FIRE AND RESCUE INTERNATIONAL

Integrated fire, rescue, EMS and disaster management technology

Volume 1 No 10

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FIRE AND RESCUE INTERNATIONAL

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Comment

Lee Raath-Brownie

We are proud to present the tenth edition of **Fire and Rescue International (FRI)**. The magazine has evolved into a useful tool for readers and an interesting read. We trust that you enjoy reading the magazine and find it informative.

Cover profile

Our cover profile this month features Rosenbauer, a world-leading supplier of fire fighting and disaster management vehicles and equipment. For over 145 years, the name Rosenbauer has signified noteworthy inventions and pioneering techniques in the production of fire fighting vehicles and extinguishing equipment.

FRI Images photographic competition

We announce our eight winner of the FRI Images competition this month. The winning photograph was submitted by a reader based in Nelspruit, who won R2 000 cash! See page 3 for details. **CONGRATULATIONS!**

You too could be a winner. Just email us your high-resolution photographs and stand a chance of winning R 2 000 cash!

News section

Our news section this month features dire circumstances in India, the Centrum® Guardian 2012 award winners, a hi-tech disaster response plan in the Philippines, a major refinery fire, new EMS stations in the Western Cape, new fire fighting vehicles for Kalagadi Manganese and Rescue SA's recent training. Other events highlighted include wildfires in South Africa and Idaho.

Wildfire investigations

Rob Erasmus of Enviro Wildfire Services wrote an interesting article on the growing for wildfire investigations. He explains the investigative procedures and post-fire events in detail.

Ventilation

Colin Deiner, writer of FRI's technical feature, discusses the intricacies of ventilation and the importance of a carefully considered and practiced tactical plan. Deiner also highlights the dangers of haphazard strategy. He details the various methods of ventilation, the use of equipment and responsibilities.

Old age homes and hospitals

Lenny Naidoo looks at safe and methodical evacuation plans for old age homes and hospitals and discusses some of the pitfalls of these buildings.

Rabies

An in-depth article by Bernadine Altenroxel features this fatal disease and details its symptoms and treatment.

Fire and Rescue International is your magazine. We invite you to share your views, experiences, ideas and suggestions with fellow readers and welcome your feedback, comments, submissions, emails and photographs!

Lee Raath-Brownie
Publisher

This month's FRI images winner!

Calling all budding photographers!

We want your photographs!

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:

>>ENTER NOW!

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.**

Congratulations to

Photographer
Martin Bolton, Working on Fire

Name of photograph
The heat is on

Photo description:
We were working at Acasia, City of Cape Town during December 2011, performing a controlled burn together with Eskom. I took photos to see the effect that different vegetation heights have on the flame size as well as the effect the heat has on the power lines.

Camera: Kodak 10 megapixel (just a mik en druk)

Martin Bolton wins this month's prize money of R 2 000!

Well done!

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ARFF vehicles
As a result of its long-term experience, Rosenbauer is the competent partner for airport fire services, supplying innovative and technically

mature vehicles and extinguishing components of the highest quality. Production takes place using the latest technologies, in order to secure top quality for individual customer orders. All the vehicles manufactured meet the stipulations of the ICAO and NFPA standards.

Special vehicles
Every single vehicle adds up to more than the sum of its parts. Rosenbauer develops individual systems solutions

in conjunction with its customers and integrates every special requirement with regard to fire pump technology, foam proportioning systems, control

Integrated solutions

Traditional innovative strengths and target-oriented idea and development management form the basis for Rosenbauer's technological leadership. Fire service equipment must function reliably over many years and therefore all of Rosenbauer's manufacturing plants operate with industrially standardized production methods and clearly defined quality standards. Computer simulations, high-precision 3D design integrated throughout production and total functional control are all standard features at the Group's companies. All of Rosenbauer's manufacturing facilities in Austria and Germany are ISO 9001 (quality) and ISO 14001 (environment) certified. In addition, the Austrian production facilities also have OHSAS 18001 (industrial safety) certification.

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and superstructure technology, to create a complete system, which can always be relied upon in emergency situations.

Aerials
Metz is the Rosenbauer Group's aerials competence center. Indeed, as a result of ongoing further development work and aerial platform and turntable ladder optimization, which are apparent in a range of equipment variations and working heights of 20-62m, Metz has become the world's leading aerials specialist.

Extinguishing systems
In order to provide top extinguishing performance, Rosenbauer has developed a vast selection of highly efficient extinguishing systems that can be integrated into any vehicle in optimum performance. The company designs and manufactures all its own technical components, which are then installed in individual superstructures. This capability provides customers with a fully integrated system solution that ensures optimum functionality.

Equipment
Rosenbauer is a solid partner for personal protection and technical equipment, as well as special equipment needed in the case of accidents involving hazardous substances and environmental disasters. Top quality and materials tested for the toughest operations ensure that the Rosenbauer name is the standard for product quality and durability.

Global Service

Rosenbauer provides a 24/7 service and undertakes maintenance contracts for smooth operations and refurbishment concepts via strategic service bases and a lobal customer service network. This network ensures the secure function of every vehicle and item of equipment and hence the safety of all those involved in fire and rescue operations.

rosenbauer

India's emergency medical care system in tatters

Bharat Singh saw headlights zooming toward his motorbike and swerved. For a split second, he thought he had dodged the truck. Then his passenger screamed.

Singh saw the bloody flesh hanging loose from his brother's knee and hit full throttle. It would take five hours for his brother to get the care he needed, in a journey that highlighted the deadly gaps in India's emergency care system.

Singh didn't bother calling the emergency helpline on the unlit Uttar Pradesh highway because he knew help would probably come late, and that it would probably be a police officer rather than a medical professional who responded.

His brother would end up needing an ambulance anyway, because doctors at the nearest hospital, a half-hour away in Bulandshahr, said he needed surgery that was too complex for them to perform. He had to make the three-hour trip to New Delhi in a small van with a stretcher, an empty oxygen tank, worn-out shock absorbers that magnified each bump — and no medic.

Trauma care barely exists across much of India, where 160 000 people die in road accidents every year. Some of those people would surely survive if the system were better.

Ambulances have no medical equipment, and very few doctors are trained in emergency care, said Piyush Tewari, whose non-profit helps trauma victims get medical attention within the first 60 minutes after an emergency, when medical intervention has the best chance of saving a victim's life. A 2006 report in the Indian Journal of Surgery found that more than 80 percent of Indians don't get care within that "golden hour."

This delay hasn't really improved in the last six years, said Dr. Mahesh Joshi, head of emergency medicine at Apollo, India's largest network of private hospitals. "Even in big cities like Mumbai, it is virtually impossible for a heart or trauma patient to reach any doctor within the first hour," he said.

Some private emergency response networks are quicker, but they bring in less than seven percent of the 4 000-odd patients that reach Apollo's emergency rooms across the country every day, Joshi said.

People don't even know how to call for help. The emergency number could be 108 or 102 or 100, varying by state. A survey at Delhi's top trauma centre showed that 90 percent didn't know they could reach an ambulance at 102.

Local police do help accident victims reach hospitals, but their response times vary. In most cities, patrol cars don't have room for a stretcher, and victims can be injured during transport.

The police in Delhi are the quickest, said Tewari, and they bring in most of the cases that make it to the city's top trauma centre.

On one weeknight in July, the crew of patrol car Eagle Six had just unpacked dinner when the operator radioed about a motorcycle accident. Four minutes of siren blaring and tire screeching later, they were trying to resuscitate a badly bruised stranger in their patrol car. By the time they reached the hospital, their patient was disoriented but conscious. ▸

A church is flooded as Hurricane Isaac hits

Hurricane Isaac (2012)

It was a destructive Category 1 hurricane that hit Louisiana causing over 2 billion dollars in damages.

Hurricane Isaac was a slow-moving tropical cyclone that caused severe damage in the Caribbean and along the northern Gulf Coast of the United States recently. The ninth tropical, ninth named storm, and fourth hurricane of the 2012 Atlantic hurricane season, Isaac developed from a tropical wave located east of the Lesser Antilles on August 21, strengthening into a tropical storm later that day. Isaac passed over Hispaniola and Cuba as a strong tropical storm, killing at least 29 people in Hispaniola, before it entered the Gulf of Mexico.

Once Isaac went into the gulf, it was forecast to become a strong Category 2 hurricane. However, the land interaction with Hispaniola disrupted the system and prevented a solid core from developing until just before landfall. Isaac reached hurricane strength the morning of August 28. The storm made its first US landfall near the mouth of the Mississippi River. It made a second and final landfall at the next morning at Port Fourchon, Louisiana. Due to its large size, the hurricane produced a relatively large storm surge. There were at least nine fatalities confirmed in the United States: five in Louisiana and two each in Mississippi and Florida. Haiti reported a death toll of 24.

"Still, we could use better training," said Constable Ajeet Singh.

Police say they are a stopgap solution to a problem that needs specialists. "A mechanism needs to be developed involving paramedics," said Satyaveer Katara, one of the top officers in charge of the capital's police control room.

The only such mechanism in Delhi is the Centralised Accident and Trauma Service, which until recently, ran just 34 ambulances for a population of nearly 17 million. In August, they added 70 more, but that's still far from enough.

Many accident victims end up riding in what are essentially taxis masquerading as ambulances, said Dr Shakti Kumar Gupta, who is helping the government draft a national code to standardise ambulances.

Emergency workers too are not properly trained. Rahul, 24, who uses just one name, is a high school dropout and failed mechanic who managed to find work as an ambulance assistant. His job is to load patients on and off the ambulance, and if needed, set up their oxygen supply. Often, he is the closest thing to a paramedic patients get.

There were no emergency medical technicians in India less than a decade ago, and only about 10 000 have been trained since 2005 in the nation of 1,2 billion, said Subodh Satyawadi, chief executive of the Emergency Management and Research Institute (EMRI). By contrast, the United States has 240 000 for a population that is a fourth of India's.

EMRI is one of the largest contributors to India's emergency workforce, but the government doesn't recognise their courses or those of other such institutions. There is a Paramedical Council of India, but they train technicians in areas like dialysis and echocardiograms, not emergency care.

Dr. Angel Rajan Singh, a member of the government's workgroup on emergency medicine, said there is no standard to distinguish between trained paramedics and those off the street. He said a national emergency authority has been proposed.

Even emergency rooms suffer from a lack of specialised trauma training. Emergency medicine was recognised as a subject only in 2009, and the programs accredited by the Medical Council of India admit only 22 doctors every year. The first batch won't even graduate until 2014.

"The government's guidelines were, and still are, impractically stringent," said Apollo Hospitals' Dr Joshi. He said even non-accredited programs run by the private sector have trained less than 500 trauma physicians.

Most emergency rooms are overburdened, with three or four doctors and a couple of interns managing several dozen cases at a time, said Dr Arshad Anjum, a professor at Aligarh's university medical college.

At a packed emergency room in Delhi recently, patients with broken limbs, bleeding wounds, even burns kept piling up until they were forced to share beds, and when those ran out, stretchers.

Centrum® Guardians 2012

Torsten Henschel, leadership coach and volunteer rescue swimmer for the NSRI Wilderness Station 23, was voted as the winner of the Centrum® Guardian Project 2012.

On the 15th of January 2012, Henschel responded to a potential drowning of a young boy. Due to the fierce power of the rip current, several rescue attempts had failed and Henschel knew he only had one chance to reach the boy. His focus and stamina drove him to brave the water and save the 15-year-old's life. This is what led to him being nominated as one of the 16 semi-finalists in this year's project.

The public voted for Henschel via SMS, the Centrum® Guardian Project website, mobisite and Facebook page. Total prize money and the proceeds from SMS votes amounting to R65 741 will be handed over to Torsten's NRSI Wilderness Base Station. In addition, Torsten has decided to donate his personal prize money of R5 000 to the base station as well.
Henschel and the other 15 semi-finalists were all profiled on SABC 3 in a 13-week documentary drama series called Centrum® Guardians 2012, hosted by Ruda Landman, renowned television personality and journalist. Each semi-finalist's story was recreated and then shown in the series to demonstrate to the viewers how much bravery, tenacity, strength and agility is required by emergency services members to perform their daily jobs.

Ruda Landman

2013 nominations are now open.

The winner
Front: *Natasha MacDonald, Centrum brand manager; Pauli Armstrong from Enkosi; Torsten Henschel, winner of the Centrum Guardian Project 2012; Michelle Melvin-Henning from Pack 'n Stack and Sue Cartwright, Centrum marketing manager*
Back: *Hennie Niehaus, Station Commander for NSRI Wilderness and Andrew Ingram, NSRI marketing manager*

Brave – finalist prize handover
Natasha MacDonald, Centrum brand manager; Wayne Grindell from Emer-G-Med, finalist Wayne Broodryk, Advanced Life Support Paramedic; Andre Labuschagne, Sasol Secunda and Sue Cartwright, Centrum marketing manager
Emer-G-Med sponsored Grindell to do an International Life Support course and Sasol Secunda sponsored Grindell to do a one-day basic petrochemical fire fighting training course

Alert – finalist prize handover
Natasha MacDonald, Centrum brand manager; Hugo Minnaar, International Medical Services; finalist Jongikhaya Nombakuse, senior fire fighter and intermediate life support paramedic and Sue Cartwright, Centrum marketing manager

Initiative – finalist prize handover
Natasha MacDonald, Centrum brand manager; Shalen Ramduth, Netcare911 School of Emergency and Critical Care; Carey Glover, a 15-year-old scholar and volunteer lifeguard and Sue Cartwright, Centrum marketing manager.
The Netcare911 School of Emergency and Critical Care sponsored Glover to do a basic first aid level 1-3 course.

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Hi-tech disaster response plan for the Philippines

Project NOAH aims to provide updated weather forecast and integrated flood early warning system using web-friendly interface.

The Philippines is no stranger to disasters. Floods, earthquakes, volcanoes and typhoons frequently ravage the archipelago, making it one of the most disaster-prone countries in the world.

A new plan aptly dubbed Project NOAH – National Operational Assessment of Hazards – intends to give Filipinos a better chance of overcoming these tragedies by providing real-time access to weather information and updating maps, some of which date back to the 1960s.

Spearheaded by the Philippine Department of Science and Technology, the two billion pesos, or $48 million, project was recently launched. Automated rain gauges first were installed in river basis around the country, allowing scientists and other experts to track rainfall and river water levels in real time. This month, the project will roll out LIDAR, or Light Detection and Ranging, technology which allows for high-resolution, 3D mapping of the country's topography – something which scientists say will help the Philippines' better prepare for potential disasters. The entire country is expected to be digitally mapped within two years, according to scientists running the project.

"Using the best technology available is the only way to minimise casualties," said Mahar Lagmay, executive director of Project Noah and a scientist at the University of the Philippines in Manila. "We need to develop a culture of preparedness and safety.

He also added that the project would likely draw on newly-developed "super Wi-Fi" technology to get around some necessary infrastructural upgrades still lacking in the Philippines.

Just weeks after Project Noah was launched by the country's president Benigno Aquino III, the system was quickly tested when monsoon winds and rain dumped unusually heavy rainfall on critical cities in the Philippines, including Manila. The torrential rains caused the most severe floods seen since Tropical Storm Ketsana in 2009, which left the capital submerged for days.

Initial assessments of the August floods showed that better tracking and disaster response times helped to limit the death toll to just over 100 people, compared to over 700 during 2009's floods. A report from the United States Agency for International Development, or USAID, said local governments were "managing the situations well", and that that follow-up relief operation was put into action quickly. According to the United Nations office for the Coordination of Humanitarian Affairs, the population displaced by the floods reduced by 10% in a week – a far better record than during Typhoon Ketsana, whose impact lasted months though similar levels of rainfall were recorded, according to Project Noah's tracking maps.

Lagmay added that the improved maps could also serve another practical purpose – as a tool for urban planning and development, crucial for private sector investors that are starting to bet big on increased domestic spending in the country including in malls and on real estate. The project has some private sector partners though none of them has pledged funding as yet. Smart Communications has been working to set up free call stations at disaster evacuation centres with charging facilities and internet provisions and opens SMS channels to receive donations during crisis situations.

It is becoming increasingly important for Asian countries to adopt modern disaster relief strategies in the decades to come, experts say. According to a report from the Asian Development Bank, a projected 410 million urban Asians are at risk of coastal flooding in the next decade, with another 350 million at risk of inland flooding – similar to that experienced by Bangkok last year, and Manila this August.

Observers note that social media is an important component in Project Noah's success. Comscore ranks the country the world's biggest market for Facebook with more than 90% of its online population using the social networking tool, with an overall internet penetration rate of about 33% of its 100 million people. Representatives from Global Systems Mobile, the system on which many cellular phone networks function, are examining the Philippines to see how mobile phones can help bolster early warning networks elsewhere.

Twitter provided some of the fastest alerts about a 7,6 magnitude earthquake off the eastern coast of the Philippines last month. Analysts say social media will become even more useful as radio stations and other broadcast media increasingly rely on the Internet for information.

Korea's first home-built rescue and salvation ship launched

The Korean Navy unveiled its first domestically produced rescue and salvage ship at a shipyard in Geoje, Gyeongsangnam-do. The 3 500-ton ship, named Tongyeong, was launched for the first time.

The ATS-II ship was built to rescue ships in distress, tow away ships damaged from hostile attacks or mechanical failures, and provide aid in the clean-up of oil spills and maritime accidents, according to the Korean Navy.

In the past, the Navy has used two destroyers purchased from the American Navy in 1996 for KRW 30 billion as rescue and salvage ships. The two ships were built in Britain in the early 1970s and had been used by the American Navy before they were retired. However, they were so old that it took two days for them to come to the aid of the Cheonan warship, which was sunk by North Korea on 26 March 2010, killing 46 sailors.

The old rescue and salvation ships were not equipped with underwater detection equipment such as sonar and had to rely on the sonar of fishing boats. They also did not have decompression devices for divers who took part in searching the sunken ship, leading to the death of Han Ju-ho, a member of the Korean underwater demolition team (UDT), while trying to rescue the last few Cheonan sailors. In the wake of the attack, the state-run Defence Acquisition and Procurement Agency and Daewoo Shipbuilding and Maritime Engineering have jointly developed the new ship.

The Tongyeong is 107,5 metres long and 16,8 metres wide and can sail at a speed of up to 21 knots. It would take only one day for the ship to sail from the port city of Jinhae on the southern coast of the peninsula where it would be based, to Baeknyeong-do where the Cheonan sank.

It can also carry 570-ton high-speed guided missiles and tow up to 15 000-ton ships. The ship can also rotate by 360 degrees. The ship costs KRW 159 billion each to build.

The ship is also equipped with an underwater remotely operated vehicle (ROV) and side scan sonar, as well as a flight deck and support equipment for manned diving operations. The ROV can dive as deep as 3 000 metres for search operations.

The ship was named after the southern coastal town of Tongyeong. The rescue ship will be delivered to the Navy in the latter half of next year, after undergoing a series of tests, officials said. ▲

The Korean Navy unveiled the country's first locally built 3 500-ton rescue and salvation ship (ATS-II)

Two magnitude 5.6 quakes followed by over 60 aftershocks hits China

Thousands of buildings were devastated in the earthquake

A series of earthquakes collapsed houses and triggered landslides in a remote mountainous part of south-western China, killing at least 90. Damage was preventing rescuers from reaching some outlying areas, and communications were disrupted.

The quakes started with a 5.6-magnitude shock along the borders of Guizhou and Yunnan provinces, and another equally big quake struck shortly after, followed by more than 60 aftershocks, Chinese and US government seismologists said. The area is prone to earthquakes. In 2008, about 87 600 people were killed in the south-western province of Sichuan when a magnitude-7.8 earthquake hit. Many of the victims died in the rubble of homes and schools built without adequate steel reinforcement.

The earthquakes cut off electricity and triggered landslides, blocking roads

Earthquakes with an epicentre less than 70 kilometres below the surface are considered shallow and can cause significant damage, even at lower magnitudes.

Hardest hit was Yiliang County, said Yunnan province government agencies and state media. Another 150 people in the county were injured, said Zhang Junwei, a spokesperson for the provincial seismology bureau.

More than 800 people were injured when the tremors struck on the border of Yunnan and Guizhou provinces, toppling houses and sending panicked crowds onto the streets.

English-language Chinese newspaper, The Global Times, said the latest tremor again highlighted China's continued vulnerability to natural disasters, despite decades of rapidly improving wealth and living standards in much of the country. "A quake as strong as Friday's ... could have caused fewer or even no casualties in a more developed region," an editorial in the paper said. "People who have illusions about China's national strength, have to wake up to the fact that many people still live in houses with similar conditions."

The Global Times said that after the latest quake, authorities should emphasise safety in future developments. "To take the time and invest money in the prevention of natural disasters, which are unpredictable and are unlikely to ▶

People gather at a square after an earthquake struck Zhaotong town

occur, does not seem like a persuasive proposal to many in China," it concluded.

Widespread damage

Chinese premier Wen Jiabao visited earthquake victims in south-west China after the twin tremors left at least 89 people dead and hundreds more injured.

Wen, who is a popular figure in China and is often shown lending his support in disaster zones, made a speech at an emergency centre surrounded by rescuers, a day after twin magnitude-5.6 quakes struck the poorly developed region.

The earthquakes cut off electricity and triggered landslides, blocking roads. Li Fuchun, the head Luozehe Township, identified as the epicentre, reported "roads are blocked and rescuers have to climb mountains to reach hard-hit villagers."

Yunnan's civil affairs department said that 6 650 houses had been destroyed and 100 000 people evacuated. There were also fears of disease after thousands of cattle were killed when sheds caved in. Rocks as big as four metres across crashed into mountain roads, crushing houses and cars.

The central government has allocated 1,05 billion yuan ($160 million) to disaster relief, while the Ministry of Civil Affairs has sent 10 000 emergency tents in addition to the 11 000 tents provided by Yunnan's Department of Civil Affairs.

"We have resettled 175 000 people affected by the earthquakes," said Cheng Lianyuan, vice-mayor of Zhaotong. "We are handing out tents, quilts, clothes, water and rice to them, to ensure they have food, shelter and medical treatment."

More than 7 000 rescuers, including doctors, soldiers and officials, are working around the clock to help survivors, but their work is being hampered by falling rocks and congested roads. "For us, the job is not only about rescue work, but also to ensure the safety of our soldiers," said Li Xingshun, commander of an artillery battalion in the Chengdu Military Area. His battalion sent 135 soldiers to the scene and they have received orders to make 1 900 tents for villagers. They are among 4 100 soldiers sent from military forces stationed in neighbouring Sichuan province.

Roads were blocked and rescuers had to climb mountains to reach hard-hit villagers

Major fire at Venezuela refinery after deadly explosion

The explosion killed 41 people

A major fire broke out after an explosion at Venezuela's biggest oil refinery, Amuay, which raged for more than three days. The explosion killed 41 people.

The blast was the deadliest disaster ever at a Venezuelan refinery and has thrown open a national debate about safety and maintenance within the country's oil industry. The debate has also touched the presidential campaign, with President Hugo Chavez's rival calling for a transparent and thorough investigation. The refinery is among the world's largest and is part of the Paraguana Refining Centre, which also includes the adjacent Cardon refinery.

The fire took longer to extinguish than officials had initially hoped.

"Now of course come all of the subsequent tasks: evaluation, securing the entire area," Oil Minister Rafael Ramirez said after the fire was extinguished. He said fire fighters had to finish working in the area, spraying the tanks with foam to cool them down. "We need to check all the lines, all the connections, all the valves," Ramirez said. He added that the disaster hadn't affected the refinery complex's productive capacity, although operations were halted while the fires burned.

Fuel storage tanks on fire, a day after an explosion

Officials said the explosion killed at least 41 people, including at least 20 National Guard soldiers stationed next to the refinery, and injured more than 150. They said a gas leak led to the blast, but investigators have yet to determine the precise causes.

Investigators entered damaged areas to gather clues, Ramirez said. He declined to discuss details of a probe but said officials had followed safety protocols once they detected the gas leak in an area of fuel storage tanks shortly before the blast.

Residents said they had no official warning before the explosion hit. The blast knocked down walls, shattered windows and left streets littered with rubble.

President Chavez, who visited injured victims in a hospital, announced the creation of a 100 million bolivar ($23 million) fund to help rebuild. He said more than 500 homes were damaged. He also spoke at a televised Cabinet meeting and praised state oil company officials and fire fighters for their handling of the disaster.

Some Chavez critics and oil industry experts say insufficient maintenance could have made such a disaster likelier. Chavez and other government officials deny that, saying billions of dollars have been spent in recent years on upkeep at refineries including Amuay.

Western Cape Government Health

prioritise R14-million to build EMS station on "death road"

Minister Theuns Botha, Western Cape Health; Professor Craig Household, Head of Health Department; Dr Saadiq Kariem, WC Chief Director of General Specialists and Emergency Services; Dr Beth Engelbrecht, Deputy Director General for Health Department and Goliath Lottering, Mayor of Prince Albert, at the opening of the new EMS Leeu Gamka station

The Western Cape Minister of Health, Theuns Botha, formally opened the EMS Leeu Gamka station The Western Cape Minister of Health, Theuns Botha, formally opened the EMS Leeu Gamka station. A total of 12,5 million Rand of the Health budget was dedicated to the increase of Emergency Medical Services (EMS) infrastructure in the Western Cape, South Africa.

The anticipated station provides 24/7 hour emergency medical response and rescue assistance to a population of 2 200 residents from the Merweville, Welgemoed, Newtown Park and Bitterwater towns, a diameter of approximately 250 kilometres. The area was flagged as high priority due to the horrific motor vehicle accidents taking place on the N1 with road users travelling to and from the Eastern Cape/Gauteng/ Cape Town.

The new Leeu Gamka ambulance station provides a full infrastructure including a waiting room for patients, accommodation for relief crews (from outside of the Karoo) and a helipad for the landing of the rescue helicopters when required. Western Cape Government Health is constantly improving the quality of service provided to the people of the Western Cape.

EMS is currently implementing a program throughout the province, that will educate locals from strategic areas, as first responders, in the long run increasing the skills of the community and improving the quality of service delivered.

In 2005, Health prioritised Leeu Gamka after the community communicated that they were willing to be trained in emergency first response to reduce the transportation and response time to critical accidents taking place on the N1. Shortly a set of 20 community members were trained and a satellite station operated out of Leeu Gamka, essential in reducing response times to these accidents. Since then, 11 EMS practitioners operating from the station have been skilled in intermediate life support and eight as advanced life support emergency practitioners.

A quick demonstration of the Rosenbauer Unimog's reach

Kalagadi opts for Unimog converted by Rosenbauer

When Kalagadi Manganese in South Africa was looking for a rugged, robust and reliable vehicle to use as a fire fighter, their choice fell on the Mercedes-Benz Unimog 4000.

The iconic Unimog offers top off-road performance and its extreme manoeuvrability makes it possible to go almost anywhere, says Christo Kleynhans, product manager: Mercedes-Benz Trucks at Mercedes-Benz South Africa (MBSA).

"The Unimog's versatility gives it the edge and there are not many, if any, other vehicles that are more suited for fire fighting on hostile terrains.

The Unimog is used extensively for rescue missions, fire fighting, flood rescue, recovery and disaster management incidents over the world and its numerous applications are legendary," he elaborates.

The Unimog is a custom-made vehicle that can be adapted to best suit each individual customer's needs and requirements. The chassis concept is what makes the Unimog ideally suited for conversions and why others struggle to compete. The chassis provides extra dimensions to the Unimog, allowing it to operate with strength, stability and superior traction. Other special features that set the Unimog apart are its ability to retain dryness on special units and electric devices when moving through water – for example, when used in flood incidents. The driver can also adjust the tyre pressure with a push of a button.

The Unimog chassis cab was secured through Mercedes-Benz and Rosenbauer in Spain did the fire fighting application, says Michael von der Heyde, sales manager at Rosenbauer South Africa.

The Unimog chassis allows for an expanded range of flexibility and it requires some expert engineering to fit the specialised equipment. It takes four to six months to complete the process and each Unimog fire engine is closely inspected by Mercedes-Benz upon completion to ensure it complies with their stringent standards and regulations.

The Unimog 4000 to be used by Kalagadi is fitted with a 1500-litre water tank and a 150-litre foam tank. The operator is able to add the foam concentration in a three- or six ▸

percent solution to the water by the press of a button.

"Rosenbauer builds pumps with high or extra high-pressure systems that can deliver up to 10 000-litres per minute – almost half the volume of water in an average-size domestic swimming pool," says Von der Heyde.

The Kalagadi Unimog is fitted with Rosenbauer's HSD 2 000 O-stream nozzle. The nozzle is capable of a straight stream, foam throw of 60 metres and 70 metres without foam. In fog-mode it can disperse foam seven metres wide with the use of a deflector. Its output is 2 400 litres per minute (nominal) at 10 bar. Its rotation capabilities is 360 degrees and its elevation ability zero to 80 degrees.

"The Kalahari manganese basin is a very dry area with extreme temperatures that are prone to grass and veld fires," says Daphne Mashile-Nkosi, Chairperson of Kalagadi Manganese. Unimogs have proven very effective at various other mining operations and the team at Kalagadi was suitably impressed when they first saw them in operation. "It was an easy decision to choose a Unimog", says Mashile-Nkosi.

Kalagadi Manganese is an R11-billion project and entails the construction of a manganese mine and a 2,4-million-ton-a-year high-grade sinter plant. The three farms on which the company holds new order mining rights are believed to overly have 960 million tons of manganese ore. The recent exploration programme has identified 102 million tons of mineral resources.

The Unimog/Rosenbauer fire engine will also be used to fight fires in the surrounding areas, thereby providing much-needed help to the community.

Whilst handing over the keys to Kalagadi, Frank van Heerden, Sandown managing director said, "The Unimog is a top-of-the-range off-road vehicle with the exact capabilities that are required for Kalagadi's applications. I am confident that it will serve Kalagadi Manganese and the community well and we are pleased to have been part of the journey from inception going forward."

The proud Kalagadi team at the handover of their state-of-the-art off-road fire fighter

Michael von der Heyde, Rosenbauer South Africa; Christo Kleynhans, MBSA; Daphne Mashile-Nkosi, Chairperson of Kalagadi Manganese; Frank van Heerden, MD Sandown Motors amongst others at the official handover

Michael von der Heyde, Rosenbauer South Africa and Daphne Mashile-Nkosi, Chairperson of Kalagadi Manganese

Wildfires plague Idaho

USA fire fighters are battling several blazes including the nation's largest wildfire that is burning in Idaho

Idaho has been plagued by wildfires across the state. As the dry, hot weather continued, more fires cropped up. The three largest fires were the Mustang Complex Fire, Halstead Fire and Trinity Ridge Fire.

The Mustang Complex Fire, which was started by a lightning strike in July, is currently (at the time of going to print) only 14% contained and over 140 000 hectares have been affected. Five of the fires, the Mustang, Broomtail, Roan, Cayuse and East Butte have burned together. The Lost Packer Fire continued to burn and increase in size. To date, no homes have been lost to the fire. Containment of the fire will be difficult in the absence of substantial precipitation. Exceptionally dry fuels, rugged terrain, and frequent adverse fire weather conditions challenged fire fighters.

The Halstead Fire also started with a lightning strike on July 27. At the time of going to print, almost 44 920 hectares had been affected and this fire is only seven percent contained. There was moderate fire spread to the Southeast. Fire fighters prepped under the power line along Highway 75 which means they removed vegetation around it so the fire won't be able to burn intensely or quickly in that area. The fire is well established in Kelley Creek, Noho Creek, Basin Creekand west of Yankee Creek. Both the growth potential of the fire and the terrain in which they are fighting this fire are extreme.

Unlike the other two fires, the Trinity Ridge Fire's cause was human in nature. This fire started on August 3 and has currently affected over 55 850 hectares. It is only 10% contained. Growth potential for this fire is extreme and the terrain is difficult.

The other fires notated make up approximately 16 600 hectares that are burning in the state. All fires that are shown on this map, other than Trinity Ridge, were caused by lightning strikes. The Parish Cabin fire is a 1 620-hectare fire which started August 28. It is burning in Oregon and its cause is currently unknown.

Estimates indicate that Idaho wildfires this year already have been responsible for more air pollutants being released into the atmosphere than all automobiles and industrial sources in the state, Governor CL "Butch" Otter said in a statement.

Photo credit: NASA

This NASA astronaut photograph was provided by the ISS Crew Earth Observations experiment and Image Science & Analysis Laboratory, Johnson Space Centre

The exercise allowed the students to understand and experience the correct techniques required to ensure the safe removal of occupants from the vehicle

Ford teams up

with Rescue SA for a safer South Africa

Ford Motor Company of Southern Africa (FMCSA) hosted a motor vehicle rescue course in conjunction with Rescue South Africa at its Silverton Assembly Plant, east of Pretoria.

Rescue South Africa is an official South African Disaster Response Team made up of volunteer emergency response specialists from the South African public and private sector emergency and ancillary services.

FMCSA donated five of its Ford Ranger models to Rescue SA. The vehicles were utilised for training medical personnel from Netcare911 and ER24. The exercise allowed the students to understand and experience the correct techniques required to ensure the safe removal of occupants from the vehicle in the event of an accident.

"It is very hard to get any new cars to work with, especially with demonstrations like these. We are extremely grateful to Ford for allowing us to conduct this training with their Ford Ranger models. Having the highest safety rating in its class the Ranger proved to be the perfect choice," explained Hugh Price-Hughes, operations manager, Rescue South Africa. "The incredible safety features available in newer vehicles makes the extrication of trapped victims more challenging and can also pose significant hazards to rescue personnel."

While the modern-day vehicle safety systems drastically reduce the likelihood of death or serious injury in the event of a car accident, if a person becomes trapped, they are now much more difficult to extricate. This is due to the fact that vehicles are ▶

FMCSA donated five of its Ford Ranger models to Rescue SA

Ford hosted a motor vehicle rescue course in conjunction with Rescue South Africa

constructed with stronger materials and are strategically reinforced.

In addition, passive safety systems such as air bags and pre-tensioners pose significant hazards if they did not deploy during the initial impact. Such systems need to be disarmed prior to the cutting of the vehicle or avoided during the extrication evolution.

The vehicles were utilised for training medical personnel from Netcare911 and ER24

"Ford is proud to be a part of this initiative," said Jeff Nemeth, President and CEO of Ford Motor Company of Southern Africa. "No one wants to be involved in an accident but if the worst were to happen, the Ranger is proven to provide outstanding protection and by ensuring rescue personnel are able to safely extricate victims following an accident our customers are further assured of the highest level of protection."

A series of crash tests were also conducted on the training days. This allowed the students to better understand how the vehicles many safety features performed in a collision.

Ranger's advanced safety protection begins with a reinforced passenger cell that utilises high-strength steel throughout. Utilising multiple load paths in the front, side, and rear of the vehicle, crash forces are directed away from occupants, providing high levels of protection in the event of a collision. This structure, along with the all-new ladder frame, was optimised to manage the crash energy in a variety of impacts and provide protection for all passengers.

PHOTO: Tromar Medical

Numerous vehicles burn out

Major fire at South African nature reserve

An elderly couple was killed in a devastating fire that swept through a South African nature reserve.

Sondela, a popular nature reserve and holiday resort in the Limpopo province, South Africa, suffered substantial damages when a devastating wildfire tore through the reserve. A third of the reserve was destroyed in the blaze. Resort staff managed to evacuate around 500 guests, but rescue workers couldn't save the couple, a retired school headmaster from Edenvale, and his wife. The couple moved to Mookgophong after their retirement and frequented Sondela.

About 50 people were treated for smoke inhalation and trauma counselling was provided for the staff and guests.

The fire reportedly had started on a neighbouring property. Sondela's operations manager, Mel Meyer, said that the flames had been fanned by strong winds.

Tromar EMS and Rescue Services treated twenty guests at the Caltex service station across the highway from the reserve. Five guests and three staff members were admitted to hospital after sustaining minor injuries. The reserve also lost about 1 500 hectares of bushveld, approximately 40 antelopes (Nyalas and Kudus), 64 chalets and a lapa in the fire.

Petrus Seshaba, one of the paramedics of Tromar EMS and Rescue Services said that it was one of the toughest days in his career as a professional paramedic. "As a person who ▶

The high winds made it difficult for the fire fighters to extinguish the fire

PHOTO: Helivac

PHOTO: Tromar Medical

Teams worked for over five hours

PHOTO: Tromar Medical

Working on Fire assisted in the suppression of the fire

works in many emergency situations and have witnessed all kinds of bad scenarios, this day is marked as the one day that I will never forget," he said. "We went there and the first thing that we had to do when we got there was to assist the people, to save lives," he recalled. Seshaba explained how they struggled to evacuate all the guests on time to a safe place outside the reserve, because the fire was extremely dangerous. The high winds made it difficult for the fire fighters to extinguish the fire.

"We were going from chalet to chalet, checking if there were any guests who might have been trapped in there by the fire. We managed to save more people by evacuating them out of the chalets as quickly as possible. It is a tragedy that two people were found dead," he said sadly. He said that it is always a blow for him when they end up losing somebody in a situation like this, because he feels that his calling is to save lives.

According to a statement by Ian Jansen van Rensburg, Managing Director of Sondela, about 200 farmers came to help them fight the fire, but the fire fighters had to flee for their lives when the fire became too intense. He also thanked Working on Fire (WoF) who sent a helicopter to assist. The WoF Huey, which was on the scene shortly after the fire was spotted, could contain the fire long enough to allow for the evacuation of resort guests.

"Having been actively involved in fire fighting in the area for many years and being on the scene to offer assistance as needed, we have now experienced for ourselves what people go through in a tragedy such as this. The feeling of sadness, rage, guilt and pain is overwhelming. The day after is crazy. Well wishes, police reports, inspections of the damage and the panic to make sure everybody is okay, seem to consume us. We are still busy with the counselling of staff and are inundated with calls from the press," Jansen van Vuuren reported shortly after the event.

"The management and staff of Sondela would like to thank each and every one from the bottom of our hearts for your prayers, support and compassion during the fire and evacuation. We would like to thank every company and individual who fought the fire with us and helped with the clean-up of the aftermath. It just came to show once again that we are part of a wonderful and caring community. The Working on Fire teams were fantastic, proving without a doubt that there are some bright lights in government and we should not just complain about service delivery," concluded Jansen van Vuuren.

Ebrima Faal, African Development Bank; Ken Terry, NDMC; Hon Minister Richard Baloyi, COGTA and Jonathan Kamkwalala, World Bank

Understanding Risk 2012

By Nicole Petersen, Directorate: Disaster Risk Reduction, Department of Local Government, Western Cape Government

Cape Town hosted the second global Understanding Risk (UR) Forum from at the Cape Town International Convention Centre. More than 500 practitioners, experts and decision makers from 86 countries shared knowledge and best practices in disaster risk assessment.

The Forum kicked off with welcome addresses from the partner organisations that made this event a success, including Highlight on Africa, Government of South Africa, African Development Bank, European Union, United Nations International Strategy for Disaster Reduction and the World Bank. These leading organisations were available for media engagement and encouraged delegates to visit the City of Cape Town Disaster Risk Management Centre to gain perspective on local conditions.

For two days, delegates were enthralled by the innovation expos, opportunities for networking and simultaneous sessions that were held to cover a myriad of relevant topics. Topics that were of particular relevance to the Western Cape Provincial Disaster Management Centre (WC PDMC) included flood risk; drought response and resilience; and most importantly, data sources that aid risk reduction.

Following these information sessions, the Forum was formally concluded with the Mayor's Roundtable on Urban Risk where delegates and the media were afforded the opportunity to engage with Mayors from Cape Town, Dar es Salaam, Port Louis, Temeke and Walvis Bay. The proactive approach and experience from the Mayor of Port Louis was a particularly encouraging case study, illustrating how proactive measures can be put in place in the face of high-risk hazards that are met with limited resources.

But the knowledge share didn't stop there.

Despite the formal conference closing, provision was made for delegates to gain some practical experience with software applications from their 'favourite' sessions in small and interactive training groups.

All presentations, photos and recordings are available on the UR web page www.understandrisk.org/ur/page/ur-2012 and the Forum remains open for online discussions and blogs encouraging stakeholders to maintain this community and continue to learn from each other as we endeavour to understand risk.

The Tour convoy takes a break beneath the snow-capped peaks of the Ceres Mountains

MAN truck tour

records a 7,8% diesel saving

MAN Truck and Bus recently completed its South African Consistently Efficient Tour 2012. After spending 16 days on the road, five MAN truck-trailer combinations rolled into Centurion, Gauteng, to complete the 4 200km MAN Consistently Efficient Tour 2012.

The tour kicked-off in Centurion, travelled through Bloemfontein, Cape Town, Port Elizabeth, Pinetown and Nelspruit, hosting gala events in each city to showcase the financial and environmental benefits of the new MAN TGS EfficientLine range of long-haul trucks.

According to Bruce Dickson, Deputy CEO, MAN Truck & Bus SA, "The Tour was essentially a 'truck economy run' with a clear objective to match or surpass the three-litre fuel saving achieved by MAN during its European Tour last year. We also aimed to demonstrate to the transport industry and the general public that for every litre of diesel saved, a corresponding 2,63kg saving in CO_2 emissions is achieved."

The South African MAN Tour fielded three new TGS EfficientLine derivatives, a standard TGS reference truck and a Euro 5 TGS EfficientLine exhibition truck. Apart from the exhibition truck, all vehicles were loaded to their maximum legal permissible mass and were run on standard 500ppm diesel supplied by Engen.

Joined throughout by local transport efficiency expert, Fritz Hellberg, who acted as independent auditor of the fuel consumption figures, the Tour's primary mission was to compare the fuel consumption performance of the new 6x4 TGS 26.440 EfficientLine against that of the standard 6x4 TGS 26.440, to prove that truck-trailer combinations equipped with cost-effective streamlining accessories reduce both fuel consumption and CO_2 emissions.

At the homecoming event, Dickson stated that, "the final figures for the test-versus-control TGS 26.440 trucks are better than expected. When comparing the TGS 26.440 EfficientLine test truck with the standard TGS 26.440 reference vehicle, the total fuel saved on the 4 200km round-trip was 198-litres, which equates to 4,7 ℓ/100km or, a 7,8 percent improvement. Importantly, this means too, that 521kg of CO_2 were prevented from being released into the atmosphere by the test truck alone."

Bruce Dickson, MAN SA deputy CEO

Hellberg reported that the TGS 26.440 reference vehicle achieved an overall fuel consumption figure of 60,8 ℓ/100km while the TGS 26.440 and 26.480 EfficientLine vehicles achieved 56,1 ℓ/100km and 58,3 ℓ/100km respectively.

"Impressively, even with its higher power output, the TGS 26.480 EfficientLine achieved a 2,5 ℓ/100km diesel saving over the 26.440 reference vehicle," added Dickson.

Stressing the cost benefits of the new MAN TGS EfficientLine, Dickson stated that, "at current fuel prices, a long-haul fleet operator averaging 200,000km per annum, would save approximately R96 500 per year, per vehicle, with such figures. In context, this would mean that for every 15 new TGS 26.440 EfficientLine vehicles bought, a customer could effectively get another truck free every year."

Apart from a fibreglass wind-management system from Aero Truck and low rolling-resistance tyres from Goodyear, the TGS EfficientLine package also includes a 'smart' air compressor and new alternator, which help reduce power consumption by auxiliary components by as much as 80 percent.

"The MAN TGS is already a proven winner in the long-haul sector and the EfficientLine is based on the same optimised driveline, which includes the MAN TipMatic transmission with cruise control and the ZF intarder," continued Dickson.

The new TGS EfficientLine range includes 6x4 and 4x2 options with 440 and 480-horsepower ratings. The range will be backed by the market-leading MAN four-year/600 000km OEM driveline warranty. The MAN TGS EfficientLine also boasts a class-beating 40 000km service interval.

"The data we have gathered from the Tour comprehensively benchmark a broad spectrum of long-haul operating environments in this country and will serve as a valuable resource for this sector of the industry. We are confident that our transparency in conducting the Tour prior to the official launch of the new EfficientLine range next year will inspire new truck buyers to take a closer look at how MAN and our new pearl-white beauties can assist them in lowering their total-cost-of-ownership," Dickson concluded.

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This Pierce aerial ladder platform, one of two Pierce vehicles recently delivered to Changi Airport, is built on a custom chassis with a 26-meter aerial device

Singapore's Changi Airport

strengthens ARFF and emergency response arsenal

Singapore's Changi Airport recently took delivery of five new generation Oshkosh Striker aircraft rescue and fire fighting (ARFF) vehicles and two Pierce custom emergency response. The airport is managed by Changi Airport Group (CAG). The vehicles were formally introduced at a delivery ceremony where US Ambassador to Singapore, David Adelman, was the guest of honour.

"This is an important milestone for the Oshkosh Fire and Emergency segment, and we are excited to see five of our new generation Striker vehicles and two Pierce custom emergency response apparatus simultaneously placed into service at one of the world's most highly ranked airports," said Jim Johnson, Oshkosh Corporation executive vice president and president, Fire and Emergency. "Our vehicles are engineered for the global market, and this significant delivery demonstrates the success of our product strategy."

The new generation Striker features advanced safety systems and delivers innovative fire suppression technology, advanced chassis performance and superb reliability and durability. The 6x6-axle configuration (with Oshkosh TAK-4, all-wheel independent suspension and an Oshkosh rear steering system) offers a smooth ride and excellent off-road capabilities. One of the five Striker vehicles is configured with the Oshkosh exclusive Snozzle high-reach, extendable turret (HRET) for superior firepower. The Snozzle is a multi-function tool that gives the operator the ability to increase the supply of suppression agents at the fire source.

This new generation Oshkosh Striker 3000 ARFF vehicle is one of five recently delivered to Changi Airport

The Pierce emergency response vehicles include a custom mobile command centre, with interoperable communications equipment and live video streaming, which can be rapidly deployed to mitigate risks in the event of an incident. The second Pierce apparatus is a 26-metre, aerial ladder platform with a spacious basket featuring a carrying capacity of 454 kg.

Singapore's Changi Airport has, over the past decade, been consistently ranked among the world's best airports. It is recognised for its efficiency, quality service, and a pleasant customer experience.

PHOTO: Cassie Carstens

Investigating a malicious fire that was started alongside a road

Wildfire investigations – a growing need

By Rob Erasmus, Enviro Wildfire Services

With climate change predicted to result in hotter and drier summers in the Western Cape region of South Africa, there is a belief this will see an increase in the number of landowners, organisations and insurance companies requesting wildfire (veld fire) investigations to recover costs, sometimes amounting to millions of rands, associated with such disasters.

Many people, including those in the wildfire industry, have difficulty believing that the exact starting location of a wildfire can be located, and even less believe in the chances of finding the match that started it. On the contrary, with the skills obtained from accredited courses such as those provided by Working on Fire, very often not only the origin, but also the cause can be determined using the skills and experience obtained over time.

"One of the biggest challenges we face, is to provide basic training to wildfire fire fighting first responders, thereby allowing them to identify the general origin, and in turn safeguard it until the arrival of the investigators. All too often in the excitement, hoses are dragged through the ignition site destroying all potential evidence. Worse is when the possible ignition source (timing device, candle, etc) is discovered and picked up to show others prior to it being documented. Such items may subsequently be regarded as contaminated and could end up not being admissible as evidence in the prosecution of a suspect".

As with any forensic investigation, set procedures is required beginning with a request being received from the landowner or responsible agency. Once obtained, a plan is developed followed by the investigators identifying the general origin of the fire using a variety of techniques. When fire moves over or burns an object, the interaction leaves a mark. These are termed "macro indicators" and are used by investigators to determine the path and direction of the fire. Once the general area is identified, it is cordoned off and detailed studying and documenting undertaken using photography, maps, diagrams, and marking of evidence. These macro-indicators, categorised according to their degree and type of fire damage, are marked using colour flags (red for advancing fire, yellow for lateral moving fire, and blue for a backing fire) that, upon completion, allows the investigator to view the site and determine where the different colour flags merge. This merging site is sometimes referred to as the 'area of confusion' and indicates where the fire started and burnt the vegetation while it was still in the process of gaining momentum. Studying micro-indicators within this area further allows the determination of the specific origin, usually about a two-metre square area. In the case of arson fires, it is not uncommon to discover that more than one ignition point was used, complicating the investigation. The specific origin is divided into "lanes" and photographed in detail, swept with a metal detector and ▶

Fire Investigators are able to find the match that start fires like the one in this picture

PHOTO: Rob Erasmus

PHOTO: Rob Erasmus

In this case Investigators could not see the cause with the naked eye. Can you see what started the fire?

PHOTO: Rob Erasmus

Upon enlarging the photograph, investigators were able to determine that the cause was book-matches that were used as a timing device, allowing the culprit time to distance themself from the scene

magnet, lightly brushed, and then grid-searched on hands and knees, at times using a magnifying glass to determine the exact point where the ignition started. By using this method, the identification of the cause of the fire can be identified for example a match, cigarette butt, candle, remains of a fire cracker, timing device, flare, welding slag, or metal fragment to name a few possibilities.

In some cases enlarged photographs (see photos above where photo enlargement allowed the ignition source of a malicious fire, in this case book-matches, to be identified) are studied in detail. Using information such as the macro indicators, shape

PHOTO: Rob Erasmus

The ash deposits on the tree trunk indicate that the fire came from the left.

PHOTO: Rob Erasmus

In above photograph the fire came from the left as can be seen by the black sooting on the bottle, as well as the grass stubble to the right that was protected by the bottle from the flames

PHOTO: Rob Erasmus

Once the specific origin has been determined it is carefully photographed and then "grid-searched" sections at a time

PHOTO: Rob Erasmus

Leaf "freezing". An indication that the fire passed from right to left.

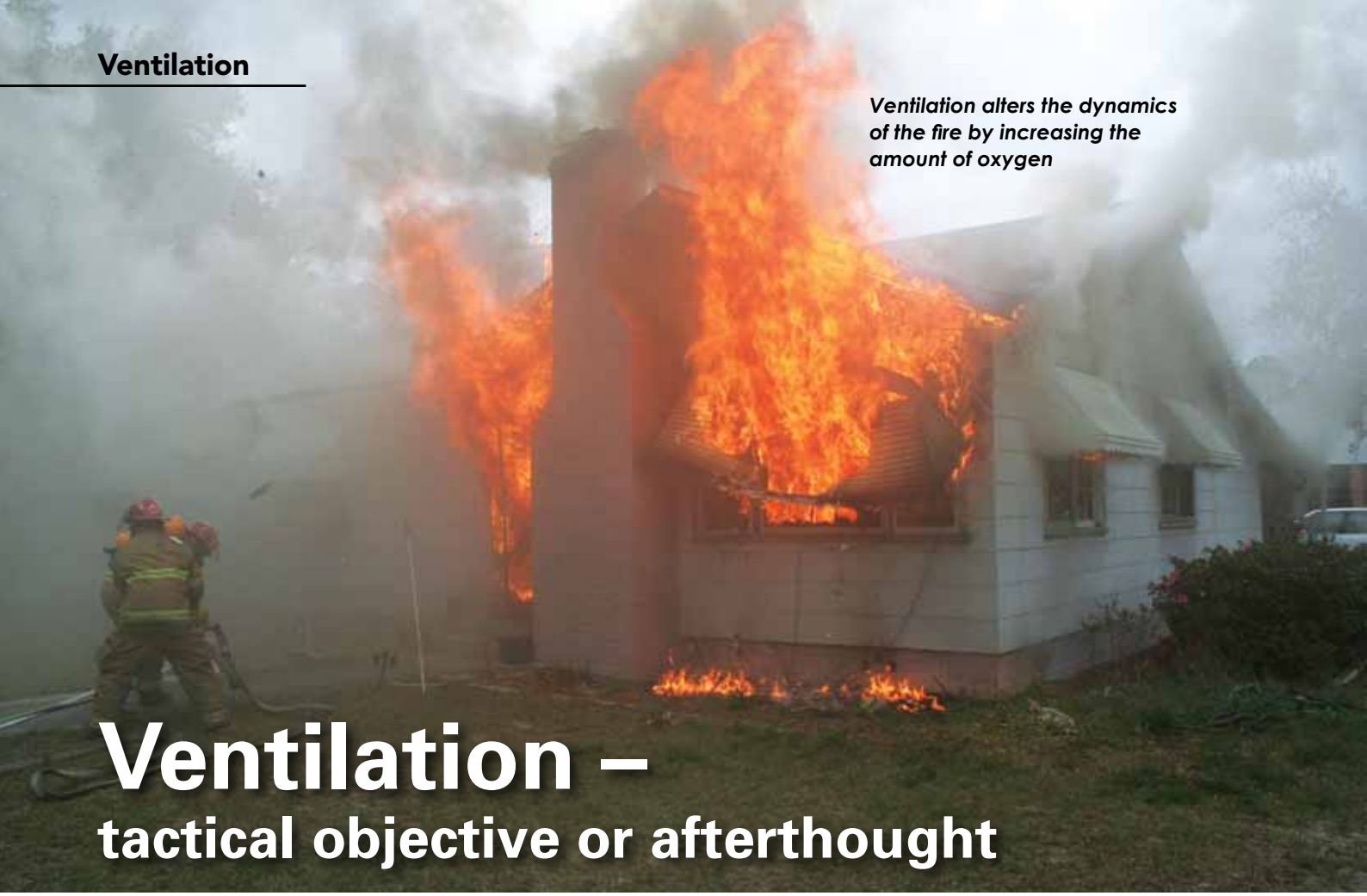
of the fire, weather records and eyewitness accounts, an accurate version of the event can be reconstructed and the cause and spread of the fire determined.

The current financial climate has seen an increasing number of insurance claims for wildfire damage to buildings, infrastructure and crops. Coupled with the 'presumption of negligence' clause of the Veld and Forest Fire Act (Act 101 of 1998), many landowners have no option but to have the fires on their property investigated to recover costs, which can be substantial, especially when the suppression services (local fire department, aerial support, etc) and claims from neighbouring farms are added to the bill.

"The best advice we can offer landowners, is for them to join their local Fire Protection Association FPA), prepare fire breaks, if and where possible, reduce dangerous or high fuel loads, and to provide their staff with basic training and protective clothing in time for the coming fire season. Failure to do this, leaves the door wide open for their insurance claims to be rejected. If a fire does occur, we strongly recommend they contact their insurance company as a matter of urgency to determine if an investigation is required. Doing an investigation shortly after the fire is a lot more effective and economical as opposed to doing it years after the fire".

Enviro Wildfire Services offers a one-day basic training course in identifying and protecting the origin site of wildfires. This non-profit company also offers a half-day, basic wildfire training course for landowners and staff and can source basic protective clothing and hand tools.

A formal five-day origin and cause investigation course is offered by Working on Fire.



Ventilation alters the dynamics of the fire by increasing the amount of oxygen

Ventilation – tactical objective or afterthought

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

One of the major reasons that fires get out of control is the lack of proper and adequate ventilation. If you want to move in on a smoky fire, you must ventilate or you will be driven out. Yes, you can and should use masks to hold difficult positions. However, most jobs (fires) will be readily controlled by good, fast ventilation and a crew determined to move in" (Fried, 1972).

The measure of our success when dealing with a structural fire can be measured in one of two ways: (1) did we stop the fire at the point we found it when we arrived?, or (2) did we set up a point where we could attack a fast moving fire and effectively extinguish the fire from that point?

The first criteria will be used when responding to a structural fire that generally will be confined to the room and contents of the occupancy and can typically be extinguished by means of a rapid interior attack that is well supported by effective forcible entry and ventilation. The second criteria will be used when responding to a thatch roof or strip mall type fire that has already spread into the ceiling and will require a fair amount of hose deployment and setting up of equipment before the actual fire attack can begin. The incident commander should decide on a specific point from which this set-up can be done safely and from where the fire can be controlled.

In both of the above situations, a number of peripheral activities that should form part of the initial operation must support the fire attack. Hose teams must be able to gain safe entry into the structure and a forcible entry capacity must be in place from the get-go. The ability of the team to move and work in a specific direction within the building and extinguish the fire with the least amount of collateral damage will be largely dependent on the effectiveness of the ventilation that supports the fire attack. There are certain signs that I always look out for when making up my mind as to how good the fire service is that I am being shown (like the layout of the equipment in the kit bunkers). One of the most important of these is the ability to move smoke as effectively as they can move water.

Most fire services will have a well-developed standard operating procedure for aggressive fire attack that will include all the actions needed to support at least three hose teams as part of their initial attack. It is, however, the first arriving incident commander who must have the ability to recognise the risk facing him/her and immediately take advantage of the possible favourable conditions that present themselves. A quick and effective fire attack is dependent on a quick and effective set-up of equipment. This can only be achieved through a whole lot of practice. This practice must be done almost daily until it becomes second nature on every call. As an operations officer, in another lifetime, I established a practice where at least three lines had to be pulled on every structural fire my service attended. This had to be supported by a positive pressure ventilation deployment as well as good forcible entry capability. In most cases, we didn't need it at all and I used to get a lot of really dirty looks from fire fighters having to roll up and clean unused fire hose, but we never struggled to initiate a rapid interior attack when we needed to. We saved a lot of property this way, and a few lives. ▶

A fire crew creating vertical ventilation

So what is ventilation?

For those of us who grew up in the fire services of the 80s and 90s, we will believe the definition of ventilation to be ""the systematic removal of heat, smoke, and fire gases, and replacing them with cooler air". This is true, although only partly. Actually, the definition of ventilation would be more correct if it said something about the exchange of the atmosphere inside a building to that of the outside. It also does not always include smoke, heat and gasses. In effect, what we are doing is replacing the bad atmosphere (on the inside) with fresh air (from the outside) which includes that critical component of the fire triangle….OXYGEN. OK, so how do we do this without harming our fire fighters or burning the building down any further?

Ventilation as a tactical objective can be implemented for any of the following three reasons:

1. Rescue

This should be done to support a search and rescue crew who enter a smoke filled building with the sole purpose of locating trapped victims and removing them to safety. It must be carefully thought through and planned. Fire fighters doing this job must be highly experienced in search and rescue and must have a good understanding of the dynamics of fire spread. The method simply entails rescue crews entering structures through natural openings (doors and windows) and creating more visibility and an environment with less smoke and toxic gasses for the period it will take to conduct their operations.

2. Fire fighting

Ventilation done in support of fire fighting is meant to improve interior conditions for fire fighters by reducing heat levels and improving visibility. The decision of where to create the ventilation openings must be very clear. At no stage must the fire be attacked from the direction of the ventilated openings. Ventilation in support of fire fighting can range from a simple "hydro-venting" to the deployment of multiple positive pressure ventilation (PPV) blowers, strategically placed to ensure the movement of smoke and other elements of combustion in a specific direction.

3. Preventing the spread of fire

In this case, you would immediately be thinking of strip ventilation (or trench cutting) which is used in buildings with large attic areas to stop horizontal spread of fire. The objective of a trench cut is not actually to allow ventilation but to create a fire break and provide access for fire streams. This is achieved by making an (approximately) one metre wide opening cut in a roof from outside wall to outside wall. The opening must be far enough away from fire to allow it to be completed before fire gets there. The trench cut was developed during the 1960's in New York City during an exceptionally busy fire era.

Another good fire-spread prevention practice which was developed in the mid-nineties (specifically to deal with fires in houses with heavy tile roof construction), is for the roof attack team to access the ceiling void and apply class-A foam into the unburned area. This will in most cases protect the roof trusses from too much direct flame impingement and allow it to maintain its integrity for a while longer.

Neither of the above two practices fall within the definition of "ventilation" but are mentioned here because they both require the very much the same actions to be achieved as the more pure ventilation practices.

Ventilation as a tactical tool

The obvious risk presented by the application of a ventilation strategy is that while we are attempting to remove the hazardous products of fire from within a confined area, we are allowing fresh air to fill the vacuum caused by the removal of the smoke. This alters the dynamics of the fire by increasing the amount of oxygen being provided to it and will increase the size of the fire we are dealing with. We therefore need to be clear in our minds as to what the impact of the intended ventilation activity will have on the overall strategy and success of the operation. Some of the things we need to consider are:

- Will the ventilation cause the heat and smoke onto the fire victims and/or fire crews?
- What will the impact of the ventilation have on the egress paths of victims or fire fighters?
- Will the ventilation create a backdraft or a flashover?
- Are hose teams in position to deal with sudden change in fire conditions?

The incident commander must take all these possibilities into account and the impact of these possible changes in the fire/smoke pattern must be allowed for in the overall action plan. The early and effective set-up of resources will be the most critical indicator of the success or failure of the operation.

Ventilation can be done in a variety of ways and the method to be used will generally be dictated by the type and condition of the structure, severity and size of the fire column, possibility of rescue and capabilities of equipment and staff. Creating a ventilation opening in the direction the smoke is travelling does seem to make the most sense but may not always be possible. Vertical ventilation practices are very popular ▶

Natural ventilation

in the United States and most of the literature we get from there does focus largely on this. In South Africa, however, we do not always have the kind of roof construction that is conducive to vertical ventilation and a better option would be to employ a horizontal ventilation strategy designed to force the smoke in a pre-determined direction.

Natural ventilation

The traditional method of ventilation (natural ventilation) which allows for the entry of air through the windward side of the building and out through the leeward side is achieved by opening or removing the structure's "natural openings" such as windows and doors and letting nature take its course. This method will, however, always be dictated by the direction and force of the prevailing wind conditions and this in itself will limit the options of the incident commander.

Forced ventilation

A number of fire services will also use smoke ejectors (or fans) to supplement natural ventilation when they are not achieving their objectives through natural ventilation. Ejectors are not able to move the volume of smoke as effectively as natural ventilation or forced ventilation but do offer a number of options when ventilation of confined spaces is required.

They are also good boosters for positive pressure tactics in large volume structures and can be effective in stairwell ventilation when used in conjunction with positive pressure tactics as well.

The placement of ejectors might create challenges, as you will need to mount them as close as possible to the heat and smoke. This will require hanging them from a door frame or mounting them high in the vent opening. This can be done by placing ladders on either side of the opening, using ladder rungs or hanging the ejector on fan jacks placed on the inside of the door frame. This might impede the egress route of fire victims. You must also ensure that you are not recycling the smoke and heat products back into the structure or pushing any combustion products into other congested spaces. This can be achieved by closing the spaces around the ejector housing. If possible, the open space around the fan housing should be sealed and a clear airflow path should be established.

Vertical ventilation

Vertical ventilation is generally considered to be the most difficult and hazardous task on the fireground and needs to be done with a high level of safety. The type of roof construction will obviously dictate the type of opening that can be created and the effectiveness that can be achieved. By committing fire fighters to the roof of a burning structure, we are not only putting them in the way of the fire but we are also placing them on top of structural elements that may already have been severely weakened. We therefore need to afford them the necessary protection and this can be achieved by making sure of the following three things:

Laddering: Ladders should be used to provide quick and safe access to the roof, safer footing for any pitched roof and to spread the load imposed by the fire fighters performing the task. You need good ladders and you need a lot of them. Take some time to have a look at the number and type of ladders sitting on your fire truck parked in the engine bay. Can you provide access for your ventilation crew (three people) and a hose team (two more people)? Do you have sufficient roof ladders for them all to be on secure footing, and are you able to provide two avenues of escape? In a previous article in this magazine, I alluded to the necessity for a ladder truck or "ladder tender" to be included as a first response resource to any working structural fire. This is one of the main motivations why it should. Remember, there is a reason that NFPA specifications require eleven ground ladders on a ladder truck.

Cutting equipment: Improvements in ventilation saws over the last 20 years have made this job significantly safer and easier and cut down on the time that crews have to be exposed to the inherent risks of vertical ventilation. Higher capacity saws and the use of the "bullet" chain fitted onto a specially designed chainsaw, provides a longer cutting reach as well as affording a high level of protection to the operator. Two unique features of these saws are the depth gauge that allows the operator to pre-set the part of the cutting chain that will be exposed. This ensures that, in the event of an accident, fire fighters will only be at the minimum risk of a moving chainsaw. The other "neat" feature is the filter that allows the chain to operate in a smoke filled environment. When you are making an opening above a fire, you are going to be in a smoke filled cloud very soon. You do not want to have your saw pack up on you before you finish your cut. It is for the above reason that you must insist that your procurement department purchases these specialised cutters. A standard cutter will generally not have these features and this will compromise the safety of your staff.

The minimum equipment that the ventilation crew working on a roof should have includes a powered saw (chain or circular), an axe to lift the decking after the cut (and in case the saw breaks down) and a pike pole/ ceiling hook for breaking through the ceiling.

Hose line: It is not easy lugging a hose line up a roof and finding a

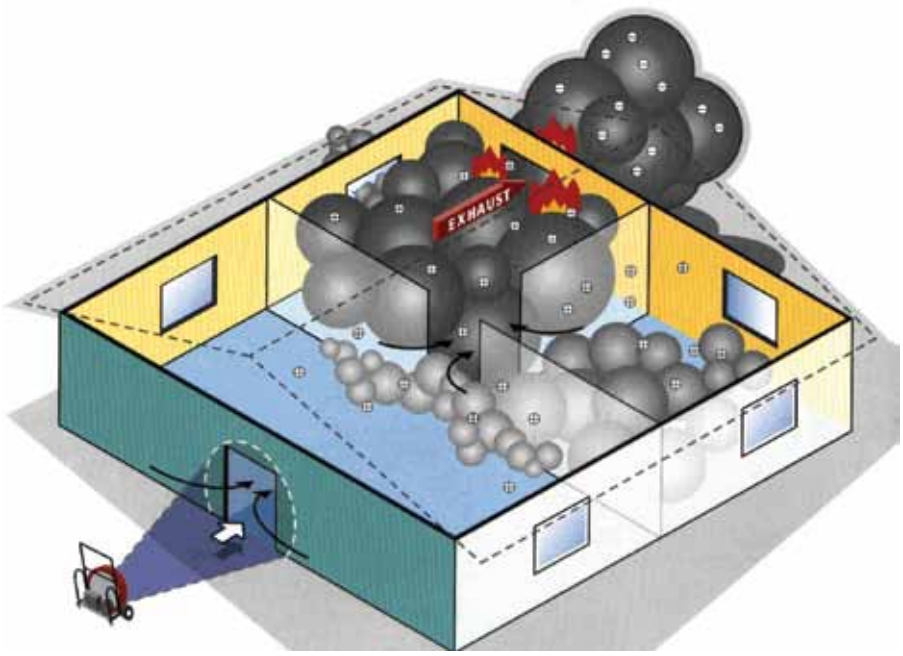
safe place for two fire fighters to be "at-the-ready" but it is an absolute necessity. A lot of research has been done around the optimal hose line diameter for aggressive interior fire fighting and I'm sure different people will have differing opinions. I have found in the South African context that the 45mm hose gives you good mobility as well as sufficient knockdown capacity. Considering that most of the jobs you will be doing will be single family residential fires, you would want to limit the extent of the water damage as much as you can. When the lounge sofa comes floating out of the front door, you need to urgently relook your tactics.

A few final thoughts on vertical ventilation

- Beware the underfoot conditions. The notion that everyone on the fireground is a safety officer is seldom as relevant as here. All crews working on the roof must check for tell-tale signs of roof failure or deterioration in the fire conditions. If you see the roof sagging, bubbling or smoke and heating pouring out of it, you have a sure sign that the roofs integrity has been compromised.
- Incident command should be on top of all activities on the fireground and must ensure that the interior crews are totally prepared for the change in conditions after the ventilation opening has been made. Failure to do so will guarantee both crews discussing their opinions on the others maternal relations after the fire.

Positive pressure ventilation (PPV)

PPV has become the primary method of ventilation for many fire services in the last twenty years. PPV is designed to support a rapid fire attack and the main objective is to use a high volume fan (blower) to create an area of positive pressure inside a building and in so doing, force the smoke and heat to move to an area of lower pressure outside the building. It has many advantages, the most important being the ability to quickly change the atmosphere in a structure to a survivable one. The second (for me) most important advantage is that it allows the incident commander to dictate the direction in which he/she would like to channel the smoke and heat. It is critical though, that there be only one entrance for the ventilation unit and only one exit for the removal of smoke and heat. This exit must be smaller than the opening or there will be no build-up of positive pressure.



PPV has become the primary method of ventilation for many fire services in the last twenty years

PPV does however also have a major disadvantage and that is that it can cause a rapid increase in fire development. It is critical, for this reason, that all entry hose teams are ready to enter the structure before the PPV blowers. The ventilation opening should be placed between the hose team and the fire or between the fire and trapped victims. It is vital to know where the fire is and where it is going to move once the operation starts.

Many factors will dictate the success of a PPV strategy. A few to keep in mind are:

- The cone of air coming from the blower must seal off the entrance. Make sure it is placed far enough away from the opening to achieve this. A single fan should be placed between 1,8 and 3 metres from the opening. The best way to make sure this is happening is to have someone stand at the opening during the set-up phase and test the quality of the seal.
- Hose teams must move into the building within the first 15 to 30 seconds of the blower starting. If you have too much of a delay, the fire will intensify.
- Ensure that you have sufficient blowers and that they are effective immediately. If you are not seeing results at an early stage you might want to move the first blower forward and place a second blower behind the first to seal of the entrance. The first blower should then be between 1 and 1,5 metres from the opening.
- You can also place blowers side by side to cover the opening of an oversized or double door.
- Ensure that the blowers have been set up in a clean environment that won't affect the running of their fuel powered engines. The carbon monoxide emissions from your motor must also not be blown through the fan. This could cause the blower to quit or, at worse, introduce more carbon monoxide into an area with victims already struggling to survive.
- Always wear your breathing apparatus. Tests have shown PPV to be extremely successful in expelling toxic vapours from within a burning structure but there may still be hazardous vapours of various densities present that could kill you.

Hydro ventilation

This type of ventilation is simple yet very effective and involves the use of water streams to expel smoke and heat from a structure. Making use of the Venturi Principle, the hose crew will direct their fog stream towards an

Integrated fire management in South Africa

Roelof M Geyser, General Manager, Working on Fire

Firebreaks do not replace the obligation to fight fires

Integrated fire management is a series of actions that include fire awareness and prevention activities, prescribed burning, resource sharing, coordination, hazard and risk mapping, fire detection, fire suppression and fire damage rehabilitation at local, provincial and national levels in order to create a sustainable and well-balanced environment, reduce unwanted wildfire damage and promote the beneficial use of fire. Integrated fire management also implies cooperation and coordination between role players in a fire prone environment.

From a risk prevention and management point of view, it is advantageous to have as many farmers as possible actively involved in and managing their respective Fire Protection Associations (FPA's) and the plans they make as a collective, to manage fires.

This mitigates the fire risk and provides landowners with co-ownership of the risk management process. If landowners are encouraged to participate fully in the FPA's, the overall risk would be managed properly and it would enable all to mitigate the general risk of fire spread.

Fire fighting has unique characteristics: it is communication-intensive, often requiring critical coordination between upper and lower organisational levels and peer units; diverse in its operational requirements and threats; dynamic in its tempo, the length of exposure and the location of failure points. Add to those, attitudes that negatively impact on the ease of communication flow, for example, those affecting inter- or intra-crew trust and cohesion or those contributing to a lack of awareness of human performance limitations – cut to the heart of what enables these organisations to remain effective and safe under stressful conditions.

Landowners fighting recent fires fared well under very difficult circumstances, but better prevention planning, incident command and coordination would have increased their efficacy and reduced costs and risks. Organisations can make better use of modern technology to predict fire behaviour and develop fire fighting strategies. However, because the improvements needed are fundamental, the recommendations address systemic problems, such as skills and command systems, rather than operational skills.

Section 12 of the National Veld and Forest Fire Act (Act 101 of 1998), which places a statutory obligation on landowners to develop firebreaks, must be read together with Sections (17) and (18), which place an onus on landowners to be prepared and equipped to fight a fire and to take all reasonable steps to stop the spread of fire. In other words, firebreaks do not replace the obligation to fight fires.

The National Veld and Forest Act (Act 101 of 1998) provides for flexibility in using firebreaks, (a) by leaving standards to local decision (b) by allowing give-and-take on boundaries (Section 12(7)), (c) by allowing the Minister to make exemptions (Section 15(1) – and the Minister may delegate this - (d) by allowing the Fire Protection Associations to make their own strategies and rules, which would include fire prevention planning through measures such as firebreaks, and (e) by requiring firebreaks only where there is a risk of fire spreading from a property. Where Fire Protection Associations do not exist, these strategies should be compiled by the relevant Chief Fire Officer.

Landowners, including municipalities and organs of state, should allocate a percentage of annual ▸

funding for the purpose of strengthening and improving preparedness, response actions and recovery efforts that include people. The cost structure can be divided into direct and indirect costs, rehabilitation costs and additional costs. These costs are too often incorrectly cited as the 'cost of wildfires' and as a result, the true cost from a planning and budgeting perspective is ignored.

Training remains critical to the success of FPA's. However, success requires more than simply providing access to Forest Industries Education and Training Authority (FIETA) based training. FPA's are often smaller organisations without much discretionary funding in their budgets and limited time for wildfire management training. Farming activities are least active during the months of April and July and farmers can avail themselves for training.

Grasslands that include sweet veld, sour veld and savannah, are particularly fire prone since all the elements for fire ignition and spread are prevalent every year such as fine dry leaves and culms for fuel, dry warm conditions in late winter and sources of ignition.

Since the promulgation of the The National Veld and Forest Act (Act 101 of 1998), a concerted effort has been made by private landowners to comply with the stipulations of the Act, but it would appear as if organs of state and provincial departments have made little progress. Reference should be made to the Act in these departments' Growth and Development Strategy.

It is, however, according to the Act, compulsory for owners of State and municipal land to belong to a Fire Protection Association, where such an association has been formed. It is therefore necessary for each government department owning land, to engage in the formation of a FPA or to join an existing FPA.

There are statutory requirements that landowners, including owners of State and municipal land, have to comply with which include:

- A duty to prepare and maintain firebreaks around each property where there is a risk of wildfire
- To have trained personnel equipped with adequate protective clothing (PPE) and
- To have adequate fire fighting equipment available

A recently released report identified some areas in the country without a responding emergency fire department. In addition, some fire departments do not have authorisation to fight out-of-boundary, interface fires. Furthermore, some fire departments do not have effective mutual aid/automatic aid agreements with neighbouring communities or departments. The report stated that it is unacceptable that emergency agencies are prevented from working together due to red tape. All parties should stand and work together to protect resources, food sources and lives.

Implementing an integrated fire management plan for South Africa represents a complex challenge. The mosaic of fuel hazards, the distribution of social economic and environmental assets, diverse fire management priorities of the major role players, remote and mountainous terrain and unpredictable fire weather etc, all contribute to this complexity.

Full compliance is therefore needed by a vast majority of landowners and communities to reduce risk and enhance proper management of wildfires in our country.

open window and in so doing cause the hydraulic effect of the fog stream to create a vacuum and move the surrounding smoke out of the structure at a relatively high velocity. The most effective use of the fog ventilation works when the stream is positioned so the fog pattern covers most of the window opening. The nozzle should be about a half-metre from the window frame and should be in a wide fog pattern.

Hydro ventilation is a short-term ventilation tactic that has been designed to provide a quick advantage to the entry teams before a more sustainable ventilation strategy is implemented.

Conclusion

I hope that this article will once again get you thinking about the way you approach your response to single dwelling structural fires specifically. When we tell people that we have an aggressive approach to attacking structural fires, are we also able to tell them how to support this approach? Any aggressive interior attack can only work if all the parts of the system are working in concert with each other. Keep it simple and ensure that every crew working in the various fire zones are kept updated on the prevailing situation. You had better be doing everything right when everything goes wrong.

Remember when they say – "Somebody do something" you're the somebody they're talking about.

Ladders should provide quick and safe access to the roof, safer footing for any pitched roof and spread the load imposed by the fire fighters

Backing fire

Prescribed burning
on contaminated landscapes

By Alexander Held, Working on Fire (WoF) Europe

After years of preparation, WoF Europe and partners conducted successfully the first prescribed burn on former military training areas, which are heavily contaminated with unexploded ordnance (UXO).

Vast areas, especially in the eastern part of Germany, have seen military training use as well as active fighting during the last battles of the Second World War for Berlin. The military land use already started at the beginning of the 20st century, continued during both wars and was then followed by nearly 50 years of the Russian Red Army (mis-)use. The accumulated left overs range from small arms ammunition to grenades, mortars and bombs.

Self-ignition of corroded phosphorus ordnance regularly causes wildfires in summer. These fires in turn ignite and detonate UXO, which makes life of the fire service an even riskier job. In more and more counties/ municipalities, the fire service is reluctant to respond to fires on military areas contaminated with UXO so WoF Europe has developed concepts for buffer zones to allow a "let-burn" approach inside some of these areas.

However, the military use of the land has created disturbance driven ecosystems and habitats with high biodiversity. Most of these areas are now declared nature conservation sites with pan-European importance. Abandoned military use now has to be replaced by other means to maintain the disturbances and to keep the landscape open, in an environment otherwise dominated by forestry and agriculture. Mechanical means like slashers face the risk of hitting UXO, so prescribed fire is an alternative to manage large areas efficiently.

Fortunately, the main vegetation type consists of heather *(Calluna vulgaris)* which is highly adapted to fire. Prescribed burning works ideal for maintaining and regenerating the heather as well as controlling tree and bush encroachment.

Given the experiences of detonating UXO during summer wildfires, standard operating procedures (SOPs) had to be developed and tested to safely ignite and burn these contaminated areas. Holding and controlling a burn under these conditions afforded precaution and protection.

Aerial ignition with the proven Raindance aerial ignition device had to be postponed to phase two of the project due to a flight ban for all aircraft during a wildfire over UXO areas. This is a legal problem that will have to be solved for controlled burns in phase two of the project. ▸

Fuel sampling

Aerial ignition not being an option for now, traditional ignition on the ground was the call of the day. To allow for space and time between the ignition specialist and a fire build-up that could possibly detonate UXO, the Green Dragon incendiary device was mounted on an armoured vehicle, a Russian *Boevaya Mashina Pehoty* (BMP) light tank. The Green Dragon incendiary device shoots Ping-Pong balls filled with potassium permanganate using compressed air. Pressure as well as angle of the shot can be adapted to shoot anything between three to 75 metres in distance, depending on the lay of the vegetation, control line, wind, etc. Shortly before the Ping-Pong ball is fired, a drop of glycol is injected which ignites the potassium permanganate some 40 seconds later. Driving during the ignition and the time delay of ignition provided enough time and space between the ignition team and any hot fire with possible detonations. This method was not as efficient as igniting from the air, but effective enough.

In case the control lines, which were old roads, tank tracks, game paths and sand dunes, would not hold the fire, a converted T55 tank was used for fire suppression. These tanks have seen previous use on airfields as airport fire service tanks in the Czech Republic.

Both vehicles are supposed to provide enough protection against a possible detonation…..although nobody really knows what type of UXO we still may encounter there….
Monitoring of fire behaviour and personnel close to the fire lines was done using a rotary wing unmanned aerial vehicle (UAV) which transferred a live picture stream and video directly to the incident command post.

March 2012 has seen ideal prescribed fire weather conditions in Germany and WoF Europe managed to burn all their project areas all over Germany. At the end of March, not only the

A converted T55 tank was used for fire suppression

Ignition with the Russian BMP light tank fitted with a Green Dragon incendiary device

Unexploded ordnance (UXO)

Unexploded ordnance (UXO) after the fire

Monitoring was done via a UAV

weather was favourable, but also all partners from tanks to UAV, county administration, landowners, Army, etc were available to start burning.

The developed UXO burning SOPs, burn plan and ignition hardware worked well and the first 35 hectares of contaminated land could safely be burned. Fire behaviour was quite intense for a late winter burn and the fire effects did meet all expectations. All old heather was consumed, giving way for regeneration. Bush and smaller trees were killed, older trees affected so that secondary damages are expected to kill off some more. Larger pine and birch trees were hardly affected and remain standing as aeries for birds of prey.

No UXO detonations were observed during the burn. A wildfire a week before also didn't detonate UXO. A theory could be that soil temperatures in a winter burn are too cool for a heather fire to affect UXO.

Alex Held of WoF Europe will keep FRI readers informed and we will publish the reports of phase two of the project, aerial ignition of UXO areas and historic ammunition findings.

NMC Specialty Hospital in Abu Dhabi conducting its an annual fire and evacuation drill with the coordination of the Abu Dhabi Civil Defence

Old age homes and hospitals – are we prepared?

By Lenny Naidoo, chief fire officer, Rural Metro Emergency Management Services, South Africa

Two old age home fires in Gauteng recently and another in KwaZulu-Natal, South Africa, a few years ago resulted in tragedy.

What has happened subsequent to the fires is the usual – investigations take place, old age homes become a priority from a fire safety perspective and then the priorities change. Fire services in our country are stretched to the limit as far as personnel are concerned. There is an acute shortage of fire safety officials that could inspect and advise institutions to ensure outbreaks of fires are minimised and responded to in safe and effective manner. Of course, the biggest stumbling block to promoting safety in homes and hospitals is the lack of finance. However, many precautions can be taken that have minimal financial implications.

Fact: smoke is the biggest killer in fire situations because smoke travels very quickly and victims succumb to the poisonous fumes long before the flames get to them. The design of an old age home or hospital can play a huge role in mitigating the effects of smoke build up and travel. Unfortunately, many old age homes and hospitals were built long ago and are not designed to adequately aid in safe and quick evacuation in an emergency.

Consider the following facts about old age homes and hospitals:

- Patients are old and fragile, in some cases handicapped
- Many would be on medication that would cause disorientation
- There are large numbers of patients
- Some would not be able to escape without assistance
- Security concerns would bring about a situation of locked doors and windows that hinder safe evacuation
- Housekeeping may be poor and there would blocked exits and large fire loads of combustible materials
- Quick and safe evacuation will be hindered due to absence of public address systems
- Inadequate training of staff to aid in emergencies
- Absence of evacuation plans
- Too few emergency drills for preparedness
- Minimal staff on duty at night when most outbreaks are likely

These are some of the issues that can result in small outbreaks of fire rapidly developing to large-scale emergencies.

The effects of the fire will certainly cause panic and stress and it is therefore critical that when evacuating people from these facilities, the vacating happens without causing panic. The simple way to conduct the evacuation would be to either make an announcement over the public address (PA) system, where available, using a predetermined code for example "paging doctor red". This could signify a fire, or, alternately play a prearranged song over the PA system thereby alerting staff to an emergency. This can only work if all staff is trained in the evacuation plans and procedures. Quite often staff turnover brings about a situation whereby new staff members are not inducted into the emergency procedures. ▶

Non-ambulatory patients should be moved with life support equipment when possible

▸ Most important is to test the plan to see if it really works, especially if there are changes in design and construction. Let us not be caught napping. Following is a standard plan for a hospital that can be adapted to specific hospitals or old age homes.

Hospital fire plan
If a fire should occur in the hospital, we cannot evacuate like most other types of businesses. Many of the patients are non-ambulatory to varying degrees and many are on life support systems. Therefore, we must be prepared to fight, control, and contain the fire while the building is occupied. The responsibility of initial containment and control of a fire rests with hospital personnel. It is imperative that every employee be familiar with the hospital's fire plan and knows the appropriate action to take if a fire should occur. The actions taken during a fire emergency could be the difference between a minor incident and a tragic event.

Procedures when discovering a fire
The basis of this fire plan is a four-step procedure:
- Rescue
- Alarm
- Confine
- Extinguish/evacuate

Rescue
Escort or carry anyone in immediate danger of fire or smoke to a place of safety.

Sound the alarm
Go to the nearest red fire alarm pull station and activate the alarm by pulling down the handle. Call the fire department and state what is burning and the exact location ie floor, ward.

Confine the fire
Disconnect medical gas flow meters in the room and close all doors in the fire area as you leave the room. This will contain the fire and smoke in the fire area and provide time to evacuate patients in the wing to an area of safety.

Extinguish/evacuate
If the fire is small, attempt to extinguish the fire with a fire extinguisher. If necessary, begin evacuation of the area.

General instructions during fire response
- See that all patients and visitors return to their rooms when possible
- Close all doors leading into the corridor (patients' rooms, treatment rooms, etc)
- Station someone at stairwell doors and fire/smoke barrier doors to prevent movement of personnel, patients, and visitors in the hallways
- Remove all moveable equipment from corridor (wheelchairs, stretchers, carts, etc)
- Unit oxygen shut-off valve. The unit nursing supervisor/designee is authorised to shut-off the wall oxygen valve. This decision should be based on location of fire, magnitude of fire and condition of patients on oxygen.
-

Alarm activation
When a fire alarm device is activated, the alarm will sound, the strobe light will activate, and an audible message should be given only on the floor on which the device is activated and the floor above and below the area on which the alarm device is activated. Security/fire marshals should report to the area in which the device is in alarm to verify it is a fire. If verified it is a fire, the alarm should be sounded throughout the facility.

Procedures if fire is not in the immediate area
Station one person at the telephone to relay instructions. Keep the phone open for official use only. See that all patients and visitors return to their rooms and waiting areas. Close all doors to patient rooms, offices, treatment rooms, etc. Remove all moveable equipment from corridor (carts, wheelchairs, stretchers, etc). Station someone at stairwell doors and fire/smoke barrier doors to prevent movement of personnel, patients, and visitors in hallways. Prepare to evacuate if the order is given.

Evacuation procedures
In a health care facility, total evacuation or even partial vertical evacuation (down stairwells) is not desirable except in the most extreme of circumstances. Therefore, we must look to horizontal evacuation of patients. When possible, patients should be moved horizontally from the fire area through the fire/smoke doors to a safe area of refuge on the same floor (example: G-wing fire area - move patients through G-wing smoke doors to J-wing or K-wing). The local fire department, hospital administration, nursing administration or house manager will be responsible for initiating the evacuation order.

Order of patient evacuation
- Patients nearest the fire
- Ambulatory patients
- Helpless/non-ambulatory patients

Guidelines for patient evacuation
Patients nearest the fire and smoke should be moved first through the smoke/fire doors to a place of safety. Ambulatory patients should be instructed to link hands and will be led to a place of safety beyond fire doors. One assigned person will head up the chain and another will bring up the rear. Non-ambulatory patients should be moved with life support equipment when possible. Oxygen should not be used when going through a fire area. Patients can be moved by wheelchairs and stretchers or placed on a blanket and pulled to a place of safety. In addition, various emergency carries can be utilised to move non-ambulatory patients. When possible, patients' records should be moved during evacuation (see hospital evacuation plan). ▸

Evacuation procedures for patients with special needs

1. Very obese patients

When possible, place obese patients in a room near the fire/ smoke doors and plan on moving them to an adjacent wing (smoke compartment). Move obese patients in their specialty bed.

2. Ventilator-dependent patients

If the ventilator has a battery back-up, leave the patient on the ventilator and move the patient to a safe area with an emergency electrical outlet. Keep the patient attached to portable oxygen. If the ventilator does not have a battery back-up, remove the patient from the ventilator and manually ventilate "bag" the patient while transporting to an area of safety. If the hospital becomes uninhabitable, ventilator-dependent patients must be evacuated directly to the nearest acute care hospital.

3. Bed bound patients

Nursing staff shall be knowledgeable in evacuating patients using lifts, carries or movement of patient on a blanket to a safe area.

Fire fighter carries for evacuation

- Pack strap carry: approach the patient as though you are going to shake hands, except you take the patient's wrists. Your right hand goes on top of the right wrist. Your left hand goes under to the left wrist. Pull the patient to a sitting position. Turn with your back to the bed and cross the patient's arm over your chest. Lean forward, pulling the patient onto your back, and walk off.
- Hip carry: place your left hand to the patient's left hand. Duck your head under the patient's left arm and put the patient's arm around your neck. Pull to a half sitting position. Reach around the patient's back with your right arm, and with your left arm behind the patient's knees, clasp securely to your hips and walk off.
- Cradle drop carry: place a blanket on the floor at the edge of the bed. Pull the patient to edge of bed. Kneel on your left knee and put your arms beneath the patient's back and thigh. Pull the patient off the bed and onto your knee. Lower the patient's head to the floor first and then the legs.
- Swing carry: this carry takes two people. Bring the patient to a sitting position. The patient's arms are placed around the necks of the movers. The movers lock arms behind the patient's back and beneath the patient's thighs. Lift and carry off.
- Extremity carry: this carry takes two people. Pull the patient to a sitting position in the proper manner. The person grasps the patient around the chest and under arms. The second person swings patient's legs off bed. The second person then backs between the patient's legs and grasps beneath the patient's knees. Lift the patient and walk off.

Departmental responsibilities

1. Hospital administration

The administrator should report to scene of the fire and, if necessary, give the order to evacuate. He/she should determine the area to which patients will be relocated and request additional personnel to report to fire scene to assist with evacuation.

2. Nursing service

The nursing service administrator should report to fire scene and supervise evacuation. If after hours, weekends, or holidays, the house manager should report to the fire scene and, if necessary, give the order to evacuate. If the nursing supervisors are not in their unit when the alarm sounds, they should immediately report to their unit. If the order for evacuation is given, care must be taken by nursing personnel that all patients are accounted for. If patients know of the existence of fire, reassure them that the alarm has been turned in and that the emergency plan is in operation. Let the patients know that the situation is under control and that there is no cause for panic.

3. Physical plant

The physical plant supervisor should report to the scene of the fire and lend technical assistance in location of oxygen, air, electrical cut-offs, etc.

4. Safety office

The safety office personnel should respond to the fire alarm upon receipt of a phone call from switchboard and provide assistance.

5. Switchboard

Upon notification of the location of the fire, the switchboard operator will page "Dr Red, 2J", etc. The telephone lines must be kept clear for emergency use. The switchboard operator will call the predetermined list of essential people immediately at office or home. Upon notification of the fire location, the switchboard operator should then page the entire hospital in the following manner: "attention all personnel, attention all personnel, paging Dr Red paging Dr Red." State the area where the fire is located ie "paging Dr. Red, 2J". This code will not unnecessarily alarm the patients, but will notify all personnel of the fire and its location. The operator should page the "all clear" when the emergency is over.

General information

It is the direct responsibility of every department head or supervisor to instruct every employee under his/ her supervision as to the employee's duties in the event of a fire. Personnel should not use elevators during a fire alert. Most fire extinguishers used in the hospital are for use on class A, B and C fires. Most extinguishers in the hospital are general use and may be used on all the described types of fires by using PASS: pull the pin, aim low, squeeze the lever, sweep from side to side.

During fire emergencies and fire drills in the hospital, physicians should be asked to:

- If in a room with a patient, remain in the room pending the conclusion of the drill or fire emergency and continue to treat the patient. Close room doors if practical. If not practical, other staff will close room doors.
- If not in a patient care room, go to the nursing station and be available for response to a medical emergency.
- If in another area (non-patient care area), remain in that location until the "all clear" order is issued.

Volunteers and students should be treated as visitors and asked to go into a room and stay until the "all clear" order is announced or evacuation order is given.

By keeping our old age home and hospital staff trained, fires in these facilities could be contained prior to it spreading and if, in the worst-case scenario, the spread of fire and smoke creates an emergency, the staff will be able to evacuate the facility and follow emergency procedures efficaciously.

WORKING ON FIRE

SCHOLARSHIP FUND

To enhance the sustainability and protection of life, livelihoods, ecosystem services and natural processes through integrated fire management in order to contribute to economic empowerment, skills development, social equity and accelerated service delivery.

WORKING ON FIRE

The **WORKING ON FIRE** (WOF) Programme is one of the most successful components of the South African governments Expanded Public Works Programmes designed to alleviate poverty through skills training and the creation of job opportunities. The WOF Programme draws beneficiaries from impoverished communities and transform formerly unemployed and in some cases unemployable youth into fit, disciplined and trained veld and forest firefighters, which are deployed at over 100 bases in fire prone areas across South Africa. South Africa has created a world record proportion of women in the ranks of these firefighters, where some 30% are young women.

The impact of this programme has been widely recognized through the accolades which it has been awarded over the years. Not only has the WOF Programme made a huge contribution to South Africa's veld and forest fire fighting capabilities, but the modest remuneration which the WOF Programme beneficiaries receive is a critical relief measure from the depths of poverty experienced by so many in South Africa. Their income represents a real contribution to the lives of the beneficiaries, their families and communities where they live.

WOF beneficiaries not only receive specialized training in various fields related to their veld and forest fire fighting work but are afforded to progress in the ranks of the WOF structure to become Type II then Type I crew leaders as well as branching out into the management and administration functions in the programme. Some 84 former fire fighters have already progressed into such positions such as instructors, regional managers, media and community liaison officers, financial clerks, stores and procurement administrators, etc.

The WOF Scholarship Fund is intended to provide resources to aspirant current and former wildland fire fighters still engaged by WOF to pursue further formal training to improve their skills and knowledge. The fund will be managed by a committee consisting of former fire fighters and programme managers, chaired by the executive chairman of FFA Operations, the company implementing the WOF programme.

Contributions will be solicited from the general public, both domestically and abroad, corporate social investment resources and public and private institutions both in the form of general contributions and targeted funding initiatives. Individuals or institutions may also choose to sponsor a WOF beneficiary pursue their further studies or training. The intention would be to register the WOF Scholarship Fund as a public benefit entity to allow for tax deductible contributions from the corporate sector. All contributors to the WOF Scholarship Fund will receive annual statements on the utilization of funds and beneficiary progress.

You are urged to make a contribution to this fund which will greatly enhance the ability of the WOF Fund beneficiaries to improve their skills and knowledge and in so doing improve their employment opportunities and contribution they can make to their communities. Contributions can be made via the enclosed pledge form.

For further information, please contact:
The Executive Chairman,
FFA Operations T/A WORKING ON FIRE,
Email: Abrahams@iafrica.com
Tel: +27 (0) 82 557 5069.
Also see the WOF website at **www.workingonfire.org**

Or deposit your donation in the following Bank Account:

Account Name:	FFA Section 21
Account Nr:	405 953 7280
Branch code:	632005
Bank:	ABSA Nelspruit
Ref:	Scholarship Fund

EXPANDED PUBLIC WORKS PROGRAMME
Creating opportunities towards human fulfilment

AGRI SA
South African National Parks
CapeNature
Eskom
FORESTRY SOUTH AFRICA
CAPE
FIREWISE

Photo: Bernardine Altenroxel

Rabies

Children are far more receptive to education drives than adults are and respond readily to a call to bring their pets for vaccinations

By Bernardine Altenroxel

Rabies is a fatal zoonotic disease that is primarily spread through the bite from an infected animal. The disease affects all mammals, including man, and is endemic throughout South Africa. According to the World Health Organisation (WHO), rabies, which occurs in more than 150 countries and territories, claims more than 55 000 lives across the world annually. This figure would be a lot higher were it not for the post-exposure prophylactic treatment that is administered to an estimated 15-million people worldwide each year. In humans, the prompt administration of this prophylactic treatment can prevent the disease, but if no or incorrect treatment is received, once symptoms appear, there is no cure and death is nearly always inevitable. Although rabies occurs in nearly every country in the world, more than 95% of human deaths from rabies occur in Asia and Africa.

Importance of prompt prophylactic treatment

The importance of prompt prophylactic treatment was recently highlighted when rabies was confirmed to have claimed the life of a 29-year-old farmer from Underberg in KwaZulu-Natal. According to a statement released by the National Institute for Communicable Diseases/ National Health Laboratory Service (NICD/NHLS), the patient was first admitted to a Pietermaritzburg hospital on 2 May 2012 with migratory pain in his arm and shoulder, unilateral ptosis, fever, confusion and progressively, hyper salivation and hydrophobia. He had already fallen ill on 29 April 2012.

It emerged that he had had contact with a stray dog that he had taken in, which had died two months prior to his illness. The dog had reportedly developed signs and symptoms consistent with rabies within a couple of days of being taken in. There were no reports of the patient having being bitten by the dog, nor of him having received any serious injuries from the animal. He thus did not receive any rabies post-exposure prophylaxis at the time. However, it is likely that he was in contact with the saliva of the dog that probably resulted in infection through broken skin or mucous membranes. Once rabies was suspected in the human patient, the body of the dog was exhumed and subsequently tested positive for rabies.

On admission to hospital, the patient received rabies immunoglobulin and rabies vaccination. Once the diagnosis of rabies was likely, say the NICD/NHLS, he was managed according to a modification of the Milwaukee protocol. The intervention was however too late, and on 8 June 2012, the farmer died when life support was discontinued after ▸

he was declared brain-dead. Rabies was confirmed at the NICD/NHLS by a fluorescent antibody test on a brain biopsy specimen. This was the second, confirmed human death to rabies in the area. Local media reports named the farmer as Graeme Anderson, a top canoeist and keen sportsman.

Localised outbreak

According to the Department of Agriculture, Forestry and Fisheries (DAFF), there is currently a localised outbreak in the Winteron/Bergville area, which spread from an outbreak in Ladysmith. This outbreak also reportedly resulted in the death of an eight-year-old child from eMaswazini in Bergville, who was bitten by his own dog. Vaccination campaigns of dogs and cats are on-going in the area, say DAFF.

A positive rabies case was also recently reported from Chartwell in Johannesburg in an unvaccinated puppy that was brought in from the Transkei. Here, a vaccination campaign covering a 10km radius was arranged by the Gauteng State Veterinary Services in an effort to prevent an outbreak following reports that the dog interacted with other dogs at Kingfisher Park in Fourways.

Rabies – the facts

In the northern parts of South Africa, jackals are recognised as the main maintenance host, whilst in the western areas, the bat-eared fox dominates in this regard. The yellow mongoose is also one of the major host species. Dogs play an important role in the spread of the disease and the vast majority of infections in man are as a result of a bite from an infected dog. The rabies virus belongs to the Lyssavirus genus of the Rhabdoviridae family and includes the classical rabies virus (genotype 1), and six so-called rabies-related viruses, namely the Lagos bat virus (genotype 2), Mokola virus (genotype 3), Duvenhage virus (genotype 4), European bat lyssaviruses 1 and 2 (genotypes 5 and 6) and the Australia bat virus (genotype 7). Of these six, the Mokola, Lagos bat and Duvenhage viruses have all been isolated in South Africa.

The virus is shed in the saliva of the infected animal and thus transmission occurs primarily through a bite. However, the virus may also cause infection through saliva-infected contamination of the mucous membranes of the mouth, eyes and nasal passages when, for example, an infected animal licks someone, or through saliva-infected contamination of broken skin. The virus is usually shed in saliva with, or soon after, the appearance of clinical signs, but may also occur before their onset. Once the infection has been introduced, the virus travels along the nervous system until it reaches the brain upon which clinical signs appear. The incubation period in humans varies since bites closer to the brain, such as on the head or face, will cause infection much sooner than bites further away from the brain, such as on the leg. It must also be borne in mind that very deep or severe bites will have introduced a higher dose of virus and the incubation period may thus be much shorter. Once symptoms appear, death usually occurs within 10 days in animals and five days or less in humans. However, death in humans can be prevented if the rabies vaccine and, where necessary, rabies immunoglobulin are administered as soon as possible after exposure. There is no effective treatment to prevent infection occurring in unvaccinated animals once they have been exposed to rabies though.

Since rabies has a neurological component, it can mimic many other diseases making clinical diagnosis difficult. What is important to remember is that the disease is nearly always associated with behavioural changes and what is often said is that it will turn a tame animal wild, and a wild animal tame, but this is not a hard-and-fast rule. Rabies is usually described as having a prodromal phase which is followed by either an excitive 'furious' form or a paralytic 'dumb' form. In dogs, the animals will typically attack and bite at anything and other symptoms may include the animal having exaggerated responses to sound and light, snapping at imaginary flying insects, wandering aimlessly, having a fixed stare and drooling saliva. Cats generally become extremely aggressive and uncoordinated and may be observed frothing, suffering from muscle tremors, having dilated pupils, taking on a threatening posture and attacking without provocation. Infection in cattle is typically marked by a hoarse bellow and aggression, especially on provocation. They may also attack inanimate objects, butt other cattle

Photo: Bernardine Altenroxel

Dogs play an important part in the spread of rabies

People living in poverty and children are most at risk of being exposed to rabies cases

Photo: Bernardine Altenroxel

or attack people. Wild animals will often lose their fear of humans and appear tame, wandering into houses or camps.

Bats have long been blamed as another species capable of spreading the rabies virus, but infection of bats with the classical rabies virus has only been confirmed to occur in the Americas. According to WHO, rabies in bats also recently started to emerge as a public health threat in Australia and western Europe. However, it should be kept in mind that in South Africa, there have been cases where bats tested positive for the rabies-like viruses, Lagos bat and Duvenhage, but it is only the Duvenhage virus that has subsequently proven to cause rabies infection in humans. In a recent news report, bats were blamed for infecting eight children in Ecuador's Amazon basin with rabies. All the children subsequently died - eight unnecessary deaths, for had they received the prophylactic treatment in time, it is highly unlikely they would have fallen ill. It was reported that the families of the children did not seek medical assistance from doctors practicing Western medicine, rather opting to turn to traditional healers. In an effort to prevent further deaths, authorities were working to convince local people not to fear modern medicine. Educating communities on rabies is key to dispelling myths and saving lives.

According to WHO, in humans, the initial symptoms of rabies are fever and often pain or an unusual or unexplained tingling, pricking or burning sensation at the wound site. A progressive, fatal inflammation of the brain and spinal cord develops as the virus spreads through the central nervous system. As in animals, one of two forms will then follow: signs of hyperactivity, excited behaviour, hydrophobia and sometimes aerophobia will be exhibited in people with the 'furious' form, after which death occurs as a result of cardio-respiratory arrest. In the 'paralytic' form, which accounts for about 30% of human cases, the muscles gradually become paralysed, starting at the site of the bite or scratch and progressing until coma slowly develops and death occurs. This form of rabies runs a less dramatic, usually longer course and is often misdiagnosed (which contributes to the underreporting of the disease).

Any animal displaying neurological symptoms and which is suspected of carrying rabies must be euthanised for a brain sample to be obtained for testing. Every effort must be made to preserve the brain. A diagnosis can be made from any part of the brain, the spinal cord, peripheral nerves and salivary glands. The most reliable areas for testing however are the thalamus, pons medulla oblongata, hippocampus and cerebellum. Protective clothing must be worn when the brain is removed and it is for this reason that the task should be left to a trained animal health technician or veterinarian. In terms of the Animal Diseases Act, Act 35 of 1984, rabies is a controlled disease and it is thus of utmost importance that any suspected case of rabies be reported to the nearest State Vet without delay. Anyone who has been bitten by an animal suspected of having rabies must seek medical attention immediately. While general wound management is crucial in all patients, for those potentially exposed to an animal suspected of being rabid, the following wound management should be followed (as prescribed by Rabies: A Practical Guide by A Kitching and L Blumberg):

- Immediate and thorough washing of wounds with water, soap and a virucidal antiseptic may considerably reduce the risk of contracting rabies
- This should be done immediately when the patient presents post-exposure
- Flush the bite site well with soap and water, or water alone for at least five to ten minutes, then apply disinfectant
- Avoid suturing the bite wound and use of local anaesthetics
- Give antibiotics
- Give Tetanus toxoid

Following thorough flushing and cleaning of the wound, the recommended post-exposure prophylaxis administered depends on the type of contact or degree of exposure that has occurred. This treatment may include vaccination, or the administration of the vaccine as well as the rabies immunoglobulin:

- Vaccine course for category 2 and 3 exposures
- Addition of rabies immunoglobulin (RIG) in category 3 exposures is critical (provided the patient has not previously been vaccinated)
- Both are aimed at neutralising the rabies virus at the site of infection before it can enter and replicate in the central nervous system; with RIG, providing prompt passive administration of virus-neutralising antibodies before the patient has had time to mount an active immune response to rabies vaccination

The WHO post-exposure prophylaxis guidelines based on the category of exposure to a rabid animal are as follows:

	Exposure to rabid animal*	**Treatment**
Category I	Touching or feeding; licked unbroken skin	None
Category II	Nibbled uncovered skin; minor scratches or abrasions without bleeding	Local treatment of the wound and immediate vaccination
Category III	One or more transdermal bites or scratches; licked broken skin; contamination of mucous membranes with saliva from licks; any degree of exposure to potentially rabid animals	Local treatment of the wound, immediate vaccination, and administration of rabies immunoglobulin (RIG)
* Exposure to a confirmed or suspected rabid animal or to an animal unavailable for testing. Wound cleansing with soap, water, and a virucidal agent is a cheap and effective part of post-exposure prophylaxis and has been shown to substantially increase survival rates.		

Vaccination of dogs and cats against rabies is compulsory in South Africa. The vaccine is safe, highly effective and may be administered to all dogs and cats regardless of their age, weight or if they are pregnant. Under normal conditions, the first vaccination should be administered to the dog or cat at the age of three months, followed by a second vaccination within 12 months. Thereafter, the vaccination should be administered every three years. Early detection followed by a proper follow-up can prevent, or stop an outbreak in its tracks. Since the rabies vaccine is highly effective in preventing rabies, it remains the most cost-effective strategy for preventing human infections.

Intervention

People living in poverty and children are most at risk of contracting or being exposed to rabies and aggressive education drives are the key to preventing rabies deaths. The Directorate of Veterinary Services of the Department of Agriculture, Forestry and Fisheries (DAFF) in South Africa are responsible for vaccination programs against rabies. In large-scale vaccinations, where a rabies case/s have been detected, the aim is to inoculate at least 70% of the animal population at risk in a single campaign within as short a period of time as possible. Active participation and support from disaster management and other important role-players during an outbreak can assist in enhancing efforts to bring about an end to a rabies outbreak. Where literacy levels are low, a loudhailer is an effective means to inform people where vaccination points are located and to provide them with additional information regarding rabies. This method has proven to boost the number of people who respond to a call to have their animals vaccinated. Pamphlets distributed at schools during the vaccination campaign warning against the dangers of rabies, listing symptoms and what to do in the event of a suspected case usually prompts a favourable reaction as well. Children are far more receptive to education drives than adults are and focusing on schools can reap tremendous rewards in the fight against the spread of rabies.

Health care facilities and emergency medical services need to be properly informed of an outbreak or notified of a confirmed case within their area of operation. In rural areas, primary health care facilities are most likely to be the first to receive patients who have been bitten by a potentially rabid animal. It is thus of vital importance that these facilities are aware of any rabies outbreaks and know the correct procedure to be followed. During an outbreak, every animal bite case presented at a hospital or clinic must be reported to the nearest State Vet for a follow-up to be made. Police stations and animal welfare organisations are also likely to receive reports of potential rabies cases, especially where larger animals such as donkeys are involved, and need to be informed of the correct procedure to be followed and updated on new cases.

Keeping all relevant role-players informed and making them active participants is an important part in the fight against rabies. Educating affected communities and those at risk, and dispelling myths is of paramount importance for without the cooperation of a community, nothing can be achieved.

*For more detailed information, download Rabies: Guide for the Medical, Veterinary and Allied Professions at http://www.daff.gov.za/vetweb/Pamphlets&Information/Rabies/Rabies_Guide_2010_small.pdf

*For advice on assessing the category of exposure or on post-exposure prophylaxis / treatment, contact the NICD Hotline for clinical advice at 082 883 9920.

December

1 - 4 December 2012

Middle East Fire, Safety and Security Exhibition (MEFSEC)

The mission of MEFSEC is to facilitate knowledge transfer and business opportunity in key sectors of the fire fighting, safety and security market

Venue: Cairo International Convention Centre, Cairo, Egypt

Contact: email: egytec@egytec.com

For more information visit: www.mefsec-middleeast.com

5 – 7 December 2012

The 2nd International Disaster, Emergency Management and Fire Prevention Technology and Equipment Exhibition

The exhibition attracts industry experts and speakers from the government and other sectors to share their experiences and know-how in dealing with the growing issue of safety and disaster prevention today

Venue: Jakarta Convention Centre, Jakarta, Indonesia

Contact: Email: info@cems.com.sg

For more information visit: www.safetysecruityindonesia.com

13 December 2012

Emergency Management New York City Public Safety Technology Summit 2012

Technology is facilitating closer and more collaborative relationships between public safety agencies and the community, empowering the general public and raising their expectations regarding the transparency of government agencies

Venue: Hilton Hotel, New York City, New York, USA

Contact: Jen Caldwell Tel: 001 800 940 6039 email: jcaldwell@emergencymgmt.com

2013

January

15 January 2013

Post-Traumatic Stress Disorder (PTSD) Symposium

Presentations will address PTSD for military personnel, Alberta first responders including police, fire fighters, paramedics, medical and health care workers, industrial workers, general public and family members affected by this debilitating mental condition

Venue: Delta Edmonton South Hotel and Conference Centre Edmonton, Alberta, Canada

Contact: Email: publisher@worksite-news.com

For more information visit: www.events.r20.constantcontact.com

February

23 – 24 February 2013

The Pittsburgh Fire Rescue and Emergency Services Expo

The nation's largest and best attended trade shows for fire fighters, paramedics, EMTs and other emergency services personnel. The Expo is celebrating its 26th Anniversary by bringing over 200 of the nation's finest companies together to showcase thousands of products and services

Venue: Monroeville Convention Centre, Monroeville, Pennsylvania, USA

Contact: email: stacey@kellysimontradeshows.com

For more information visit: www.kellysimontradeshows.com

March

7 - 8 March 2013

Hazmat 2013

The Hazmat conference is an essential opportunity for Hazmat specialists to share experiences and knowledge with like-minded professionals working in the hazmat and chemical incident industry.

Venue: Eastwood Hall, Nottingham, Nottinghamshire, United Kingdom

Contact: Tel:0044 0 870 190 6621

For more information visit: www.the-ncec.com

19 – 21 March 2013

Wildland Urban Interface Conference

The most influential people in fire fighting, involved in combating the challenges of wildland fire will join to discuss the problems faced and how collectively new strategies can be implemented.

Venue: Peppermill Reno Hotel Casino, 2707 S. Virginia Street, Reno, Nevada

Contact: IAFC@compusystems.com

For more information visit: www.iafc.org/wui

April

10 - 11 April 2013

Tangent Link's 10th Aerial Fire Fighting Conference, Exhibition and Air Show

This world leading conference aimed at the world's aerial fire fighting community will bring together international government, procurement and operational officers, civil organisations, international manufacturers, operators and service providers to discuss and debate the latest techniques, technologies and platforms available to tackle the specific and persistent threat of wildfires

Venue: Marseille, France – details to follow

Contact: Rebecca Covey Tel: 00 44 1628 550047 email: rcovey@tangentlink.com

For more information visit: www.tangentlink.com

15 – 18 April 2013

Moscow International Protection, Security, Fire Fighting and Safety Exhibition

The largest commercial, international exhibition of systems and technologies of protection, security and fire safety in Russia and the CIS has been in operation since 1995.

Venue: Expocentre Krasnaya Presnya, Moscow, Russia

Contact: Ilya Sobolev Tel: 00 44 207 596 5170 email: ilya.sobolev@ite-exhibitions.com

22 – 27 April 2013

Fire Department Instructor Conference and Exhibition (FDIC)

The event will bring together a number of decision

makers, experts and trainers along with many manufacturers and suppliers from the fire industry to present a comprehensive display of products, equipment, accessories and technologies for fire fighting and a number of educative seminars and workshops on different aspects of fire fighting and special events like award functions.

Venue: Indiana Convention Centre, Lucas Oil Stadium, Indianapolis, USA

Contact: Tel: 00 888 299 8016
email: registration@pennwell.com or
Susie Cruz email: scruz@pennwell.com

For more information visit: www.fdic.com

May

4 May 2013

International Fire Fighters Day

For more information visit: www.firefightersday.org

9 – 11 May 2013

Fire Fighting European Helicopter Show

Our program will feature a display and demonstration of fire fighting helicopters and associated airborne and ground equipment. Forest and bush fire fighting is the main purpose and utilisation for these helicopters.

Venue: Letiště 98, 503 41 Hradec Králové 7, Czech Republic

Contact: Emma Davey Tel: 00 44 020 8549 5024
email: emma@avbuyer.com

For more information visit: www.eurohelishow.com

15 – 17 May 2013

South African Emergency Services Institute's 29th International Conference, Exhibition and Training Event

The conference and training event will cover vehicle extrication, urban search and rescue, high angle rescue, EMS challenge and emergency services combat challenge.

Venue: Johannesburg Expo Centre, Johannesburg, South Africa

Contact: Wiek Alberts Tel: 0027 0 76 494 2609
email: wieka@telkomsa.net

For more information visit: www.saesi.com

29 – 31 May 2013

Australian and New Zealand Disaster and Emergency Management Conference

Will provide a forum to examine the issues surrounding natural and man-made hazards.

Venue: Brisbane, Australia

Contact: email: admin@anzdmc.com.au

For more information visit: www.anzdmc.com.au

June

6 – 9 June 2013

International Hazardous Materials Response Teams Conference

The conference promises informative sessions and unique hands on training designed to tackle the most pressing issues facing hazmat professionals.

Venue: Hilton Hotel Baltimore, Baltimore, Maryland, USA

Contact: Shannon Gilliland Tel: 00 703 537 4838 or
email: sgilliland@iafc.org

For more information visit: www.iafc.org/hazmat

23 – 26 June 2013

The World Conference on Disaster Management

The conference will cover emergency management, resilience and risk management, crisis communication and business continuity.

Venue: Metro Toronto Convention Centre, Toronto, Canada

Contact: Merry Clayton Tel: 00 1 888 443 6786
email:mclayton@divcomevents.com

For more information visit: www.wcdm.org

July

9 – 11 July 2013

3rd International Conference on Disaster Management and Human Health: reducing risk, improving outcomes

The conference will focus on current global health risks, and how best to prepare for, respond to and recover from disasters

Venue: Wessex Institute of Technology, the New Forest, United Kingdom

Contact: Irene Moreno Millan
email: imoreno@wessex.ac.uk

For more information visit: www.wessex.ac.uk/disaster2013

October

24 – 26 October 2013

Fire India

Fire conglomerates from around the world will have their presence once again in the event displaying the latest and improved technologies

Venue: Bombay Exhibition Centre, Goregaon, Mumbai, India

Contact: Isha Taneja Tel: 0091 11 4505 5500

For more information visit: www.fire-india.com

25 – 30 October 2013

International Association of Emergency Managers (IAEM) 61st Annual Conference

The IAEM Annual Conference provides a forum for current trends and topics, information about the latest tools and technology in emergency management and homeland security, and advances IAEM committee work. Sessions encourage stakeholders at all levels of government, the private sector, public health and related professions to exchange ideas on collaborating to protect lives and property from disaster.

Venue: Silver Legacy Hotel and Reno Events Centre, Reno, Nevada, USA

Contact: Tel: 001 703 538 1795 email: info@iaem.com

For more information visit: www.iaem.com

2015

6th International Wildfire Conference

Venue: Korea

More information coming soon or visit: www.ffa.co.za

A fireman's wish

I WISH YOU COULD SEE
the sadness of a businessman as his
livelihood goes up in flames
or that family returning home
only to find their house and belongings
damaged or destroyed.

I WISH YOU COULD KNOW
what it is to search a burning bedroom for trapped children
flames rolling above your head, your palms
and knees burning as you crawl
the floor sagging under your weight as
the kitchen beneath you burns.

I WISH YOU COULD COMPREHEND
a wife's horror at three am as I check her husband
of fourty years for a pulse and find none
I start CPR anyway, hoping against the odds to bring him back
knowing intuitively it is too late
But wanting his wife and family to know
everything possible was done.

I WISH YOU COULD KNOW
the unique smell of burning insulation,
the taste of soot-filled mucus
the feeling of intense heat through your turnout
gear, the sound of flames crakling
and the eeriness of being able to see
absolutely nothing in dense smoke
Sensations that I have become too familiar with.

I WISH YOU COULD UNDERSTAND
how it feels to go to work in the morning
after having spent most of the
night, hot and soaking wet at a multiple alarm fire.

I WISH YOU COULD READ
my mind as I respond to a building fire, 'Is this a
false alarm or a working, breathing fire?
How is the building constructed? What hazards await me?
Is anyone trapped or are they all out?'
or to an EMS call, 'What is wrong with the patient?
Is it minor or life-threatening? Is the caller really in distress
or is he waiting for us with a 2X4 or a gun?'

I WISH YOU COULD BE
in the emergency room as the doctor
pronounces dead the beautiful little
five-year old girl that I have been trying to
save during the past twenty-five
minutes, who will never go on her first date or say the words
"I love you Mommy," again.

I WISH YOU COULD KNOW
the frustration I feel in the cab of the
engine, the driver with his foot
pressing down hard on the pedal, my arm
tugging again and again at the
air horn chain, as you fail to yield rightof-
way at an intersection or
in traffic. When you need us, however,
your first comment upon arrival
will be, "It took you forever to get here!"

I WISH YOU COULD READ
my thoughts as I help extricate a girl of teenage
years from the mangled remains
of her automobile, 'What if this were my
sister, my girlfriend, or a friend?
What were her parents' reactions going to be
as they open the door to find a police officer?'

I WISH YOU COULD KNOW
how it feels to walk in the back door and
greet my parents and family
not having the heart to tell them that I
nearly did not come home from
this last call.

I WISH YOU COULD FEEL
my hurt as people verbally and sometimes physically
abuse us or belittle what we do, or as
they express their attitudes of
'It will never happen to me.'

I WISH YOU COULD REALISE
the physical, emotional, and mental drain
of missed meals, lost sleep, and
forgone social activities, in addition to all
the tragedy my eyes have viewed.

I WISH YOU COULD KNOW
the brotherhood and self-satisfaction of helping
save a life or preserving someone's property
of being there in times of crisis
or creating order from total chaos.

I WISH YOU COULD UNDERSTAND
what it feels like to have a little boy
tugging on your arm and asking
"Is my Mommy OK?" Not even being
able to look in his eyes without
tears falling from your own and not knowing what to say
Or to have to hold back a long-time friend who
watches his buddy having rescue breathing done on
him as they take him away in the ambulance
You knowing all along he did not have his seat belt on
Sensations that I have become too familiar with.

UNLESS YOU HAVE LIVED
this kind of life, you will never truly understand or appreciate
who I am, what we are, or what our job really means to us.

I WISH YOU COULD!

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