chaplains who are employed as fire and rescue and EMS personnel, however, the organisation primarily appoints chaplains from ecclesiastical backgrounds.

"Chaplains thus provide support on-scene with a ministry of presence, giving pastoral care and trauma support, death notifications or simply by lending an extra pair of hands. They also provide a lot of support in the post-traumatic situation, where debriefing is done in order to mitigate the effects of trauma and help emergency responders cope, deal with and work through any emotional stress," explains Rev Idas.

### Operations

Chaplains are deployed to incidents as and when requested. Rev Idas says that an on-scene platoon commander usually assesses the situation and makes the call.

Alternatively, emergency notifications are routinely relayed via control centres to the chief chaplain, who then deploys the nearest available

chaplain, who in turn, responds as required. "But, by and large, most of the chaplain's time is spent doing station and base visits, where time is spent with emergency services personnel, getting to know each other, building relationships and ministering pastorally," says Rev Idas.

She adds, "The goal of these visits is to foster and nurture relationships so that when a traumatic event occurs, emergency responders already know and are both familiar and comfortable with their chaplains.

The chaplaincy mainly provides support to personnel within the fire and rescue and EMS fraternity in the Western Cape, however chaplains do avail themselves in providing pastoral support and care to family members.

The CAWC also visits the hospitalised, providing marital counselling and guidance. Chaplains are also tasked with providing memorial services, death notifications, funeral services and assistance with personal problems, including addiction.

### Statistics

The chaplaincy attends emergency incidents providing additional support to first response teams and the organisation keeps track of all incidents and services provided by chaplains within its jurisdiction.

For the period August to September this year, the CAWC responded to a range of incidents in the City of Cape Town including 39 motor vehicle accidents, three drowning incidents, 17 pedestrian accidents, 29 fires, two attempted suicides, eight natural and unnatural deaths and 43 fire station visits.

Other support and counselling services provided by the chaplaincy during this time include seven incident debriefing exercises, as well as 20 cases of pastoral counselling, nine funeral services, two death notifications and three rail incidents.

Rev Idas says that the CAWC has a history of affiliation with other emergency services chaplaincies in the country. The CAWC has a professional relationship with national chaplaincy services that has taken the form of referrals and requests for



Reverend Linda Idas

assistance in support of EMS staff and family, which the CAWC has 'always acted upon should such a need arise', says Rev Idas.

### Challenges

Disaster Management of the City of Cape Town donated a vehicle to the CAWC this year, owing to the logistical challenge faced by the organisation in getting chaplains to a scene of an emergency incident.

Rev Idas says that transportation in the form of emergency response vehicles has been a great challenge to get chaplains to a scene as soon as possible. This vehicle will be used as a dedicated emergency response vehicle.

"This has truly been a blessing from above, but for the chaplaincy to be truly effective, more than one vehicle is needed," states Rev Idas.

As a non-profit organisation with a total of twenty-five active volunteers, the CAWC depends on continued support through external funding and donations. Rev Idas says, "Operational costs are great and we therefore are solely dependent on public funding and thus donations are most gratefully received." She adds, "We covet, above all, prayers for the chaplains in their labour of love." ▲



Iveco's Stralis Hi-Way truck displayed at JIMS

## Dazzling international motor show in Johannesburg

The Johannesburg International Motor Show (JIMS) was held at the Expo Centre in Nasrec, Johannesburg from 18 to 27 October and Fire and Rescue International attended the media launch on 17 September 2013.

The event was a world-class affair that featured the Johannesburg Truck and Bus Show as a separate component of the exhibition. The JIMS 2013 Truck and Bus exhibition showcased the latest innovations and technological advances in design and mechanics, featuring both light and heavy commercial vehicles and passenger vehicles.

The motor show featured new innovations in truck design from the likes of manufacturers, Scania, Mercedes-Benz and MAN Truck and Bus, amongst many others.

Scania, which showcased its new R620 Euro 4 tractor/trailer vehicle at JIMS, reported that it accumulated numerous sales from the show, which it did not expect. Scania sold

a huge quantity of trucks, as well as one of the first examples of its sophisticated new bus, known as the Scania Touring, on the first two days of JIMS 2013. The truck manufacturer also showed off its imported Scania R999 1 000 horsepower vehicle, which 'had people flocking to our stand', reports the company.

MAN Truck and Bus showcased its 'Built-for-Africa' range of trucks with both on and off-road derivatives and visitors to the manufacturer's stand were also able to view MAN Bus Rapid Transit (BRT) offering, which was built to deliver greater efficiencies to public transport in South Africa. The MAN flagship vehicles on display at JIMS included the TGS range of longhaul trucks and the CLA freight carrier range.

JIMS 2013 was a launching pad for new products from Iveco, which displayed its new Stralis Hi-Way and Trakker heavy duty trucks, as well as its Daily light commercial vehicle.

The Mercedes-Benz stand featured new versions of the manufacturer's

truck, bus and van models, as well as the Japanese Fuso and American Freightliner longhaul vehicles.

One of the main attractions was the newly launched Mercedes-Benz Sprinter, which featured a slight change in its design features and boasting brand new technological advancements. This includes the collision prevention assist feature that warns the driver of any impending collision, which is an optional extra feature. The Blind Spot Assist, is another first for the van segment and offered as an option feature in the Mercedes Sprinter. It helps the driver warning him of other vehicles in the so-called blind spot during lane changing.

JIMS 2013 also featured a range of product manufacturers including fire suppression company Dafo and ambulance conversion and truck customisation company, TFM, took up different segments of the 45 000-square metre indoor space, with the outdoor making up a 40 000 square metre area for exhibitions. ▶



Dafo fire products specialist, Daan Labuschagne



Ford South Africa sales team



Hino South Africa vice president, Casper Kruger and senior manager for marketing and demand planning, Leslie Long



Iveco South Africa sales manager, Iveco South Africa sales manager for Southern Africa, Kevin Pretorius



The eRanger ambulance sales manager, Riaan Swanepoel



MAN TGS stand models



Takla Products' national key accounts and fleet sales representative, Ross Hayes



TFM commercial director, Tertius Robberts



Kirsten Francis, at VW and MAN TGS Trucks to Go! stand



The futuristic Unimog concept vehicle showcased at JIMS 2013



The Freightliner truck on display at the Mercedes Benz stand



TATA Motors' international sales and marketing team

# Testing multiple ignitions on a field scale

By Dr Winston Trollope, Working on Fire International

**Testing multiple ignitions on a field scale to develop high intensity fires under mild weather conditions (low fire danger indices) for the control and/or eradication of invasive indigenous and alien plant species**

**B**ush encroachment in natural grasslands and savannahs has become a major problem for livestock farmers and wildlife managers in South Africa, resulting in degraded rangelands with reduced carrying capacities and concomitant economic losses.

*Dicrostachys cinerea* (Sickle Bush) is one of the main encroaching plant species, particularly in savannah areas. There are multiple reasons for bush encroachment that include incorrect grazing and browsing management, a lack of or inappropriate fire management and recently it is also believed to be exacerbated by elevated levels of CO<sub>2</sub> associated with global climate change (Buitenwerf et al, 2011). This encroachment of indigenous tree and shrub species is impacting on both commercial and small scale farmers and wildlife areas alike.

In addition, alien invasive shrub species such as *Chromolaena* (*Chromolaena odorata*), *Lantana* (*Lantana camara*) and *Parthenium hysterophorus* are invading extensive coastal forest and thornveld areas. Chemical and mechanical means of controlling invasive bush and alien species is very costly and labour intensive involving the investment of large amounts of capital on herbicides and/or mechanical treatments. Generally, this is a very expensive option as economic returns from increased carrying capacities generally do not meet or exceed the initial capital outlay. Fire is an alternative and more economically feasible method of reducing or controlling bush encroachment and alien invasive species but requires extreme weather conditions for the application of prescribed burns to have a significant effect in reducing the extent and degree of the encroachment.

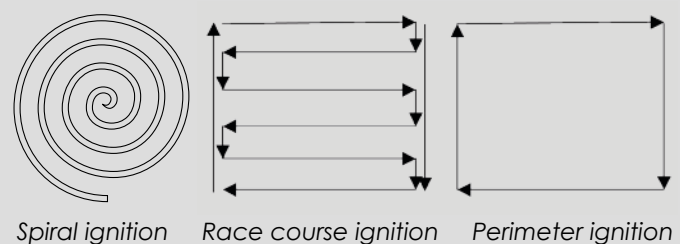
Generally, fire will significantly reduce the structure of most plant species diminishing their height and size. This effect can be exploited through the introduction of domestic and wild ungulate browsing species to control the coppice growth of indigenous plant species. However, in the case of alien shrub species like *Chromolaena odorata* and *Lantana camara*, it is normally necessary to follow up with herbicide applications to control the regrowth. Nevertheless, using prescribed burning results in substantially less herbicide being required to spray the regrowth resulting in economic and ecological benefits to land owners and the environment respectively.

When burning to combat the encroachment of both indigenous and alien invasive plant species, high-intensity fires (>2000kJ/s/m) are necessary (Trollope, 2007) and necessitate burning under extreme weather conditions with grass fuel loads >4 000kg/ha that are fully cured ie amount of dry grass is >80%. The required weather

conditions are air temperatures >30oC, relative humidity's (RH) <20% and wind speeds between 10 and 15km/h. These guidelines translate into Fire Danger Indices (FDIs) of 60 to 70, ie orange conditions, which are dangerous and have a high fire risk requiring exceptionally well-trained manpower and adequate fire suppression equipment available. These weather conditions also result in the increased possibility of wildfires developing. As a possible alternative to this problem Chris de Bruno Austin, CEO of Working on Fire International, suggested after trials involving high intensity fires in the Kruger National Park during 2010, that more intense fires for controlling bush encroachment may be achieved under less extreme weather conditions by using multiple ignitions when applying prescribed burns. This would result in high-intensity fires being safely achieved under lower FDIs (50 to 55) as the potential for spotting would be considerably reduced and normal width firebreaks (50m) would be adequate for controlling the spread of the resultant high intensity fires.

To test this hypothesis that high-intensity fires can be achieved using multiple ignitions applied under mild weather conditions, the first phase of the multiple ignition trial was conducted at the Gustav Klingbiel Nature Reserve at Lydenburg, South Africa, from 18 to 30 June 2012. The trial was conducted on 200m by 200m plots in open grassland where multiple ignition capsules were dropped from a Bell 206 helicopter on trial plots using different ignition patterns.

The initial visual assessment of the resultant fires by both members of the research team and the participating Working on Fire project managers was that multiple ignitions do increase the intensity of a fire in comparison to normal perimeter ignitions. Data from infra-red cameras is currently being analysed to substantiate the visual assessment of the results of the trial. Two multiple ignition patterns were tested viz. Spiral and race course ignition patterns versus perimeter ignitions. ▶



**Figure 1:** Spiral, race course and perimeter ignition patterns used in the multiple ignition trial conducted at the Gustav Klingbiel Nature Reserve at Lydenburg

► The spiral ignitions were spectacular and the resultant chimney effect resulted in the spiral ignition lines being drawn into the centre of the plot causing increased rates of spread, flame heights and resultant higher fire intensities. The racecourse ignition pattern was also observed to enhance the intensity of the fire, but only after the open sides of the burn plots were closed off with ignition lines also resulting in a chimney effect and causing the parallel ignition lines to converge with one another resulting in increased rates of spread, flame heights and fire intensities. The different types of fire behaviour resulting from the spiral, racecourse and perimeter ignitions are illustrated in Figure 2.

It is therefore proposed that this procedure be used on multiple ignition test burn sites in the Mun-Ya-Wana Private Game Reserve in Zululand, the Barberton Nature Reserve near Nelspruit and the six wooded experimental burn sites in the Gustav Klingbiel Nature Reserve at Lydenburg. The hypothesis to be tested will be that multiple ignitions applied as spiral and race course generate more intense fires under mild weather conditions than perimeter ignitions as reflected by a greater reduction in the phytomass of tree and shrub vegetation expressed in tree equivalents per hectare. Permission has been obtained to conduct cooperative trials in these areas using the spiral and race course ignition patterns and



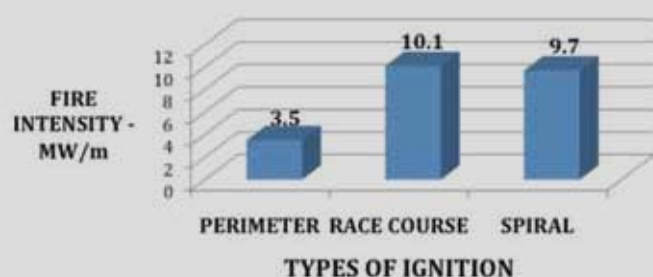
**Figure 2:** The different types of ignition patterns and resultant fire behaviour.

On reflection and arising from the initial multiple ignition trial at Lydenburg, another method that can be used to determine whether multiple ignitions result in increased fire intensities in comparison to perimeter ignitions is to burn areas under similar weather conditions and then record the effect of the fires on the trees and shrubs in terms of the reduction in live woody phytomass expressed in tree equivalents per hectare (TE/ha).

This procedure has been effectively demonstrated in a trial conducted at the Mun-Ya-Wana Private Game Reserve in KwaZulu-Natal using perimeter ignitions. Prior to burning the phytomass of trees and shrubs in an area that was being burnt to control bush encroachment was estimated using the Adapted Point Centre Quarter Method developed by the Working on Fire research and development section at Nelspruit (Trollope et al, 2012). The area was then resurveyed after the application of a high intensity fire to determine the reduction in phytomass of trees resulting from the topkill of stems and branches. The surveys showed that the phytomass of trees and shrubs prior to the fire was 1 915TE/ha and this had been reduced by the high intensity perimeter burn to 96TE/ha ie a 95% reduction in the phytomass of the trees and shrubs. This reduction in phytomass in the trial in the Mun-Ya-Wana Game Reserve is illustrated in Figure 3.

comparing them with perimeter ignitions to control the encroachment of indigenous tree and shrub species with particular reference to *Dichrostachys cinerea* (sickle bush) and the alien plant species *Chromolaena odorata* and *Lantana camara*.

Preliminary results from the first replicate of the multiple ignition trial conducted at the Gustav Klingbiel Nature Reserve at Lydenburg during 2012 clearly demonstrated that multiple ignitions generated more intense fires than perimeter ignitions – see Figure 4. ►



**Figure 4:** Mean fire intensity generated by perimeter, race course and spiral ignitions recorded on the Gustav Klingbiel Nature Reserve at Lydenburg, Mpumalanga Province (John Dold, University Manchester, 2012) – Fire intensity expressed in megawatts per metre.



**Figure 3:** Before and after photographs of the burnt area on the Harrowgate section of the Mun-Ya-Wana Game Reserve illustrating the 95% reduction in phytomass of bush expressed in TE/ha (1915 TE/ha reduced to 96 TE/ha) caused by the high intensity fire (4 204 kJ/s/m) applied on 23 July 2010

# 2013

## December

### 5 December 2013

#### Learning from Hurricane Sandy: FEMA's After-Action Report

**Venue:** 899 Tenth avenue, New York, USA  
**Contact:** Ankit Malik Tel: 646 557 4430  
 email malik@jjay.cuny.edu

### 5 – 7 December 2013

#### Fire and Disaster Asia 2013 Indonesia

Held concurrently with Safety and Security (SSA) Indonesia, FDA Indonesia is the premier exposition encompassing safety and security; disaster management and fire prevention measures. This event serves as a key platform for leading fire and safety industry professionals to source for new products and suppliers; to hear from experts on the industry's frontline and to foster new business ties with fellow industry friends

**Venue:** Jakarta Convention Centre (JCC)  
 Jakarta, Indonesia

For more information visit:  
[www.firedisasterindo.com](http://www.firedisasterindo.com)

### 6 – 7 December 2013

#### Company Officers Leadership Training (COLT)

**Venue:** Rye Brook, New York, USA  
 For more details visit: [www.nysfirechiefs.com](http://www.nysfirechiefs.com)

### 9 – 13 December 2013

#### Rural Metro Emergency Management Services Level III First Aid Course

This comprehensive course covers everything from describing first aid equipment and explaining their basic application to intervening in minor medical emergencies and carrying out CPR

**Venue:** Greytown Training Academy  
**Contact:** Germaine Gilbert  
 Tel: 033 345 0080  
 email: GermaineG@ruralmetrosa.com

For more information visit:  
[www.ruralmetrosa.com](http://www.ruralmetrosa.com)

### 9 – 13 December 2013

#### Rural Metro Emergency Management Services Fire Instructor I Course

This comprehensive course, the Fire Instructor I program consists of 13 Sections of which five weeks require self-study and thereafter it consists of theory and practical simulations, exercises and case studies

**Venue:** Greytown Training Academy  
**Contact:** Germaine Gilbert  
 Tel: 033 345 0080  
 email: GermaineG@ruralmetrosa.com

For more information visit:  
[www.ruralmetrosa.com](http://www.ruralmetrosa.com)

### 10 – 11 December 2013

#### Aircraft Rescue and Fire Fighting

A major new event for the international ARFF industry by IAFFA

This fully endorsed and focussed IAFFA event has been specifically developed to discuss the many risks as well as to prepare Aircraft Fire Fighting personnel to reach the highest standards of Emergency Preparedness.

**Venue:** The Oberoi Hotel, Dubai  
 For more information visit: <http://tangentialink.com/event/aircraft-rescue-fire-fighting/>

### 10 – 12 December 2013

#### Veld Fire Management – Suppression 1: The Initial Attack Fire Boss Course

Forestry Solutions and Nelson Mandela Metropolitan University will be presenting an accredited Initial Attack Fire Boss Course for natural resource managers, fire managers, farmers, disaster managers and their contractors. Fire management and control has become increasingly important to protect valuable infrastructure, ecological systems and human life.

**Venue:** Cape Pine's Concordia training centre, Knysna, South Africa  
**Contact:** RONALDA McEwan 083 267 1317 or  
 email ronaldam@forestrysolutions.net

# 2014

## January

### 19 – 21 January 2014

#### Intersec 2014

All the technology and know-how about security, safety and protection in one place! Renowned as the region's largest and most comprehensive trade and networking exhibition for the Security and Safety industries, Intersec 2014 offers you a unique spectrum of products from the fields of Commercial Security, Information Security, Fire & Rescue, Safety & Health, Homeland Security and Policing.

For more information visit: <http://www.fireproductsearch.com/events/intersec-2014/>

## February

### 4 – 8 February 2014

#### EMS Today – The JEMS Conference and Exposition

EMS Today is the event that provides manufacturers and suppliers of emergency medical products and services the opportunity to meet and conduct business with a diverse audience of EMS professionals.

**Venue:** Walter E. Washington Convention Centre, Washington DC USA

For more information visit:  
[www.emstoday.com/index.html](http://www.emstoday.com/index.html)

### 7 – 8 February 2014

#### Company Officers Leadership Training (COLT)

**Venue:** Albany, New York, USA  
 For more details visit: [www.nysfirechiefs.com](http://www.nysfirechiefs.com)

### 15 – 20 February 2014

#### Southwest Fire Rescue - in cooperation with the Texas Association of Fire Educators

More than 100 companies exhibit each year at the conference. They represent a wide array of fire service products and services. The Southwest Fire Rescue exhibit hall is a one-stop-shop for fire officials

**Venue:** Embassy Suites Hotel in San Marcos, Texas, USA

For more information visit:  
<http://info.southwestfirerescue.org/>

### 24 – 28 February 2014

#### SICUR 2014, International Security Safety and Fire Exhibition

SICUR brings together the entire safety and security industry, making up a comprehensive showcase of new developments relating to protection and prevention in the widest sense of these terms.

**Venue:** Madrid Exhibition Centre, Madrid, Spain

For more information visit:  
[http://www.ifema.es/ferias/sicur/default\\_i.html](http://www.ifema.es/ferias/sicur/default_i.html)

## March

### 4 – 6 March 2014

#### KIPS

KIPS brings together the leading companies in the sectors of security, fire and technological safety, individual and public security, construction, and protection of public and private infrastructure.

KIPS will be held alongside KyivBuild the leading exhibition in Building for more than 17 years, showcasing all the developments and achievements in the industry.

**Venue:** International Exhibition Centre, Kyiv, Ukraine

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## Testing multiple ignitions on a field scale

▶ The results in Figure 4 clearly demonstrate the more intense fires generated by multiple ignitions (spiral and race course) compared to perimeter ignitions. These results are currently being investigated in field trials conducted during July/ August 2013 in the Gustav Klingbiel Nature Reserve and the Barberton Nature Reserve in Mpumalanga and the Mun Ya Wana and Zulu Nyala Private Game Reserves in KwaZulu-Natal.

In this case, the effects of the fire intensities generated by the different ignition patterns is being recorded in terms of the reduction in phytomass of the tree/shrub vegetation expressed in TE/ha as described and illustrated in Figure 4.

Interestingly, the preliminary results of the trial in terms of the response of the tree and shrub vegetation recorded in KwaZulu-Natal also clearly showed that the multiple ignitions generated more intense fires than the perimeter ignitions with the spiral ignitions resulting in the most intense fires.

These are very promising results considering the very serious encroachment of *Chromolaena odorata*, *Lantana camara* and *Dichrostachys cinerea* in the wildlife areas of this region and the major objective of Working On Fire in this trial is now to operationalise these results so that they can be used at a field scale in controlling these encroaching species.



**Contact:** Agnius Kazlauskas,  
Tel: 044 (0) 207 596 5079,  
Email: agnius.kazlauskas@ite-exhibitions.com  
For more information visit: <http://www.securityshows.com/pages/KIPS-FSS-FPS.html>

#### 12 March 2014

##### SAESI Workshop

Regulation and regulatory framework in the built environment as it relates to Fire Safety Architects, engineers, fire risk managers, designers, smoke control officers and contractors, this workshop is a must for anyone who is involved in fire design and installation.  
**Venue:** CTICC, Cape Town, South Africa  
**Contact:** Mari Tel:011 579 4940 fax: 011 450 1920 email: mari@interactmedia.co.za

#### 12 – 14 March 2014

##### AIPS – 4<sup>th</sup> Alamy International Protection, Security, Rescue and Fire Safety Exhibition

AIPS is a leading security and protection event in Kazakhstan for international companies seeking to expand their business into the Kazakhstan security market. The event covers a wide range of sectors

**Venue:** Atakent International Exhibition Centre, Almaty, Kazakhstan

**Contact:** Agnius Kazlauskas,  
Tel: 044 (0) 207 596 5079,  
Email: agnius.kazlauskas@ite-exhibitions.com  
For more information visit: [www.aips.kz](http://www.aips.kz)

#### 17 – 19 March 2014

##### Wildland Urban Interface (WUI) Conference

Held in the spring, WUI brings together leaders from the local, state and federal levels to collaborate against the fastest growing fire threat in the world, the wildland/urban interface. From education and mitigation, suppression strategies, high-hazard operations to policy, WUI addresses the toughest challenges facing the wildland fire fighting community

**Venue:** Peppermill Resort, Reno, Nevada, USA  
For more information visit: [www.iafc.org/wui](http://www.iafc.org/wui)

## April

#### 2 April 2014

##### FIM Expo – Fire Industry Manufacturers

Organised by the Fire Industry Association (FIA), FIM Expo features many of the UK's leading fire detection and alarm manufacturers and focuses on showcasing the latest products and developments in this sector of the industry.

**Venue:** Warwick Racecourse, Warwick, UK  
For more information visit: <http://www.fia.uk.com/en/Events/Details/index.cfm/FIM%20Expo%20Warwick>

#### 7 – 12 April 2014

##### FDIC

FDIC has proven year after year that it is the premier conference and exhibition for the fire industry. With the largest gathering of decision-makers, trainers and experts – as well as manufacturers and suppliers, FDIC serves as a spearhead for networking, relationship development and future revenue growth.

**Venue:** Indiana Convention Centre and Lucas Oil Stadium, Indianapolis, USA  
For more information visit: <http://www.fdic.com/index.html>

#### 14 – 17 April 2014

##### MIPS – 20<sup>th</sup> Moscow International Protection, Security and Fire Safety Exhibition

Over the past 19 years, MIPS have become the largest and most recognised security and protection exhibition in Eastern Europe and Central Asia. It has become the traditional meeting place for local and international

sellers, solution providers, installers and buyers to converge and discuss the latest developments in security solutions.

**Venue:** VVC Exhibition Centre, Moscow, Russia

**Contact:** Ilya Sobolev, Tel: 044 (0) 207 596 5170,  
Email: ilya.sobolev@ite-exhibitions.com  
For more information visit: [www.mips.ru](http://www.mips.ru)

#### 23 – 26 April 2014

##### International Fire Service Accreditation Congress (IFSAC) 2014 Annual Conference

**Venue:** Portland, Oregon, USA  
For more information visit: [www.ifsac.org](http://www.ifsac.org)

#### 29 April – 3 May

##### Fire-Rescue Med (FRM)

Each spring, Fire-Rescue Med is the conference for fire-based EMS leaders, including new and aspiring chiefs, providing education and training on hiring and retaining EMTs, public and private integration challenges, embracing technology, billing for services, illness prevention programs and more

**Venue:** Las Vegas, Nevada, USA  
For more information visit: [www.iafc.org/frm](http://www.iafc.org/frm)

#### 28 – 30 April 2014

##### Fire and Disaster Asia

Fire & Disaster Asia 2014 emphasises the importance of implementing disaster prevention measures and presents an extensive showcase of the most innovative range of specialised rescue and disaster management products and services designed to protect life and property.

**Venue:** Marina Bay Sands Convention Centre, Singapore

For More Information visit: <http://www.firedisasterasia.com.sg>

## May

#### 13 – 15 May 2014

##### IFSEC South Africa 2014

**Venue:** Gallagher Convention Centre, Midrand, Johannesburg, South Africa  
For more information visit: [www.ifsecsa.com](http://www.ifsecsa.com)

## June

#### 9 – 12 June 2014

##### NFPA Conference and Expo

The premier event in fire and life safety  
**Venue:** Mandalay Bay Convention Centre, Las Vegas, USA

For more information visit: [www.nfpa.org/conference](http://www.nfpa.org/conference)

#### 15 – 18 June 2014

##### The World Conference on Disaster Management

There is no other conference quite like the WCDM. We provide a unique venue for Disaster Management professionals from around the world to present, network and learn.

**Venue:** Metro Toronto Convention Centre, Toronto, Canada

For more information visit: [www.wcdm.org/](http://www.wcdm.org/)

#### 17 – 19 June 2014

##### FIREX International- Fire prevention, detection and protection

The leading event for every professional involved in fire protection, prevention and detection, offering a comprehensive selection of the latest thought-leadership alongside the best networking in the industry.

**Venue:** Excel London, UK  
For more information visit: [www.firex.co.uk](http://www.firex.co.uk)

#### 26 – 28 June 2014

##### Security and Fire Vietnam 2014

Security & Fire Vietnam 2014 is incorporated and concurrently held under the "VICB 2014" – "Vietnam International Construction & Building Exhibition 2014" that security & fire systems and products are commonly used in construction & building, and home decorative industries.

**Venue:** Saigon Exhibition and Convention Centre (SECC), Ho Chi Minh City, Vietnam

**Contact:** Mr. Dennis Lam or Ms. Melody Lam at  
Tel: 0852 28518603,  
Fax: 0852 28518637,  
E-mail: [topreput@top-repute.com](mailto:topreput@top-repute.com)

For more information visit: [www.construction-vietnam.com](http://www.construction-vietnam.com)

## August

#### 13 – 16 August 2014

##### IAFC Annual Conference and Expo- FRI 2014

Celebrate 140 years of leadership, education and dedication to the fire and emergency service at the IAFC's Annual Conference and Expo. FRI brings top leaders from around the country together.

**Venue:** Kay Bailey Hutchinson Convention Centre, Dallas, Texas, USA

For more information visit: <http://www.iafc.org/micrositeFRIconf/>

## September

#### 2 – 4 September 2014

##### SIPS – 6<sup>th</sup> South Russian International Protection and Security Exhibition

SIPS South Russia, the international specialised exhibition for protection, security and fire safety in southern Russia, makes a significant contribution to the development of Russian businesses in the security industry, and guides them to manufacturing competitive products which meet international quality standards.

**Venue:** Kuban Expocentre, Krasnodar, Russia  
**Contact:** Agnius Kazlauskas,  
Tel: 044 (0) 207 596 5079,

Email: [agnius.kazlauskas@ite-exhibitions.com](mailto:agnius.kazlauskas@ite-exhibitions.com)  
For more information visit: [www.sips-expo.ru](http://www.sips-expo.ru)

#### 18 – 21 September 2014

##### ISAF 18<sup>th</sup> Exhibition

ISAF Exhibition 18<sup>th</sup> edition will be held on September 18 – 21 and will cover the following 5 exhibitions in 2014:

ISAF Security, ISAF Fire, ISAF Safety and Health, ISAF IT Security, ISAF Smart Houses

**Venue:** Istanbul Expo Centre, Istanbul  
For more information visit:

<http://www.isaffuari.com/?lang=1>

#### 24 – 26 September 2014

##### SIPS – 23<sup>rd</sup> Siberian International Fire Fighting, Emergency and Rescue Exhibition

The International SIPS Siberia Exhibition is one of the oldest and most recognised security events in the Siberian region of Russia. The exhibition provides an ideal platform for international and domestic security companies seeking to expand within Russia, and reach the new end-users, distributors and buyers of security equipment; video surveillance and access control systems; fire-fighting equipment; and data security processes.

**Venue:** International Exhibition Centre Siberian Fair, Novosibirsk, Russia

**Contact:** Agnius Kazlauskas,  
Tel: 044 (0) 207 596 5079

Email: [agnius.kazlauskas@ite-exhibitions.com](mailto:agnius.kazlauskas@ite-exhibitions.com)  
For more information visit: [www.sips-siberia.ru](http://www.sips-siberia.ru)

## *Those who first respond*

Many evils untold  
Where dangers do dwell  
May you be guided each day  
by your brothers who fell

May their wings shield your person  
Guiding light on your path  
Standing eyeball to eyeball  
Uncertainty's wrath

May their clear sight be yours  
Steady breath, yours as well  
Holding steadfast your hand  
when you're walking through hell

May you return safely  
to your family each time  
While your brothers eternal  
are walking the line

**Author: Ismael Rosa, II**



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# UB20 M.E.D.™ Manhole Entry Device

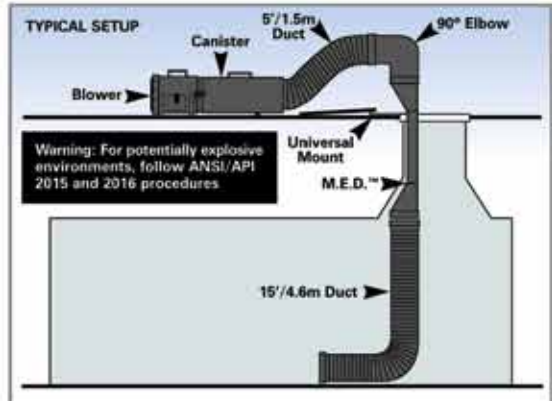
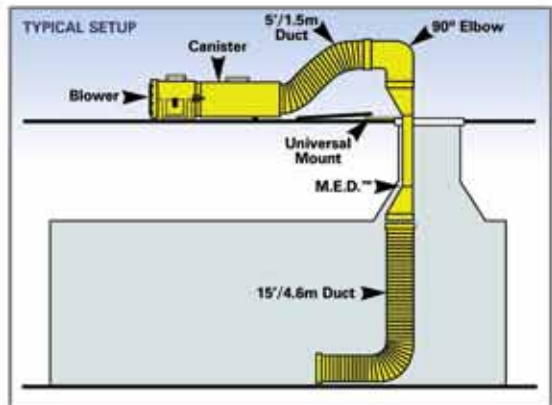


*System Includes (or may be individually ordered):  
8"/20cm Blower/Exhauster, Quick-Couple™ Canister  
with 15'/4.6m and 5'/1.5m of duct, Manhole Entry  
Device, 90° Elbow, Universal Mount, 8"/20cm duct  
adapter for additional duct connections.*



- Ventilate without blocking entry
- Maintain airflow while working
- UB-line compatible
- High impact polyethylene housing

**This system is also available for potentially  
explosive and extreme hazardous environments**



Jimmy Croucamp  
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