THE CATALYST

Q2 2020

JOIFF

THE INTERNATIONAL ORGANISATION FOR
INDUSTRIAL EMERGENCY SERVICES MANAGEMENT

TRAINING FEATURE:

TRAINING FEMALE FIREFIGHTERS

OUTSOURCING FIRE & RESCUE SERVICES -
Effectively Managing Risk & Resilience

REDUCED TRAINING BUDGETS

ELECTRIC VEHICLES -
A Growing Risk To Emergency Responders

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Fire Fighting Foams & Equipment

ABOUT JOIFF

JOIFF, the International Organisation for Industrial Emergency Services Management is a not-for-profit organisation dedicated to developing the knowledge, skills and understanding of personnel who work in and/or who are required to provide emergency response to incidents in Industry, primarily High Hazard Industry, with the aim of ensuring that risks in Industry are mitigated and managed safely.

The 4 pillars of JOIFF aiming to support its Membership in preventing and/or mitigating hazardous incidents in Industry are: Shared Learning – improving risk awareness amongst JOIFF Members; Accredited Training – enhancing operational preparedness in emergency response and crisis management; Technical Advisory Group – raising the quality of safety standards in the working environment of High Hazard Industry and Professional Affiliation - networking and access to professionals who have similar challenges in their work through Conferences and other events and the prestige of being a member of a globally recognised organisation of emergency response.

Full Members of JOIFF are organisations which are high hazard industries and/or have nominated personnel as emergency responders/hazard management team members who provide cover to such organisations. Commercial Members of JOIFF are organisations that provide goods and services to organisations in the High Hazard Industry.

JOIFF welcomes enquiries for Membership - please contact the JOIFF Secretariat for more information.

JOIFF CLG is registered in Ireland. Registration number 362542. Address as secretariat.

JOIFF is the registered Business Name of JOIFF CLG

ABOUT THE CATALYST

The Catalyst is the Official magazine of JOIFF, The International Organisation for Industrial Emergency Services Management. The Catalyst is published Quarterly – in January, April, July & October each year. The JOIFF Catalyst magazine is distributed to all JOIFF members and member organistions worldwide. The Catalyst magazine is published by ENM Media on Behalf of JOIFF.

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Annual Non – Member Subscription Rates:
UK & Europe £60:00
Rest of World: £ 90:00

MESSAGE FROM THE CHAIRMAN

Dear JOIFF Members and Catalyst readers,

During the first quarter of 2020 the world has united as never before, due to the Corona virus, also referred to COVID 19. To state that we are living in a strange world is putting it very lightly, as this is a learning experience for the whole world!

As emergency responders we are not immune against this threat and I pray that we all will remain safe during the duration of this times. Your safety is in your hands, so please take utmost care!

I am proud to report back that the Foam Workshop held in London on 10 February 2020 was a great success and would like to take this opportunity to thank my colleagues Paul Budgen and Gerry Johnson for managing this event. This event would not have been a success without our sponsors and also all the members and guests who attended and thus my sincere appreciation and thanks to you all!!

Arising from the Foam Summit, this edition of The Catalyst provides a historic "first" and we are very proud to publish our first Catalyst supplement – this on the very important subject of Foam.

Please note that all presentations are available to JOIFF members on the members area on www.joiff.com.

You will also have received notices referring to the first online seminar that we are planning and I urge you to please register. This can be done on the JOIFF website www.joiff.com The theme of this seminar is Training and this promises to be another great shared learning experience.

We are planning for more online seminars during this year and details will follow in due course.

This edition of The Catalyst concentrates on Training which is one of the 4 pillars of JOIFF. In these difficult times, once again training budgets are at serious risk. Rapid site intervention through training can enhance business continuity. When from time to time I hear about training budget cutbacks for emergency responders, I am reminded of the saying "Train as if your life depends on it because some day it might". In this edition one our authors gives examples of how through training, a number of lives have been saved by the competence of the responding teams.

I would like to extend my personal thanks to the authors and other contributors to this edition and also to the publishers for ensuring that even in these very difficult times of lockdown of business, JOIFF can continue to operate another of its pillars - Shared Learning.

May I conclude by again wishing you all the best in executing your duties during this very challenging time.

Stay safe.

Kind regards

Pine Pienaar FIFireE; FJOIFF; FSAESI
Chairman JOIFF Board of Directors.

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NEWS FROM JOIFF:

JOIFF AT INTERSEC 2020

JOIFF was proud to be at Intersec, the leading annual Fire, Safety and Security trade exhibition in the Middle East, thanks to the generosity of JOIFF member organisation Bristol Fire Engineering, part of the Concorde-Corodex Group, who once again generously made space available to JOIFF on their stand as they had done for JOIFF at Intersec 2018 and 2019. During the event many visitors from many Countries came to learn about and talk about JOIFF and a number of JOIFF member organisations who were exhibiting at Intersec and called to the stand to express their support for JOIFF being at Intersec.

Left: Left to right: Pine Pienaar, JOIFF Chairman; Bodor Al Nimer, Bristol Corodex; Gerry Johnson, JOIFF Director; Kevan Whitehead Managing Director and Mohammed Hamoud Naser Al Balushi Group Chairman, Unity Fire and Safety Services LLC, Sultanate of Oman.

Below: Rizwan Ullal, Events - Marketing Lead, Corodex Trading L.L.C with Pine Pienaar, JOIFF Chairman.

LOCKED DOWN THROUGH A PANDEMIC

Imagine there is a Bank that credits your account each morning with $ 86,400. It carries no balance forward from day-to-day. Every evening it deletes whatever part of the balance you failed to use during the day. What would you do ? Draw out every cent of course !!

Each of us has such a bank - its name is time. Every morning it credits you with 86,400 seconds. Every night it writes off as lost whatever of this you have failed to invest to good purpose. It carries over no balance. It allows no overdraft. Each day it opens a new account for you. Each night it burns the remains of the day. If you fail to use the day's deposit the loss is yours.

There is no going back, there is no drawing down against tomorrow. You must live in the present on today's deposits. Invest it so as to get from it the utmost in health, happiness and success. The clock is running. Make the most of today.

Treasure every moment that you have. Remember time waits for no-one.

Yesterday is history. Tomorrow is mystery. Today is a gift – that is why it called The Present.

EDITOR'S NOTE:

This is an abridged version of an article was published in the January 2017 edition of the Catalyst under the title "A thought for the coming year - Bank account of Life". In these very difficult times for everyone with tragedy all around us, we hope that re-publishing the message in the article will assist in encouraging you to remain positive and keep up your spirits. We are all in this together. Stay safe and we are all thinking of you wherever you are.


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NEW JOIFF MEMBERS

During January, February and March 2020, the JOIFF Board of Directors were pleased to welcome the following new Members.

Blaze Manufacturing Solutions Ltd., Scotland, United Kingdom represented by Christopher Hudson, Area Sales, Howard Johnson, Managing Director and Ann Johnson, Finance Director. Blaze Manufacturing Solutions was established in 2006, as provider of fire safety protection, detection and loss prevention solutions for harsh and challenging environments, providing solutions to the oil and gas, renewable energies, mining, commercial and industrial sectors internationally. Blaze holds formal approvals for ISO 9001; ISO 14001; and OHSAS 18001 environmental and occupational safety approval; and is also a member of the Oil and Gas service benchmark association, First Point Assessment. In 2017, Blaze was named as one of the top 1000 UK Companies to Inspire by the London Stock Exchange Group.

Firetech Equipment and Systems Ltd., Mumbai, India represented by Abhishek Bagwe, Chief Executive Officer, and Kiran Rane, Managing Director. Firetech Equipment and Systems Ltd. was established in 1994 and designs, engineers and manufactures fire suppression solutions for clients in India and Internationally. They have provided asset protection for oil jetties, LNG storage installations, helicopter landing pads etc. and supported the development of a foam protection system for India's first indigenously developed nuclear submarine. They have also supplied foam systems for one of India's high altitude fighter plane hangers in the Himalayan region.

Newcastle International Airport Training Academy, United Kingdom represented by John Purdy, Commercial Training Manager and Victoria Woodhouse, Commercial Training Executive. Newcastle International Airport Training Academy provides a range of safety related training courses to customers from around the globe. With learning facilities, experienced instructors and the capability to provide bespoke training to meet customers' needs, Newcastle International Airport Training Academy are the training provider of choice for many companies and individuals.

Phillips 66 Humber Refinery, South Killingholme, United Kingdom represented by Barry Pearman, Emergency Response Group Supervisor. Phillips 66 Humber Refinery is an oil Refinery with a total of 4 Upper Tier COMAH sites with refining and gas and petroleum distribution via road rail and shipping. Approximately 70 percent of the light oils produced in the refinery are marketed in the United Kingdom, with the other products exported worldwide. The Refinery has a large emergency response capability with full time and part time personnel.

Royal Crown® Egitm Hizmetleri Teknonji Danismanlik Limited Sirketi, İstanbul, Turkey represented by Sameer Al Fadhli, General Manager and Duaa Qasim, Branch Manager. Royal Crown® provides training services and consulting in the Middle East, where it derives its importance from a wide range of specialized courses that cover all aspects of the oil & gas industry and HSE sectors.

INDIVIDUAL MEMBERS

During Q 4 2019, the Directors were also happy to welcome Robert Rea, Berkshire, United Kingdom. Robert was a member of the United Kingdom Fire Service more than 30 years serving with Royal Berkshire and was an instructor at the Fire Service College. During his career, he has designed and presented specialist training for UK and International facilities in disaster response and management, USAR, rope rescue, Incident Command etc.

We look forward to the involvement of our new and existing Members in the continuing development of JOIFF.

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JOIFF FOAM SUMMIT
10TH FEBRUARY 2020 - LONDON, UK

JOIFF had identified that there was a clear need for an impartial, independent and authoritative Technical Summit to discuss current issues relating to Fire Fighting Foam and as a truly Independent organisation which has a major interest in informing and educating its members, JOIFF was ideally placed to host a truly independent Foam Summit, attendance to which would be free to all JOIFF Members. A 1 day JOIFF Foam Summit took place in London on 10th February 2020 and despite cancellation of many flights and trains due to Storm Ciara, more than 100 delegates attended.

Thanks to the panel of excellent Speakers, some of whom could not attend due to cancellation of flights and so participated through internet, many of the key sides of the current discussions and issues were represented.

Our thanks to the speakers: *Eric Lavergne* - Williams Fire and Hazard Control , *John Ottesen*, CEO of DAFO Fomtec, *Mitch Hubert*, Technical Fellow, R&D Perimeter Solutions, *Dr. Ian Ross*, Global PFASs Lead Arcadis, *Dr. Thomas Leonhardt*, Chairman – Section Fire Fighting Agents Euro-Feu, *Dr. Chang Jho*, Vice President R&D Dynax, *Jochem van de Graff* of H2K Specialists, Mike Willson, Consultant, *David Plant* Angus/ National Foam and Euro -Feu, *Olivier Houlbert* General Manager and *Thierry Delerue* CEO of LEADER Group.

All presentations are available to JOIFF Members in the Members Area of the JOIFF website. The 2018 edition of the JOIFF Guideline on Foam Concentrate is also available to Members for free download in the Members Area of the JOIFF website.

All JOIFF Events are free to JOIFF Members and member companies. For this to be possible we rely on our Commercial Sponsors and Supporters and would like to thank Angus Fire, Bio-Ex, Dr Sthamer, Fomtec, FireDos, Perimeter Solutions, Viking and Williams Fire & Hazard Control for making this important industry event possible.

THE JOIFF FOAM SUMMIT 2021 WILL TAKE PLACE ON FEBRUARY 8TH 2021, WE ARE PLANNING FOR THIS TO BE A COMBINED ATTENDED AND VIRTUAL EVENT AND WILL PROVIDE CONFIRMED DETAILS LATER THIS YEAR.

JOIFF SHARED LEARNING ONLINE SEMINARS

Throughout 2020 JOIFF will be holding a series of Shared Learning Online Seminars On Subjects - Foam, Training, FireFighter Welfare & PPE, Crisis Management/Business Continuity & New Technology.

The Shared Learning Online Seminars are FREE OF Charge to all JOIFF Members (Non Members €135:00 Euro

(You do not have to purchase or download software to join the Shared Learning Online Seminars you just need to register online at www.joiff.com) Programme For JOIFF Shared Learning Online Seminar - Training)

Programme For JOIFF Shared Learning Online Seminar - Training May 26th 2020.

14h00 – 17h00 GMT

Presenter: Daryl Bean MJOIFF
Curriculum Manager
Serco International Fire Training Centre
United Kingdom
Topic: The Daily Use Of Foam & The Environmental Issues That This Creates.

14h45 -15h15 + Q&A

Presenter: Mark Samuels MJOIFF
Senior Emergency Response Specialist
Evolution Risk Assurance Ltd.
United Kingdom
Topic: Training For individual Customer Needs Including Virtual Reality. 15h30

16h00 + Q&A

Presenter: Lonnie Roy Mullen MJOIFF
Emergency Response Coordinator/Fire Chief CHS McPherson Refinery
United States of America
Topic: Using Training Standards To Ensure Competent Emergency Response To Industry.

16h15 – 16h45 + Q&A

Presenter: Peter de Roos
Manager R&D H2K
The Netherlands
Topic: Ensuring Municipal Fire Service Competence In Dealing With Industrial Incidents.

In addition to the JOIFF Shared Learning Online Seminar on Training we are also running a series of online seminars throughout 2020.

THE SUBJECTS WILL INCLUDE:

JOIFF Online Shared Learning Seminar FireFighter Health & Wellbeing

This webinar will discuss the latest thinking on FireFighter Health & Wellbeing.
The Online Seminar will take place on 25th August 2020 at 14h00 - 17h00 GMT

JOIFF Shared Learning Online Seminar Crisis Management and Business Continuity & Resilience.

The Online Seminar will take place on November 24th 2020 at 14h00 GMT.
This webinar will discuss the latest thinking on Crisis Management and Business Continuity & Resilience within the High Hazard Industries in relation to current climate and the learning our Industry can take from the current situation.

All Speakers and topics will be announced nearer the time of the event.

JOIFF Certificate of Completion & the Appropriate CPD Hours will be provided. You can register for these and all future JOIFF Shared Learning Online Seminars at www.joiff.com

EUROPE'S TAKE ON FLUORINE IN FIREFIGHTING FOAMS

by: Dr. Thomas Leonhardt. Chair Section Firefighting Agents EuroFeu
(European Committee of the Manufacturers of Fire Protection Equipment and Fire Fighting Vehicles)

On March 25th the European Chemical Agency (ECHA) published a proposal submitted by Germany to restrict the manufacturing, use and placing on the market of another fluorochemical according to Annex XV of REACH . Germany proposed to ban the manufacturing, placing on the market and use of a chemical called Perfluoro Hexanoic Acid (PFHxA) and its related substances.

By publication of the draft proposal ECHA also opens the floor for commenting by affected stakeholders. The comments will be discussed in consecutive order by two different groups: the RAC (Risk Assessment Committee) and SEAC (Socio-Economic Assessment Committee).

RAC focusses mainly on technical aspects of the proposal such as justification by hazards, technical feasibility, etc., whereas the SEAC takes RAC's opinion plus the public input and also discusses economic impact, reason and consequences of a restriction in the proposed way.

SEAC is tasked to consolidate all available information and develop a common proposal of RAC, stakeholders and SEAC which then will be presented to the Commission. The Commission is then in charge to seek agreement with European member states, draft the final legal text and publish. The publishing date also is the date the new regulation then enters into force. Chemical legislation is harmonized across Europe hence is immediately in force in all member states without national adoption. The Commission follows in many cases the opinion of SEAC.

The following is an extract of the German restriction proposal of all text passages affecting firefighting foams, their making or use. Each individual text passage is contrasted with an interpretation of the importance or impact it may have on various aspects of fire safety.

1. WHAT CHEMICALS ARE AFFECTED?

1. Undecafluorohexanoic acid (PFHxA), its salts and related substances1

(a) Any PFHxA-related substance (including its salts and polymers) having a linear or branched perfluoropentyl group with the formula C5F11- directly attached to another carbon atom;

(b) Any PFHxA-related substance (including its salts and polymers) having a linear or branched perfluorohexyl group with the formula C6F13-.

2. The following substances are excluded from this designation:

(a) c6f13-x, where x= f; "

1.1 What does it mean?

PFHxA is the degradation end-point of all C6-technology → *all AFFF, AFFF-AR, FFFP, FFFP-AR and FP/FP-AR are immediately affected.* Since there is no shorter chain Fluorocompound available in foam technology *all firefighting foams of the above types are restricted,* including any stockpiles of firefighting foam concentrates and/or –solutions in warehouses, systems, trucks, trailers etc..

Apart from firefighting foam concentrates this also affects directly any *foam based portables or spray cans* using foams of the above types.

2. WHAT IS RESTRICTED?

"Shall not be manufactured, used or placed on the market as substances on their own;

2. Shall not be used or placed on the market in:
(a) another substance, as a constituent,
(b) a mixture,
(c) an article

in a concentration equal to or above 25 ppb for the sum of PFHxA and its salts or 1000 ppb for the sum of PFHxA- related substances."

2.1 What does it mean?

The content limits are equal to those for PFOA: 25ppb (=µg/kg) PFHxA and a total of 1000ppb for all (!) of its related substances. A "related substance" is any substance which has the potential to release or break down to PFHxA. For any chemical product containing PFHxA at levels above the limits:

- *No manufacturing of products in Europe* (not even for markets outside of Europe!).
- No use of such chemical products
- Immediate *disposal of all affected products* after expiration of transition time

Complete clean-up of all hardware (trucks, trailers, tanks, systems, piping, pumps, ...) having had contact to foam media in order to make any refill meeting the limits.

3. WHAT ARE THE EXEMPTS?

3.1 General Transition time

"3. Paragraphs 1 and 2 shall apply 18 months from entry into force of the restriction."

Means:

Generally, all restrictions must be met 18 months after the restriction is being put into force. As of that date no further manufacturing is allowed in Europe (irrespective of the target markets!), nor is any import.

3.2 Extended Transition Time for certain products:

"5. Paragraphs 1 and 2 shall not apply until XX XX XXXX [five years after the entry into force] to:
(c) concentrated fire-fighting foam mixtures that were placed on the market before [date – 18 months after the entry into force of this Regulation] and are used or are to be used in the production of other fire-fighting foam mixtures;"

Means:

Firefighting foam concentrates, which were placed on the market within the 18 months transition period, have an extended transition time of five years in total meaning an additional extension time of 42months (18 + 42=60months = 5years). This is not even half of the typical shelf life of firefighting foam concentrates.

After 5 years in (except class B fires of storage tanks >500sqm, see below) only fluorine free foams can be used to fight fires of any combustible chemical in any volume or grouping, any plant or facility irrespective.

IMPORTANT NOTE: since Manufacturing and placing on the European market is prohibited as of 18months after entering into force of the regulation, users will not be able to source AFFF in Europe as of that time. If for any reason stockpiles need to be backfilled (i.e. after a fire or other consumption) users will have to exchange their entire stock as mixing with other agents is not possible and the same agent is not accessible any more.

3.3 Exempts for Military use

"6. Paragraph 1 and 2 shall not apply to concentrated fire-fighting foam mixtures for defence applications – as long as no successful transition to military operable fluorine free foams can be achieved:
(a) for seagoing units, air traffic facilities and storage of fuel;
(b) for training purposes provided that emissions occur in enclosed areas and wastewater is collected and disposed of safely."

Means:

Unlimited exemption for military use on ships, air traffic facilities and tank farms. Even training for military is exempted provided wastewater collection is secured and emissions occur in enclose areas.

IMPORTANT NOTE: since Manufacturing and placing on the European market is prohibited as of 18months after entering into force of the regulation, any European military is forced to source AFFF from outside of Europe.

3.4 Exempt for Large Tanks of Flammable Liquids

"8. Paragraphs 1 and 2 shall not apply until XX XX XXXX [12 years after the entry into force] to concentrated fire-fighting foam mixtures for cases of class B fires in storage tanks with a surface area above 500 m2."

Means:

Foam concentrates used for tank protection of *tanks >500sqm surface area* have an extended transition time of 12 years in total.

After 12 years all class B fires (any size tank, any chemical, any risk secenario) can only be fought using fluorine free foam agents.

IMPORTANT NOTES:

- The text also specifies clearly *only the tank surface* as reference area. *The bund area is NOT included!*
- Since Manufacturing and placing on the European market ends 18months after entering into force of the regulation, users will not be able to source AFFF in Europe as of that time. If for any reason stockpiles need to be backfilled (i.e. after a fire or other consumption) users will have to exchange their entire stock as mixing with other agents is not possible and the same agent is not accessible any more.

4. NEXT STEPS:

As indicated the commenting period has just started March 25th. RAC's first meeting is scheduled to take place between June 2nd and 5th. ECHA strongly recommends to have comments in by no later than May 13th in order to allow RAC considering those in their discussion.

For further information also see https://echa.europa.eu/-/public-consultation-on-the-proposed-restriction-of-pfhxa

EDITOR'S NOTE:

JOIFF Has concerns that this proposal will have massive implications for the full spectrum of the firefighting market, is being implemented without first widely circulating the proposal to end users, manufacturers and other interested parties to allow them to consider the detail and submit comments. The dossier and connected documents of this proposal are in excess of 500 pages and yet the deadlines set for consultation are extremely short. Under normal circumstances the deadlines set would not provide a realistic timeframe to deal with the issues raised and to make constructive comment but the problem of the short time of the deadline set for consultation is seriously exacerbated by the lockdown restrictions currently in effect due to the COVID 19 pandemic. This means that many persons who could be interested in participating in the consultation are not easily contactable and it is very likely that as a result of the lockdowns, the consultation process will not receive the fully expert input that such major changes deserve.

JOIFF is embarking on a campaign to seek an extension of the deadline for comments to provide a realistic period of consultation before these proposals are taken further and is currently preparing a questionnaire which will be circulated amongst its members, many of whom who are major Users and manufacturers of Foam products.

JOIFF asks all readers of The Catalyst who may be effected by the changes proposed, to support JOIFF's campaign by asking their own Organisations, Trade Associations, Standards Bodies, Members of the European Parliament etc. to contact the European Chemical Agency (ECHA) seeking a realistic extension of the deadline for these proposals.

ON THE FRONTLINE TOGETHER WITH HEROES

The Robot-TINO is a remote-controlled emergency response unit designed to fight or to mitigate fires and other hazardous events.

The unit is specifically designed to support firefighters during firefighting or fire mitigation operations in industrial process areas, tank farms, tunnels or anywhere congestion may create dangerous situations for the fire brigade. The unit is powered via a compact diesel engine. Robust and sized to overcome difficult conditions such as those that are often found by emergency responders. The unit is protected against heat radiation with a cooling system which allows the Robot-TINO to get closer than ever to the fire origin to suppress it with higher probability of success.

Robot-TINO

Firefighting Robot

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- Foam concentrate mixing unit
- Toxic/explosive gas detector
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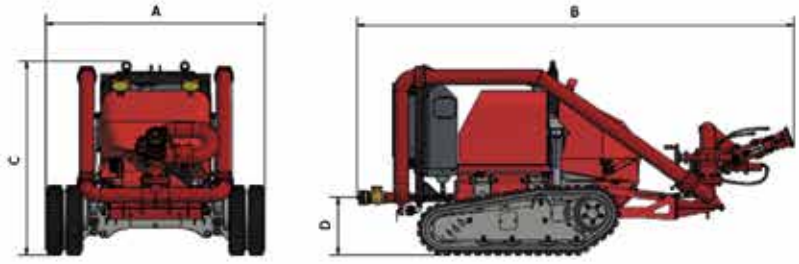
DIMENSIONS AND WEIGHTS



Monitor Body	ØA BSP	A mm	B mm	C mm	D mm	Monitor Working Angles α	Monitor Working Angles β	Max. Flow rate lpm
4"	4x2 ½"	1700	3400	1500	439	+15°	+85°	8500

MORE INFO ON: WWW.ROBOT-TINO.COM

TRAINING FEMALE FIREFIGHTERS

RURAL METRO EMERGENCY MANAGEMENT SERVICES FEMALE FIRE FIGHTER TRAINING PROGRAM

THE ORGANISATION

Rural Metro Emergency Management Services (PTY) Ltd was founded on the premise that Communities and Industries in Africa can benefit from innovative and cost-effective ways of delivering Fire and Emergency services.

As a private Company, we are not bound by tradition, finding better, more efficient ways of managing personnel and resources. Pursuing prevention remains a key strategy that contributes to our success.

We are fully aware of the evolving fire and emergency needs of our customers; the value placed on the quality of our services is often determined by our ability to adapt to these changing conditions, developing satisfying customer relations based on mutual trust.

We are proud of what we have accomplished, but remain particularly proud of our people whose energy, dedication and genuine caring is the very backbone of Rural Metro. The long-term success of the Company depends on the quality and loyalty of our employees – they are our future!

THE VISION

"EMERGENCY MANAGEMENT SERVICES FOR AFRICA"

Rural Metro Emergency Management Services has a vision of becoming the leading role player in the specialist fields of Firefighting, Disaster Management, Training as well as Occupational Health and Safety. We aspire to address the limited understanding of fire prevention and safety principles that has plagued many sectors of our society, resulting in the tragic loss of life and property.

MISSION

"TO MAXIMISE THE VALUE WE BRING TO OUR CUSTOMERS BY DELIVERING AN INNOVATIVE, PROFESSIONAL AND SUSTAINABLE EMERGENCY MANAGEMENT SERVICE"

COMPANY BACKGROUND

Established in 2000 as a fully independent organisation specialising in Fire Brigade Services, Training and Operational Disaster Management; Rural Metro comprises of full-time certified

Fire Instructor D.B. Makhatini with beneficiaries of the female Learnership Program

TRAINING FEATURE

professionals, all with considerable experience in the aforementioned disciplines.
Our fully accredited academy offers training in a range of subjects relative to Firefighting as well as Occupational Health and Safety.

THE PROJECT

Rural Metro Emergency in association with Advanced Fire Suppression Technologies, has embarked on a training program, exclusively for the development of female fire fighters from previously disenfranchised communities. This initiative seeks to enable women to participate in a career that is widely male dominated. Learners were recruited from the provinces of Limpopo and Gauteng in South Africa, undergoing a battery of internationally accepted physical and academic assessments. Seventeen successful candidates were then provided the opportunity to undergo one year of development at the Rural Metro Fire Fighting Academy which is situated in the farming town of Greytown in the midlands of Kwa-Zulu Natal.

The project objectives are to:

- Provide access to learning for the unemployed
- Promote skills development in our communities
- Promote employability of our female youth
- Poverty eradication in disadvantaged communities

The initiative aims to improve the quality of life through facilitation and access to sustainable career opportunities. The prime focus is on female development, using firefighting as the vehicle for achieving these targets by conducting a funded Learnership. The course begins with six months of theory and practical fire training at the academy, followed by a further six months of experiential learning at one of Rural Metro's fire stations. It is during this phase that the learners get the opportunity to respond to a myriad of emergency calls, honing the skills taught whilst at the training academy. They get to experience shift work for the first time and participate in fire prevention inspections, public education and daily fire station routine functions. Further on the job training involves drills, lectures and practical exercises at these fire stations.

THE ACADEMY

The Rural Metro Training Academy was established to train full-time and volunteer Fire Fighters and also afford individuals pursuing Firefighting as a career and an opportunity to attain accredited qualifications.

The two hectare facility includes the following amenities:

- 4 X lecture rooms
- Male and female student accommodation
- Practical fire training drill yard
- Equipped with the relevant fire, rescue, medical and hazmat equipment
- Fire fighting appliances
- Practical training props
- On-site instructor accommodation
- Kitchen and mess facilities
- Laundry services

Our Trainers are NFPA 1041 Instructors and programs are aligned to National Fire Protection Association (NFPA) standards. Training adheres to the standard in terms of prescribed notional hours and the desired quality outcomes.
Our core values include discipline, physical fitness and team work ensuring that our students are well prepared to meet the standards of the firefighting profession. We are a customer-focused organization committed to delivering quality programs and services in a congenial learning environment.
Local in-country accreditation is via the Southern African Emergency Services Institute (SAESI), Local Government Sector Education Training Authority (LGSETA) and the Quality Council for Trade and Occupations (QCTO). We often partner with Municipalities, State Entities and Private Industry to achieve their annual training targets to upskill their current workforce and promote employability for the youth.

With Discipline as one of the institutions core values; coupled with the academy's slogan of *"THE ONLY EASY DAY WAS YESTERDAY"*, these young ladies were understandably shaken by the prospect of what lay ahead. Amidst an air of trepidation coupled with eagerness, day one's induction was completed, and the candidates were promptly kitted out to the institution's uniform standards.
The Learners are currently participating in firefighting skills programs that are accredited by the Southern African Emergency Services Institute (SAESI), which is endorsed by the International Fire Services Accreditation Congress (IFSAC). Fire, Rescue and Hazmat training programs are delivered as per National Fire Protection Association standards, NFPA 1001 and 472.

Included modules:

FIREFIGHTER I	HAZMAT AWARENESS
KEY CONTENT: • Fire fighter orientation & safety • Fire behaviour • Personal protective equipment • Building construction • Extinguishers • Ropes and knots • Building search and rescue • Forcible entry • Ladders • Ventilation • Hoses • Water supply • Fire streams • Fire control • Fixed installations • Salvage • Fire alarms • Public fire and life safety • Fire department communications	**KEY CONTENT:** • Introduction to hazardous materials • Properties of hazardous materials • Recognizing and identifying hazardous materials • Hazard and risk assessment • Personal protective equipment • Command • Safety and scene control

FIREFIGHTER II	HAZMAT OPERATIONS

KEY CONTENT:
• Rescue and extrication, working with:
  ○ Jaws of Life
  ○ Cutters
  ○ Spreaders
  ○ Winches
  ○ Block and tackle
  ○ Circular saws
  ○ Reciprocating saws
  ○ Chain saws
  ○ Air bags
  ○ Air chisels
  ○ Winches
  ○ High lift jacks
  ○ Cribbing, etc
• Building construction
• Foam and foam making equipment
	KEY CONTENT:
	• Tactical priorities
	• Defensive control strategies
	• Incident control strategies and tactics
	• Decontamination techniques
	PRACTICAL ACTIVITIES:
	• Donning and doffing suits
	• Working in full encapsulated suits
	• Confining Hazmat spills
	• Diverting Hazmat spills
	• Dam and dyke Hazmat spills
	• Setting up decontamination corridors
	• Working in the warm zone

LEVEL 3 FIRST AID		
• Background information • Action at an emergency scene • The human body • Finding out what is wrong • CPR • AED • Shock	• Bleeding • Wounds • Bandaging • Burns • Head and spinal injuries • Chest cavity injuries • Hyperthermia • Emergency childbirth	• Bone and muscle injuries • Extremities • Splinting • Sudden Illness • Poisoning • Hypothermia • Rescuing and moving victims

The daily routine begins at 04:30 with physical exercise designed to strengthen and prepare the body for firefighting operations. Thereafter the candidates enjoy a shower and a wholesome breakfast before attending lectures until the lunch serving at midday. Afternoons are reserved for practical sessions with dinner being served at 18:00. The evenings are reserved for compulsory study sessions followed by leisure activities such table tennis, pool, darts and the traditional boot and belt polishing.

Further training activities designed to develop teamwork, such as squad drill, are practiced for 30 minutes daily. These young ladies are also given team leader roles, encouraging responsibility and accountability. With discipline being the order of the day, the young ladies quickly adapted to fire service values, understanding the ranked environment.

Within a few weeks of the course commencing, response and reaction to commands were evidently honed to almost military precision. This rapid development of this all female group saw them being selected to display their marching and rescue techniques at one of the Country's largest career expos recently held in the provinces capital city, Pietermaritzburg. Their displayed skills were highly complemented by City's Mayor and equally enticed the young school leaver's interest in the fire service. Whilst the skills were precise, the most notable feat was the fact that this display was performed by an all-female squad that had only 3 months exposure to the fire service.

The Learnership program was due to conclude with a grand pass out parade in January 2021. Regrettably, due to our country's national lockdown imposed to defend against the attack of COVID-19, the training centre has been temporarily shut down with students returning to their homes. The training program will resume once the South African Government announces that learning institutions may recommence.

CONCLUSION

In conclusion, the all female firefighter training program is successful because our instructors possess an adaptive mentality, brought about by an ethos focused on delivering professional training services. These trainers are schooled to critically analyse each student's progress in order to adequately prepare them for the dynamics of the Firefighting Service.

In the training arena, we believe that innovation is key to the success and viability of providing our students with dependable firefighting skills. This, coupled with our rare combination of fire service heritage, knowledge of associated standards as well as our project management capabilities is what makes Rural Metro the Company of choice for firefighter development.

Over the past twenty years we have significantly invested in building people and processes to harness our Fire competencies.

Whilst we regard our professional execution of this all female training project as a differentiator, our philosophy around our customers and partnerships is what really sets us apart.

I would like to end with the opening verse from, "Once a Fireman, Always a Fireman" by AJ Lightbody.

"There are few jobs in the world today,
so demanding yet so noble.
A profession humbled by its demands
that inextricably binds its workers by
a common thread of compassion and
empathy.
Only those who have worked a shift
and saved a life can hope to enjoy the
incredible bondage we so often take for
granted."

OUTSOURCING FIRE AND RESCUE SERVICES - EFFECTIVELY MANAGING RISK AND RESILIENCE

The effective provision and management of on-site fire safety, prevention, response and protection is a core responsibility of operators of hazardous high-risk critical infrastructure and industrial manufacturing facilities around the world. Such services are typically found at oil refineries and petrochemical plants, power stations and nuclear facilities, mines, airports, manufacturing sites and port terminal facilities.

Driven by strict legislative obligations and international fire safety and prevention standards, many organisations are required to maintain and operate an on-site Rescue and Fire Fighting Service (RFFS) or for airports, an Aircraft Rescue and Fire Fighting (ARFF) Service, in order to fully meet their compliance and operational certification requirements. Failure to fully comply with and maintain these prerequisites will prevent the organisation from gaining or keeping its license to operate and, in the event of an incident, potentially expose these organisations to serious financial liability, as insurers demand that risk is minimised and mitigated before they provide insurance cover for the site and its operations.

Not withstanding the availability of local or municipal resources to respond in the event of an emergency or serious incident, the on-site RFFS provision available to commercial industrial organisations generally falls into two main options; an employed service or an outsourced service.

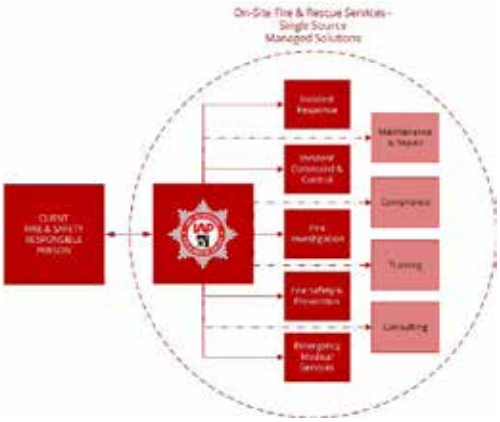
While many organisations choose to invest in their own Fire and Rescue Services, which normally includes the provision of a dedicated Fire Station(s), skilled personnel, response vehicles and life-saving equipment, others have turned to outsourced or sub-contracted service providers, to enable them to meet their operational and compliance needs in a more cost effective and economic manner.

So what are the factors that influence an organisations decision to outsource its FRS function and how do you choose between the two options?

MANAGING RISK AND IMPROVING RESILIENCE

The requirement and resources for an on-site fire and rescue service will be determined chiefly by the type of activity that the organisation is involved in at each site or facility, the assessment of the risks associated with the processes or activities that occur on-site and the impact that any emergency incident may have on the business, its employees and on the surrounding communities.

Ultimately, the motivation for investment in an on-site fire and rescue resource is rooted in the avoidance of loss, which can be both organisational, reputational and/or personal in nature and in a need to ensure the on-going stability, security and resilience of the facility and processes in question. Compliance, reassurance and 'peace of mind' are



the benefits of such an investment, but rather like when an insurance policy is purchased, it is sincerely hoped that the Fire and Rescue Service will never need to be called upon to be utilised in a real-life emergency.

A decision to outsource may be driven by purely financial or economic motives as organisations seek to reduce costs and enhance shareholder value or by other strategic and tactical factors as the business seeks to re-engineer or re-focus itself.

Recruiting, training, resourcing and supporting an employed on-site fire and rescue service is an expensive indirect operational cost for most businesses, consuming cash resources that could arguably be better invested elsewhere.
Furthermore, the day to day management of an employed Fire, Rescue and Safety service can also sap the organisations managers of time and energy that, while imperative to the safe, legal and ultimately the profitable operation of the facility, is not actually a core function of the business itself.
Outsourcing or sub-contracting the FRS provision enables companies to focus on their core business processes while delegating essential but non-core processes to external specialist providers. This releases internal resources that can be put to more effective use for other purposes, leading to greater overall efficiency and competitiveness.
The question to be asked is, could an outsourced service provider deliver the required functions, tasks and compliance, maintain and improve site safety, respond effectively to any emergency incidents and add value to the organisation at a more cost-effective rate than directly employing the on-site team?
When properly executed, outsourcing the on-site Fire and Rescue Service can have a defining impact on the company's revenue recognition and can deliver improved business continuity and resilience as well as significant savings through lower operational and labour costs.

SPECIALIST KNOWLEDGE, SKILLS AND EXPERTISE

Organisations cannot realistically be experts in every business function,

process and discipline, it is simply far too expensive. By utilising outsourced service providers, companies can leverage a global knowledge base and resource centre, accessing world class capabilities, skills and expertise that they may have been precluded from previously.

Managed FRS service providers often have access to a wider, more highly skilled and diverse talent pool than the client themselves and will already have in place the requisite interview and selection processes designed to select only the strongest, most appropriately qualified and experienced staff.

Training and competence management can reflect global best practice, with industry and/or site-specific risks recognised, evaluated and reflected in the ongoing training provided to the FRS staff members.

Shared experiences coupled with specialist skills, learning and best working practices also enable the outsourced service provider to add value and resilience to and further reduce risk within the client's operation.

SHARED RESPONSIBILITIES AND LIABILITIES

Although all organisations must maintain a duty of care to operate in a safe and environmentally responsible manner, delegating Fire and Rescue Service responsibilities to external providers can release companies of day to day management functions that are difficult to administer and control, while still realizing the inherent benefit the FRS provides and crucially maintaining operational compliance and certification.

As specialists in their field, outsourced FRS service providers generally are much better at deciding how to cost effectively avoid risk in their areas of expertise without compromising safety and response than perhaps a fully employed on-site team might be. This is because the incentive to deliver a high level of service and to maintain their professional reputation and credibility while remaining profitable is potentially stronger for the outsourced provider.

A further consideration if, unfortunately something does go wrong, may be that the responsibility and possible consequential contractual liability might well be shared in whole or in part with the service provider, rather than the contracting client themselves.

SO WHAT ARE THE POTENTIAL NEGATIVES?

Violations of confidentiality and intellectual property are of increasing concern to companies. This is particularly true for clients that outsource to providers from countries that may not have the same type or standards of confidentiality laws that prevail in their home jurisdiction.

One way to mitigate this issue is to have strong confidentiality clauses contained within all commercial contractual documentation and employee contracts and to make security of data and information a key performance indicator within any outsource contract.

Outsourcing or sub-contracting may in some cases result in job eliminations or employees leaving for other personal reasons, which in turn can have a negative effect on morale, loyalty and productivity among the personnel who remain.

In most cases for Fire and Rescue Service outsourcing, human resource levels are already stipulated based on the site or facility risk profile and therefore it is more likely that existing employees will simply be transferred to a new contract of employment with the new service provider, albeit perhaps on slightly different terms.

Although most companies will see an immediate benefit to the bottom line when outsourcing, there are also often hidden costs that, if not managed correctly, can quickly negate many of the anticipated savings.

It should not be underestimated that as in any period of change, increased ancillary costs such as travel and related expenses can accrue as employees travel back and forth for training and other meetings, particularly during the mobilisation phase of the new contract.

MAKING YOUR MIND UP!

The decision to outsource the Fire and Rescue Service for a high-risk site or facility should never be made lightly. A thorough and detailed examination of the associated costs and benefits must be investigated during the tendering process before a go/no go decision is reached.

However, if or when a decision to outsource is positive, then careful selection of your partner organisation is essential; taking account of both the hard and soft delivery factors for each facility is of critical importance.

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Author
Chris Thain
Business Development Manager – Fire Protection Services
G3 Systems Ltd

Chris Thain manages Fire Protection Service business development for G3 Systems Ltd, a UK based company that provides fully managed and compliant on-site Fire and Rescue Services for industrial, aviation and military clients around the world, specialising in operations in austere and hostile working environments.

G3 Systems Ltd. is a wholly owned subsidiary of IAP Worldwide Services Inc. – a global provider of services to government and commercial customers. Chris was previously with Devon and Somerset Fire and Rescue Service, where he successfully managed the commercial trading business of the Fire Authority.
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REDUCED TRAINING BUDGET, REDUCED TRAINING HOURS

TRAINING FEATURE

Today, almost all are experiencing reduced or total elimination of training budgets which inevitably results in reduced or no training hours. This leaves emergency response management with the difficult task of maintaining a competent response capability and having to decide how to do this. There is no easy answer to this problem but there are some clear principles that can be used to guide management through this process.

All training programmes should start with a risk assessment for the Response Area to provide answers to the question "what can go wrong and what does "wrong" look like?" i.e. fire, explosion, hazardous material release, vapour release, chemical spill, oil spill etc.

From the risk assessment, a response philosophy should be established which answers the question of what you are expected to do about what can go wrong. For example is your philosophy to not respond to all or any given incident assessed, but instead to evacuate and move to a safe distance and have outside agencies respond or do you manage smaller incidents and evacuate for larger ones, or do you only handle incipient fires, or do you have full offensive response capability etc.

From your response philosophy, Risk Management Plans should be defined that identify what it takes to deliver on your philosophy including personnel, equipment, infrastructure, supplies etc. This may include things such as pre fire plans that identify very specific requirements for specific scenarios. It is important that Risk Management Plans are detailed enough to provide specific information on exactly what activities personnel are expected to perform.

Your training program requirements can then be based upon the risk assessment of your facility, the mitigation philosophy that you have established and the Risk Management Plans. For example, if your philosophy is to be an offensive response team and your plans include attempting to extinguish a tank fire in your tank farm, you need to train your responders on all the skills and knowledge, dynamic risk assessment etc. necessary for them to perform the duties associated with extinguishing a tank fire. If your philosophy is to let a tank burn itself out and prevent it from spreading to other tanks, then your teams need to learn a different set of skills. This approach is necessary for every potential response scenario in your facility.

Once you have the training requirements defined, you need to define the training curricula necessary to provide the competence to the responders based upon their roles and responsibilities. A critical criterion is that you cannot allow a responder to respond to a situation he/she is not trained and competent to address.

As well as the specific skills, knowledge, and competence necessary for the responder, your curricula must include all

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content, frequency, duration, refresher training frequency, etc. There must then be a defined and documented assessment process to verify the responder does in fact have the competence the training is supposed to provide. In many locations this is whole or in part governed by legal requirements, local regional or state requirements etc.

Training must also define the standards of the trainers, and the training facilities. Generally speaking, though not always, reduced training hours means reduced competency.

If your training program is poorly designed i.e. it does not follow the criteria listed above, there may be ways to streamline some of your training activities and curricula. It is worth reviewing your training plans to insure they line up with your risk assessments, your response philosophy, and your response plans. On some occasions, revisions of training plans can result in a more effective and efficient training programme that actually improves responder capabilities while reducing actual training hours.

If your training programme is already well constructed and matches the criteria above, then the only recourse left if reduced hours are required, is to revise the response philosophy and eliminate responder requirements. In many cases you simply cannot maintain the same level of response capability with reduced hours. You must therefore reduce your team's response expectations and develop alternative philosophies and management plans. Once again, in many places this is driven by legal requirements. In others it is derived by industry "good practice".

Once the decision is made to reduce response capability and therefore modify response plans, the question becomes what part of the capability do you cut ? This question must be answered based upon the impact assessments of any risks that you have identified in your risk assessment. Response capabilities to high probability/high consequences events must in the first instance be maintained if at all possible and modifications to plans for lower frequency and lower impact events can be the in the first instance eliminated. The dilemma is that in many instances, the same skill sets and competencies are required.

Number 1 priority must be given to life safety. In other words, let the plant burn to the ground but nobody gets hurt. This must be the driving philosophy behind any capability reductions, recognising that the expectation of nobody getting hurt begins first and foremost with the protection of non-responders and bystanders. In other words an organisation's first obligation is to protect the public from itself.

This decision to reduce capability must be very deliberate, very systematic and based on accurate risk and impact assessments. And finally the consequences of these decisions for reductions must be clearly understood and owned by the senior leadership of the organisation in question.

Regardless of what you do, ensure that your entire Management Plan is well documented and bought into by senior management.

EDITOR'S NOTE:

This article is based on an article written by Randal Fletcher, JOIFF Chairman at the time, which was published in January 2014 edition of The Catalyst. In these difficult times some organisations may be considering reducing their training and we hope that the message contained in this article may go some way to assisting you in your considerations. We ask you to take particular note of the last line of the article.

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INCIDENTS IN ELECTRIC VEHICLES - A GROWING RISK TO EMERGENCY RESPONDERS - IS OUR TRAINING EFFECTIVELY MANAGING THE CHANGE

As the awareness grows for necessary action to try to combat Climate change, we are told that one of the major contributions towards helping combat such change will be a large increase in the use of electric vehicles. This will require emergency responders to be competent in dealing with incidents involving such vehicles

Dealing with a fire in an electric vehicle requires a very different approach to dealing with fire in a petrol or diesel driven vehicle. A major problem for responders when dealing with a fire in an electric vehicle is caused by what is called "stranded energy" which is the energy remaining in a cell after efforts to safely discharge the stored energy in damaged lithium-ion cells. This presents a significant fire and shock hazard to emergency responders as it is difficult to know when and how the batteries can be safely removed from their respective installation, transported, and disposed. Even when there is no fire or smoke present, a chemical reaction inside a damaged battery called "Thermal Runaway" can cause the battery to re-ignite hours or even days after the initial incident. Thermal runaway of a lithium-ion battery initiates an unstoppable chain reaction - the temperature rises rapidly within milliseconds and the energy stored in the battery is suddenly released. The risk of thermal runaway begins at a temperature of around 60°C, becomes critical at 100°C and eventually temperatures of around 400°C are created and the battery becomes gaseous and a fire erupts. How much energy remains in the battery when it's damaged can greatly affect the severity and duration of this reaction.

A serious fatal accident occurred in the USA involving an electrically powered car. A car crashed killing the driver and the front end of the vehicle's frame was torn off, ripping open the 400 volt lithium ion battery and scattering energised cells across the road. When the Fire Brigade arrived at the scene, flames from the badly damaged battery were shooting into the air. The responding firefighters had been trained in dealing with fires in electric vehicles by a factory manufacturing them in their Response Area and so they knew what needed to be done - which is to apply copious amounts of water

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directly at the flaming battery. Doing so, they extinguished the fire in a couple of minutes. Whilst the fire was extinguished the battery continued to hiss and pop and firefighters were concerned that the vehicle's frame could be energised. They lacked the appropriate tools and personal protective equipment (PPE) to allow them to test, handle and remove the battery's energised lithium-ion cells nor did they have the equipment to drain the massive amount of energy still clearly trapped in the unstable battery.

The incident occurred close to a factory that manufactures electric vehicles and the firefighters called for assistance. Engineers attended and went through the laborious task of disassembling the damaged battery cell by cell, dropping each into a bucket of water whilst the firefighters provided the necessary water to keep the fire from igniting. With ¼ of the battery removed, engineers agreed that it was safe to remove the wreck to a compound 20 miles away. During the trip, the battery continued to pop and at the compound it ignited twice within the first 24 hours and it ignited again six days after the crash. Eventually the remaining battery was neutralised by total immersion in a vat of salt water.

An article discussing this incident in the January/February 2020 edition of the NFPA Journal says that based on fire testing conducted at the request of the Fire Protection Research Foundation, NFPA recommends that fire- fighters apply copious amounts of water directly onto the area of the battery case and use a thermal imaging camera to periodically check for signs of heat from the ongoing chemical reaction insider the battery. A major manufacturer of electric vehicles reports that it can take in excess of 11,000 litres of water, applied directly to the battery, to extinguish and cool off a battery fire.

Incidents like these are likely to become more common and responders need to be trained in what to do to mitigate such incidents. Standard Operating Procedures (SOPs), relevant PPE and necessary tools for emergency responders are needed to address the issue. Using water to cool a damaged battery in thermal runaway is currently a dominant strategy for emergency responders. Some manufacturers de-energise damaged batteries by submerging them for several days in a salt water bath until the bubbles stop, indicating that the chemical reaction inside the battery has ceased.

In practice, applying copious amounts of water is not as easy as it sounds. Batteries in some electric vehicles are located relatively inaccessible between the vehicle's under carriage and passenger compartment where it can be difficult, if not impossible, to access the battery to apply water. Cutting holes in the vehicle floor to expose the battery can be dangerous as the fire may spread quicker, causing damage and beginning the thermal runaway process in more of the cells. Also, there is the extreme hazard cutting into areas of the car where high voltage still remains.

The NFPA Journal January/February 2020 article quotes a research project manager at the Fire Protection Research Foundation saying that another potential option for stopping thermal runaway is to drain the battery of the energy causing the reaction but this is much easier said than done.

It is reported that a growing number of Municipal brigades in Europe are using tow trucks to transport large shipping containers filled with water to the site of a fire in an electric car. A crane lifts the car and lowers it into the bath, where it can be safely taken away to a compound.

We live in an age where innovation is far outstripping what used to be called Standard Operating Procedures and as it is usually the emergency responders who have to "pick up the pieces" when things go wrong, this is just another example of where serious efforts need to be made to give responders the knowledge, skills and understanding of the current risks that they may have to face in their Response Area and how they can most effectively mitigate them.

This can only be effective by providing the correct training and education and the correct procedures for all emergency responders commensurate with those duties and functions that they are expected to perform. Subjects to be addressed in the training should include familiarisation with battery location in vehicles, correct PPE to use in such incidents, how to deal with thermal runaway, support services needed, methods of containment, making safe and disposal etc. The training and education should be conducted frequently enough to ensure that each member of the emergency response team is fully aware of and able to perform their assigned duties and functions satisfactorily and in a safe manner so as not to endanger themselves and others.

DON'T LET HISTORY REPEAT ITSELF

by: DARYL BEAN MJOIFF

FORWARD

Whilst this article makes reference to Grenfell Tower Inquiry, it is only due to the fullness of the report. The information provided includes comparisons to industrial incidents and the relationship that exists with decision making and training support.

The Grenfell Tower Inquiry: Phase 1 Report - REPORT of the PUBLIC INQUIRY into the FIRE at GRENFELL TOWER on 14 JUNE 2017 (referred to further as the Phase 1 Report), offers opportunities for response organisations, especially first response organisations to reflect upon the conclusions, review current processes and actively seek to address any gaps which are found. The Phase 1 Report resonates deeply with local fire services in the UK as it is unsparing in its assessment of the fire service response; however, in doing so provides opportunities for responders to highlight improvements in their preparation for response to "Major Incidents".

Reese and Walker explain that "we all have knowledge and skills and have formed attitudes, and many of us will admit to some prejudice. All of these factors may have a significant impact on the effectiveness of the message. This is further shown in the figure below to show some of the influences on communications and some of their complexities (Ian Reece and Stephen Walker, 2003, p. 272).

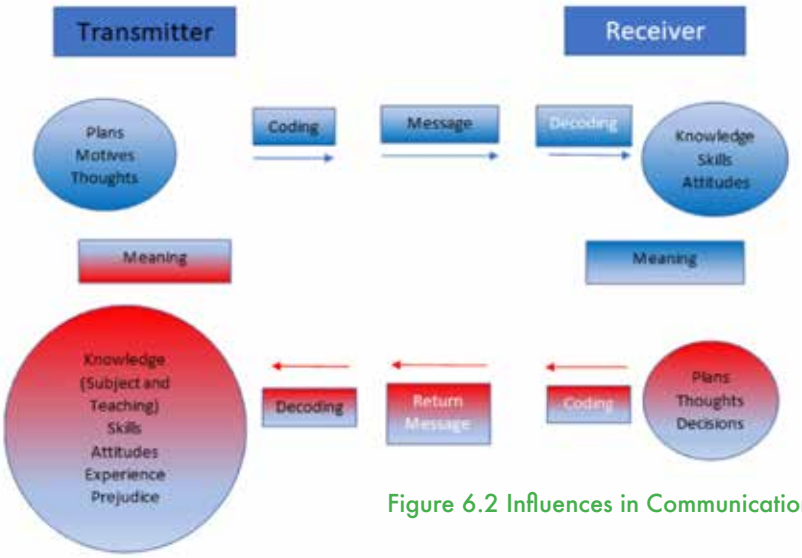

Figure 6.2 Influences in Communications

The Phase 1 report will generate numerous opinions between readers taking the above into consideration especially from the fire fighting agencies of all disciplines due to the nature of the incident, loss of life and universal exposure. How the report will be accepted and promulgated may be based on the assessments of future releases from the inquiry, again the way in which the subsequent reports are communicated. As a training provider, The Phase 1 report recommendations raises peculiar questions. As a training organisation do we have a service (responsibility) to push the boundaries of what we deliver, in conjunction with regulators and response organisations to assure competency? In doing so what do we have to draw from? Phase 1 Report starkly lays out comprehensive recommendations under the following headings:

1. Introduction
2. Use of combustible materials
3. Testing and certification of materials
4. Fire and rescue services: knowledge and understanding of materials used in high-rise buildings

5 Section 7(2)(d) of the Fire and Rescue Services Act 2004

   a. Section 7(2)(d) imposes a general duty on fire and rescue authorities to make arrangements for obtaining information needed for the purposes of extinguishing fires and protecting life and property.

6. Plans
7. Lifts

8. Communication between the control room and the incident commander
9. Emergency calls
10.Command and control
11. Equipment
12. Evacuation
13. Personal fire protection
14. Sprinkler systems
15. Internal signage
16. Fire doors
17. Co-operation between emergency services
18.Other matters

Looking at these recommendations' titles, how many of us have seen headings like these in reports following similar incidents locally, nationally or from an international forum? Can we transfer some of these headings directly or indirectly to industrial accidents or incidents which have observed similarities? This may be made easier by advances in technology such as the internet, which makes it easier to view current and historical records and release of information legislation (if in place). What then, do we do with this information?

a. If there are historically similarities in incidents, are there similarities in response actions which were found to lead to success?
b. If there are historically similarities in incidents, are there similarities in response actions which were found less than optimum?
c. What does that mean regarding training?
d. What can training organisations do to assist with improving the responses?
e. What can training organisations do to lead competence and assurance with addressing response to credible incidents?

From a training organisation perspective, the questions generated can buttress the relationship between ourselves and our clients, the responders who rest confidence upon us to ensure the skills we assess as competent will meet the demands placed upon them.

The Phase 1 report described a previous occurrence, the Lakanal House Fire in 2009 , highlighting a specific recommendation relevant to Grenfell Tower (Moore-Bick, 2019, pp. 74-75). Taking the reference of the Lakanal House Fire recommendations in totality with the entire report, the author questioned similar incidents which could support the hypothesis presented above including any relational incidents which existed in industry. The following is a short list which provides for such relationships which can be used by training organisations to enhance future delivery with the aim of addressing competence:

HIGH-RISE FIRES:

a. List
   a. Grenfell Tower 2017
   b. Lakanal House Fire 2009
   c. Harrow Court Fire 2005
   d. Dupont Plaza Hotel Fire 1986
   e. MGM Grand Hotel Fire 1980

MAJOR INDUSTRIAL INCIDENTS:

a. List
   a. Buncefield Oil Storage Depot 2005
   b. Texas City Refinery 2005
   c. Deer Park, Texas, 2019
   d. Longford: The Esso Gas Plant Explosion 1998

The training delivery may be so directly focused we minimize opportunities to introduce operational factors faced during actual responses. In most circumstances this is the case as we look to meet the requirements of the adopted standard alone. The training programme is designed to meet the standard. Unless the standard changes the training generally stays the same. We must constantly review the purpose of our training in order to maintain an eagle-eyed focus on assurance lest we fall into a state of inertia. This statement does not reflect all training of course. Some teams, especially those who train at the same facility will try to alter the programme from time to time to challenge the teams with new risks and reduce boredom. That puts added challenges to training providers to offer new simulations to test the teams. It is here where we may be missing a "trick" which we could use to work against the paradigm we are faced with of meeting the "training standard" year on year.

In a previously published article "Setting the Standards," factors impacting a response plan were presented as well as the use of "case studies and accident/ incident reports questions can be raised on how a facility can ensure its response personnel and response plan are adequately prepared.."

The short lists of incidents listed above tells us that these incidents:
a. Are not new
b. Will occur again
c. Later occurrences may be worse regarding loss for many reasons including:
   i. Physical plant age and deterioration
   ii.Insufficient emergency response capability including reliance on external agencies which may only be presumed, not guaranteed
   iii. Encroachment by exposures such as housing communities or increase in plant size (operations) which increases risk to nearby exposures

At this point we can start to look at how does these lists affect our training – the standards we adopted, our emergency response plan and the ability to meet the risks.

Throughout our discussions we describe actions to take to develop competence, outside of independent assessment the judgement can only be determined by response to actual incidents. Independent assessment is an area where the training school resides. Over time some of the services provided by training organisations may have been more reactive than proactive; to updates in standards and to meet changes in economics for example.

Recent feedback from a training cycle from shifts of an emergency response team who maintain response to multiple large sites involving various assets stated that the course design met their expectations in regard to what they felt they would encounter at work and allowed them to fully immerse into the evolutions. Quite a positive result for the emergency response teams and the trainer and bodes well for future exercising; however, lets expand the feedback against the premise of this

discussion as we look to engage further thought to potentially drive more support from training institutions. The general perception of the response teams was that they felt the training met their expectations in regard to what they felt they would encounter at work. This successful conclusion was based on previous detailed conversation where the emergency response team's considerations from actual on-site responses were priority. Let's ask ourselves how those considerations were developed? Commissioning, decommissioning, introduction of new processes and/or hazardous materials or maybe infrastructure in place already but not previously addressed. This list is of course not conclusive, and one may suggest other influences. Now comes the complicated part and that is developing a priority of those considerations and how do we integrate it into a useful training programme. Can we look to address those factors which are identified as response shortfalls in after-action reports?

DECISION MAKING AND TRAINING SUPPORT

One factor which appears to stand out in the Phase 1 report, especially Volumes 2 and 4 and underpin the feedback from the recent training experience listed above is decision making. At this point we will take a little look at decision making with the goal of promoting factors to improve decision making which we as training providers may be able to lend measurable support. Again, as is the aim of these submissions, the following is to generate thought and opinion, not necessarily agreement, but maybe an idea which could be brought forward by the reader which will be quite beneficial to growth. The examples provided look a decision making mostly at the command levels. Decision making training is more formalized at the supervisor and manager level; however, could more formalized decision making training be of benefit at the operators level as understanding the processes, actively participating and being assessed on decision making principles may generate more situational awareness on the incident scene?

The IC's job is to provide adequate resources to ensure the work can be done safely. Effective incident management requires good information (Homeland Security, 2007). If the operators understand and can use the processes the commanders use to develop opinion the safety margin and possibly reaction to cues may improve.

Naturalistic Decision Making or Recognition Primed Decision Making is the cue based, pattern recognizing form of decision making which is the preferred method for many military and para-military organizations of which emergency responders base many of their methodologies on. Whilst the benefits are improvement from the more classical approaches, McDermott suggests several challenges:

"Not enough people know about it. Which means the following things occur and recognition primed decision making is not practiced:

• People ignore feedback – or don't seek it out. Was my hunch right? How do I know? What would my boss or another expert do here?

• Rapid turnover of staff is allowed – Staff never get much experience inn one area do decision making effectiveness ins not what it could be.

• In our rapidly changing world, the latest models e quickly embraced to replace ones that actually work. The *experience of the experts* in the older working models is discounted. Paper credentials are becoming more important than experience. Procedures are instituted that don't properly capture the nuances of a situation.

These things prevent the pattern recognition necessary for recognition primed decision making and actually hamper effective decision making. There will be a price to pay! (McDermott, 2019)"

Instances in the Phase 1 report may offer challenges to support the above conclusion as offered in following excerpt (names redacted):

"take account of the danger of judging with hindsight the very rapidly changing conditions, the scale of the incident, XXXXXXXXXX relatively junior rank despite his 14 years' experience, and the fact that by that time only six appliances had arrived at the tower. Although I doubt that there was a sufficient number of firefighters at the scene by 01.30 to have allowed a safe and efficient assisted evacuation of all of the tower's occupants, XXXXXXXXX should already have begun to review the quickly deteriorating scene and should have been giving thought to a possible evacuation of the building, either in whole or part. That should have involved consideration of how to deploy and co-ordinate the incoming resources in order to ensure a safe and efficient evacuation. I will return below to the question of how a full building evacuation might have been achieved. (Moore-Bick, 2019, Chapter 28, para 18)

"Numerous comments alluding to experience or expressed lack of and the resulting emotional impact: I've never seen anything like that before and it was almost that I was consumed by that in terms of the sensory overload …" (Moore-Bick, 2019, Chapter 10: Period 1: 00:54-01:30) .

It is at this point that any chance of using Naturalistic Decision Making will be impossible and more classical modes of decision making such as the Command Sequence must be employed. The decision maker must recognize when he/she possesses insufficient information to use this method. Some cues for this recognition are:

• It is obvious to the decision maker that there has been little or no experience or training on the specific incident type.

• The decision maker recognizes that the incident cues are very unfamiliar and do not immediately result in appropriate action decisions.

• The decision maker feels lost or overwhelmed, cannot think, or is in a panic. In these cases, the classical method is the appropriate response. (Homeland Security, 2007)

We are not subject to major incidents at a rate to reduce the difficulties in the initial response, but can we increase the probability of more accurate decision

making based on the evidence provided above. And more directly, how can we as trainers provide that engagement? How do we use this assessment of need and supporting information to further equip us when the ultimate challenge occurs?

To answer this question is to place a challenge to those who entrust our training. It could be at station level, group level, independent training provider and/or regulator to take the improvement steps. It is agreed that to focus primarily on this aspect is daunting and in the relationship of time when placed against the other work we have to accomplish day to day. So, from an independent training provider, let's challenge ourselves, roll our sleeves up and get to work:

1. Recognize we are here to support you in being able to meet the complexities of responding

2.Do the background work in developing an understanding of need, from the community stakeholders and the responders. Are we good listeners?

3.Push the boundaries of developing skills to maximise abilities in pursuit of competence

4.Be open to change but steadfast on our priority which is the safety of the response teams

Reviewing the above trends and rationalizing them against the produced recommendations.

5.Support more Naturalistic Decision Making (Recognition Primed Decision Making)

6.Involve all available tools whether desktop models, paper models and input cards, Virtual Reality, Breakout sessions

7.Develop practical exercises to incorporate elements of actual responses to provide comparisons.

SUMMARY

There will be opinion on this paper of agreement of disagreement in the understanding of the reports referenced. It is questioned whether the content will generate review of the references? If so, will the expectation be for future submissions discussing relevant incidents and offering reflective opportunities? The difficulty arises from acquiring incident (investigation), but many can be accessed through various sources e.g. government websites, published reports, periodicals etc. Our on-scene actions have become more microscopically assessed with resulting challenges if discrepancies are observed. Training authorities should take time to review available data to justify, translate and transmit learning to meet "real world" responses.

Nothing is more awkward when the judgement of the trainer is questioned because of a misinterpreted input, put in as a "fudge" factor, of which the outcome was indeterminate by the instigator. It is our job to enable the responder to develop the naturalistic decision-making skills leading to successful application of response procedures. Using the available data, simulations can be created through which the inputs and resulting actions can be compared to an actual event. Of course, the outcome of any changes made can only be theorized in its level of success based on the actual event; however, done correctly the accuracy will more appropriate.

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EDITOR'S NOTE:

Daryl Bean MJOIFF is a regular contributor to The Catalyst and is the Curriculum Manager at the Serco International Fire Training Centre, Darlington, UK and manages the delivery of regulated or accredited and bespoke training specifically for the offshore, industrial and maritime environments, including theory and/or practical based content and consultation. Daryl's career covers 39 years, spanning many disciplines including aviation, structural, HAZMAT, EMS and he presently maintains membership in the NFPA. For more information contact Daryl at dbean@iftc.co.uk, or by telephone
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For more information on the Serco International Fire Training Centre visit www.iftcentre.co.uk

JOIFF ROLL OF HONOUR

During January, February and March 2020, the following persons were awarded JOIFF qualifications:

JOIFF DIPLOMA

Unity Fire and Safety LLC Sultanate of Oman

Abdulmajeed Abdullah Masoud Said Al Ghafri.
Ayman Abdullah Yousuf Al-Hadi.
Ayoub Khamis Salim Al'Saadi.
Ibrahim Mohammed Abdallah Al Balushi.
Mas'oud Salim Mas'oud Al-Shammakhi.
Mohammed Ali Rashid Al-Dughaishi. #
Muhanad Awadh Hamood Al-Bulushi.
Ali Bin Salim Bin Mohammed Al Siyabi.
Ali Khalid Mahmood Al Hasani.
Ibrahim Abdullah Muhanna Hamad Al Hinai.
Omar Ahmed Nasser Al Jabri.
Yousuf Khalfan Salim Al Wardi.

Back Row From Left to Right; Unity CFO Paul Madden, Ayoub Khamis Salim Al'Saadi, Yousuf Khalfan Salim Al Wardi, Ali bin Salim bin Mohammed Al Siyabi, W/O Ibrahim Mohammed Abdallah Al Balushi, W/O Omar Ahmed Nasser Al Jabri, DCFO Michael Brayson.
Front Row; F/F Ayman Abdullah Yousuf Al-Hadi, Mas'oud Salim Mas'oud Al-Shammakhi, Muhanad Awadh Hamood Al-Bulushi, Abdulmajeed Abdullah Masoud Said Al Ghafri.

Khazzan fire fighters lead the way in competency training

In support of the safe and reliable operation of Khazzan, the BP Exploration (Epsilon) Ltd site in the Sultanate of Oman, 12 of the site's fire-fighting team have successfully completed an industry-recognized diploma in responding to emergencies.

The Joint Oil Industry Fire Forum (JOIFF) diploma in emergency response is a globally recognised training certification for firefighters. It is a competency based training programme which involves each student being assessed in 24 different units, each unit containing up to 10 or more elements.

The firefighters were initially assessed by Unity Fire and Safety in Oman, before being submitted to JOIFF for external verification. All the assessors and verifiers are qualified to UK NVQ Assessor standards to ensure quality assurance.

Why it matters?

Kevan Whitehead, Managing Director of Unity Fire and Safety explains why the training is so important: "We're really proud of the Omani firefighters at Khazzan. We believe they are the first in Oman to complete this training. The training is really important as it ensures our firefighters have the necessary knowledge, skills and understanding to deal with emergencies of all kinds. The use of JOIFF means we have an independent pair of eyes to give us confidence in the quality assurance, it proves our Firefighters are truly professionals and can be considered to be equals with Industrial Firefighters anywhere in the world"

Some background...

In 1990, a number of fire officers in UK oil refineries decided that there was a need within the industry to meet regularly and discuss how to deal with fire safety matters. The first meeting, hosted by BP, was held in London. The initial objective of JOIFF was to build a forum of fire chiefs to discuss matters relating to fire and explosion hazard management specifically in the oil industry. Today, JOIFF is the International Organization for Industrial Emergency Services Management and has more than 220 member organizations in 42 Countries.

JOIFF TECHNICIAN

ADNOC Fujairah Terminal Division
United Arab Emirates

Ferda Gunduz Tech.JOIFF receiving his JOIFF Technician certificate from JOIFF Chairman Pine Pienaar

Ibrahim Bayram Tech.JOIFF receiving his JOIFF Technician certificate from JOIFF Chairman Pine Pienaar

GRADUATE OF JOIFF

Ibrahim Bayram Grad.JOIFF

Having successfully completed the JOIFF Diploma and JOIFF Technician programmes and having been in emergency response full time since 1999, Ibrahim was successful in his application for the award of Graduate of JOIFF.

When Ibrahim was awarded Grad. JOIFF he said "When I completed my JOIFF Diploma programme in October 2017, I knew that it wouldn't be the last achievement of learning and education for me so I enrolled on the Technician Programme and successfully completed it in November 2019. I have now been awarded Graduate of JOIFF and now in 2020 I am planning to follow next JOIFF career path which is Leadership 1 and Leadership 2.

MEMBER OF JOIFF

Ian Kirkup MJOIFF
Chief Fire Officer,
ADNOC Onshore,
United Arab Emirates

Ian Kirkup has 30 years' success, leading operational and risk strategy in Europe and the Middle East. Ian started his career in 1990 in the UK Fire Service where he served for 21 years. He attained the rank of Watch Manager with responsibility for management of an operational fire/trauma response crew serving 120 square miles of community, road and rail risks and 2 tier one COMAH (Seveso) industrial sites. He transferred to the industrial sector in 1999 until 2011 with Sembcorp Utilities Teesside (now Falck) attaining the position of Station Commander with responsibility for managing, leading, developing and coaching fire and emergency response personnel covering all of the assets on the Company's 3 Teesside sites for all aspects of Emergency Response and routine maintenance.

In 2011 Ian joined ADNOC Onshore as Senior Fire Officer, coordinating and managing the operations of ADCOP's emergency response department and operational resources within the terminal pipeline division. In his current position of Chief Fire Officer, he plays a key role in the strategic management of ADNOC MOT Rescue & Firefighting Services and Emergency Medical Services to enact swift and effective crisis management while minimising loss of life and property damage as a result of incidents.

Wayne Viljoen Dip.JOIFF
Divisional Commander
Sasol Chemical Operations Secunda: Emergency Management
South Africa

Wayne Viljoen has 17 years of experience in the petrochemical firefighting industry. He started his career in 2003 at Sasol Chemical Operations where he joined as a firefighter in training. During the course of his career he has obtained firefighter qualifications such as B-Tech Degree in Fire Technology, Fire fighter II, Hazmat Technician, Vehicle Extrication, Advanced Petrochemical Fire Instructor and Basic Ambulance Assistant, High Angle Rescue and Confined Space Rescue.

In 2013, Wayne was appointed as a Divisional Commander at Sasol Emergency Management. From 2014 to 2016, Wayne gained 2 years international oil & gas experience in Iraq as a Fire Station Chief.

Wayne re- joined Sasol Emergency Management in late 2016 and is currently a Divisional Commander

THE CATALYST AND THE DIRECTORS OF JOIFF EXTEND CONGRATULATIONS TO ALL THOSE MENTIONED ABOVE.

IPEN Mis-Information

"the best F3 products on the market are able to match the performance of many MIL-Spec foams"

– **R.A. Klein, MD, PhD, Corresponding Author**
IPEN POPRC-14 Report
September 2018

US Navy Information

"We need to come up with fluorine-free foam. But what's available now can't meet (MIL-) specification."

– **John Farley, Director of Fire Test Operations**
US Naval Research Laboratory (NRL)
C&EN "The price of fire safety" January 14, 2019

As a result of the US EPA's voluntary 2010/2015 PFOA Stewardship Program, a total of fourteen (14) C6 AFFFs are currently on the US MIL-F-24385 Qualified Product List (QPL).

Current F3 Foams have not only failed US MIL-spec fire performance and key properties such as compatibility, but also failed ICAO level B fire tests at 32° C and higher ambient temperatures.

DYNAX CORPORATION
PO Box 285, Pound Ridge, NY 10576 USA
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dynaxC6

TRAINING IN DEFIBRILLATOR CPR PROGRAMME HELPED SAVE THE LIFE OF A CONSULTANT CARDIOLOGIST

Left to right: Dublin Airport Sgt. Stephen Morris; Fire Officer Neil Shortall; Station Officer, Paul Furlong; Fire Officer, Paramedic Brendan Conway; Dr. Farqad Alamgir, Fire Officer, Advanced Paramedic James Canning; Farhat Alagmir (Dr. Alamgir's wife), Fire Officer, Paramedic Roz O'Neil; Furqan Alamgir (Dr. Alamgir's son).

Cardiologist gives heartfelt thanks to Dublin Airport Police and Fire Officers who saved his Life

Dublin Airport's defibrillator CPR programme has helped save the life of a Consultant Cardiologist. The airport's defibrillator CPR programme, which has saved 32 lives since it was first introduced in 2003, has recently been strengthened with the addition of two fully trained advanced paramedics to the Dublin Airport Fire Service response team, with two more advanced paramedics currently in training.

The airport's advanced paramedics were tested recently when a passenger arriving from the UK experienced a serious cardiac event in Terminal 2.

Dr. Farqad Alamgir, who is a Consultant Interventional Cardiologist, was travelling from Manchester to Dublin Airport on a regular trip to Ireland, where he works in a number of hospitals, when he took ill. He was initially tended to by an Aer Lingus staff member who administered CPR until Airport Police and Fire Service responders arrived.

Dublin Airport's advanced paramedics administered life-saving drugs at the scene before transferring Dr. Alamgir to the Mater Hospital in Dublin, where he underwent emergency heart bypass surgery.

Dr. Alamgir has worked for 30 years resuscitating many patients who present with acute heart attacks, but never imagined he find himself on the other side of the fence. "I remember getting off the aircraft at Dublin Airport, then the next memory I have is waking up in the Coronary Care Unit in the Mater Hospital," said Dr. Alamgir.
"I now know that Dublin Airport's first responders used the Lucas CPR system giving me four shocks initially, then the skills of their Advanced Paramedic team administered urgent advanced life-saving drugs via an intraosseous needle into my shin, bringing me back after 17 minutes of downtime. The speed of the response not only saved my life, but the resuscitation was so effective that I have not suffered any neurological or cardiac muscle damage."

Dr. Alamgir said, he was "so grateful and thankful to the team at Dublin Airport, the ambulance crews and the team at the Mater for giving me another opportunity to spend more time with my family".

Dublin Airport Chief Fire Officer Gerry Keogh said it was hugely rewarding and humbling when a passenger walks through the door to thank the team for saving their life. "Our defibrillator programme began in 2003 and since then we have increased our defibrillator numbers to over 50 around the airport's campus. We also have two fully-trained advanced paramedics and two in training, and their new skills greatly enhance the emergency medical response to any incident at the airport.

"We were absolutely delighted to welcome Dr. Alamgir back to Dublin Airport. It's a testament to the training, professionalism and team work of the airport's first responders that he was in a position to come back and meet those who saved his life." Mr Keogh said that every life saved by the defibrillator programme had a profoundly positive impact on a wide range of people.

Following bypass surgery, the Mater Hospital cardiac team said Dr. Alamgir had been resuscitated by "a thoroughly professional and well-trained emergency response team at Dublin Airport".

Dublin Airport welcomes an average of 100,000 passengers per day during peak season. It has flights to more than 190 destinations in 42 countries operated by 50 airlines.

EDITOR'S NOTE:

Defibrillation is a procedure that is used to treat life threatening conditions that affect the rhythm of the heart such as cardiac arrhythmia, ventricular fibrillation and pulseless ventricular tachycardia. The procedure involves the delivery of an electric shock to the heart which causes depolarisation of the heart muscles and re-establishes normal conduction of the heart's electrical impulse.

In the April 2018 edition of The Catalyst we reported that after a man died at Dublin Airport due to the absence of defibrillators, Gerry Keogh, Chief Fire Officer of Dublin Airport spearheaded an airport defibrillator programme and in 2003 started with just four defibrillators. Dublin Airport Fire & Rescue Service is responsible for all fire and rescue duties at the airport in the event of an aircraft accident/incident and they also provide domestic fire and medical response to the airport facilities. They have fully trained paramedics as part of the fire crew and they provide an emergency ambulance for the airport.

A number of staff were trained in the use of defibrillators and within the first week after installation, a person had a cardiac arrest at an airport boarding gate. Two nurses who were at the gate had started resuscitation by the time the Fire and Rescue Service responders arrived bringing a defibrillator with them. They gave the patient a shock and within ten minutes, the person was up and speaking to them. This gave the Airport Fire and Rescue Service great confidence and morale to progress the project. Since the defibrillation programme was introduced by Dublin Airport Fire & Rescue Service in 2003, 32 lives have been saved.

Gerry Keogh, Chief Fire Officer, has been with the airport's fire services for 41 years and is a great proponent of the use of defibrillators. All airport police and fire officers are trained in Cardio Pulmonary Resuscitation (CPR) and a number of taxi drivers who provide service to the Airport have also taken the two day training course in emergency response for cardiac arrests provided by the Airport Fire & Rescue Service. Doing CPR buys time until a defibrillator can be obtained and turned on. The Dublin Airport Fire & Rescue Service aim to respond to a patient within four to six minutes and then connect them to the defibrillator and shock. Usually one shock has the desired effect but on one occasion in 2017, a patient collapsed on the Departures floor and it took 14 shocks to get his heart pumping - and he survived.

In a situation of cardiac arrest the longer a patient is left without defibrillation the worse the survival rate gets - for every minute that goes on that no one is interacting, the less are the chances of survival.

H2K - ACCREDITED TRAINING PROVIDER PROFILE

Situated in Schiedam (Rotterdam-region), below the chimneys and flares of the largest refineries in Europe, H2K can be found. This family-owned company started in 2006, is specialised in providing firefighting education, training courses and consultancy. Customers are government and in-company fire brigades with Emergency Response Organisations focussing on industrial risks, such as petroleum industry, pharmaceutical, chemical storage, transport, and food processing industries.

Founders of the training agency are brothers De Roos. Peter and Ronald both have a background in industrial firefighting and won their spurs at the well-known RISC training ground, and as firemen in Dutch firefighting services. It is there they discovered a passion for fire training and education. In the heat of the moment a firefighter needs to perform at the best of his capabilities. To do so he or she must be efficiently trained to take safe, smart and effective choices. H2K aligns every project so that the best possible training is being conducted.

In 2011 the time was ripe for the two to join the company fulltime, and it has rapidly grown ever since. "We used to do everything ourselves", Peter explains, "conducting training, arranging examinations, transporting SCBA, making lunches." "I remember a summer vacation with family at Lake Garda in which evenings were being reserved to compose training programs together", Ronald adds grinningly.

Nowadays the team is extended to 18, situated in a neat office building combined with warehouse. H2K is the largest Dutch provider of firefighting training programs and educational courses. The company has its roots and is strongly specialised in industrial firefighting. Educational courses are accredited by the Dutch Fire Service College (IFV), making them one of only two private parties allowed to do so. Training courses are always conducted in form of tailor-made programs.

Most of the clients are situated in The Netherlands, around seaports. Although an increase in requests from outside the Dutch borders has been noted. With new contacts being established in countries such as Belgium, Cyprus, Estonia, Ethiopia and Malaysia.

'It is not our goal to have all knowledge in-house'

The JOIFF-member strongly believes in a networking approach to training and education. It is through partners that they are able to achieve the current portfolio. "It is not our goal to have all knowledge in-house. Instead we rely on a hull of approximately 80 freelance instructors and partner companies", Ronald explains. "Every so often we extend a training program on industrial firefighting and safety with topics on risk and continuity. In Marsh Risk Consulting we find a very valuable partner for doing these specific training programs. And we would never be able to achieve the knowledge they have on this matter," he continues. "A lot of the training programs pay attention to firefighting foam. Although we have plenty of experience there, for more knowledgeable topics we partner up with German foam manufacturer Dr. Sthamer. We believe both parties benefit from this approach. Marsh and Sthamer can make use of our channel for conducting training, and our program profits from their extensive knowledge", Peter adds.

TRAINING MATHEMATICS

The success formula for firefighting training is not complicated, though very tricky to execute well. H2K prefers to conduct training as much as possible at the client's location. This means participants are confronted with a known surrounding, known scenarios

Facts and Figures

Name:
H2K

Location:
Schiedam-Rotterdam, The Netherlands

Team:
18 + 80 freelance instructors

Portfolio:
± 250 training projects and
± 35 educational programs in 2019

Specialties:
Firefighting foam, hydrocarbon firefighting, industrial firefighting, tailor-made training programs

Web:
www.h2k.nl (also in English)

and known firefighting equipment, thus training output will be high. "In practice this always leaves challenges", Ronald states, "first of all the instructor has to be allowed to conduct training on-site and get to know the location. Meaning: entrance checks, vehicle registration, safety briefing, hazop, etc. etc. In addition to that, it demands much capacity from our company's planning and logistics team. Some days our entire operations team is on the road, making sure the training gear is on the right location at the right time".

H2K does not house its own training ground. The reason is simple: flexibility. Having your own location has the benefit of being fully able to set the tone, but the downside is that a certain amount of training will have to be conducted inhouse to cover the costs. "And that does not always lead to the best training possible. We have partnerships or agreements with most industrial training sites in The Netherlands, and locations throughout Europe. This means we can choose the ideal training location based upon the program, selecting relevant training objects that match the training goals", Peter illustrates.

"The final part of the success formula for training is selecting the instructor. The training is only as good as the instructor", Ronald says. H2K only has a few instructors on the payroll, the rest of them is freelancer. "We call this: the best-(wo)man-on-the-job-model. One of our partner-instructors is a specialist on nuclear safety and firefighting. We conduct about 10 nuclear training sessions per year, and always this is our man. But we would not ask him to conduct training on basic firefighting skills. It would do both the instructor and the training course no good. I am very proud of our network of instructors. We value all of them and are grateful for the work they do for us every day", the Managing Director concludes.

RESEARCH & DEVELOPMENT

Next to training, the Schiedam-based organisation also has a crew for Research and Development. Main focus of the R&D-team is developing tailor-made training programs and educational courses together with clients. As an example, the team is currently composing a safety awareness training about Chlorine in industrial applications. A client uses Chlorine and Chlorine gas in large quantities. Although their safety personnel have been educated in industrial firefighting and incident command, they now request additional training and knowledge on emergency response related to Chlorine. Similar programs have been composed about anhydrous ammonia, hydrogen, dust explosions and incidents with transformers & substations.
"Theory on these subjects is often available extensively. Our challenge lies in translating the (scientific) literature into a training program that speaks for itself. In addition to this, we want to develop understandable workshops with practical demos. An 8-hour spoken course is usually not the best way to get the message between a firefighter's ears", Peter explains.

New developments in the industry are being monitored continuously by the R&D-team. Because of this they are very well-informed and are frequently asked for issues on firefighting foam, hydrocarbon firefighting, hardware and mobile equipment. Examples are the selection of a new foam concentrate, or the consequences of fluorene free foam for existing vehicles and hardware.

'An 8-hour spoken course is not the way to get a message between a firefighter's ears

THREE-STEPPED TRAINING MODEL

For most of the clients, H2K executes a multi-year programs using a stepped model. Step 1 is basic training or refreshers at the clients' location, next step is small-scale realistic training using an external location in The Netherlands. The final step in the model is to take customers to a real-scale training site. Those locations make it possible to bring your own truck, foam, gear (and sometimes even product), to conduct realistic scenario training. The stepped model helps in making the transition from basic and small-scale training to practicing industrial scenarios in a hyper-realistic environment.

As a result of the model, H2K depends on a variety of partner training sites. Most of them are situated in The Netherlands. Making it ideal for students to travel there for a 1-day training. The training location in Dordrecht, representing a medium Dutch city, is JOIFF-accredited since May 2017. One of the most special training locations is the CNPP-site in Vernon, France. The training centre is situated on the site of a former refinery of which the tank-park, the loading installations, and various process installations are now in use as training objects. H2K mainly uses the site as location for training on firefighting foams, hydrocarbon fires and tank & bund firefighting on realistic scale.

JOIFF

Since early on, H2K has been member of JOIFF. "For us it is important to be member of an international organisation that aims to share knowledge and expertise on industrial safety. Only by doing so we will become better at responding to industrial incidents in the future", Peter states. Industrial fire training is not as regulated as training for the upstream oil and gas. "This makes it even more important that there is an international partner for training accreditations."

Annually, H2K organises a Foam School in Vernon together with Dr. Sthamer. In addition to this, the company conducts specialist training programs on Integrated Fire Safety of IBC's and Intermodals, Tank and Bund Fires, Transformer Fires and the 5-day course on Advanced Industrial Firefighting. Next to the above standard JOIFF-programs, H2K also provides various in-company JOIFF-accredited programs. Such as a tailormade Fire Incident Command Course, Fire Officer training and specialised train-the-trainer programs.

2020 promises to become an interesting year for H2K. The pipeline is filling up rapidly with training requests. As long as the chimneys in Port of Rotterdam keep smoking, there will be plenty of training work to do for the two brothers and their team.

JOIFF ACCREDITED eLEARNING PROGRAMMES

INTRODUCTION:

JOIFF accredited eLearning programmes have been developed after many years' experience in training emergency responders at every level. The programmes are computer based and learnt and demonstrated by the student in their workplace. Each student is assigned an individual electronic portfolio which sets out a structured training path and in which each student's training and progress is tracked. As the programme progresses, it provides a traceable system of assessment and verification of each student's competence.

Instruction/assessment takes place within a time frame established by site management/the student in the work place where, as they go through the programme, each student demonstrates competence in each of the clauses of the units. An assessor is appointed to each student reviewing their work as they progress and confirming "competent" or "not yet competent" for each of the clauses as they go forward.
Assessors are usually the site's in-house trainers / fire team leaders / fire officers / instructors / assessors who have the relevant background and competence. The work is externally verified remotely by the administrators of the programme.

PROGRAMME CONTENT:

The programmes comprise Units, Elements and competences and are drawn from National and International Standards and experience and Good Industry Practice.
It is not necessary to follow the units and elements in sequence, how the work on the programme is completed is at the discretion of the site management/ student. A number of the elements can be covered in normal station training, providing it is assessed.

COMPLETION AND POST NOMINAL:

All programmes are accredited by JOIFF, the International Organisation for industrial Emergency Services Management. Students who successfully complete a full programme receive a JOIFF accredited certificate and in agreement with JOIFF a number of the programmes count towards JOIFF qualifications and use of JOIFF post nominals.

APPROVED PRIOR LEARNING AND EXPERIENCE:

Subject to approved assessment and verification, suitable and relevant formal Approved Prior Learning and Experience (APLE) gained by the student during a period of up to two years prior to the commencement of the programme is acceptable as part of the recognition of competence required in the programme. Equivalency where claimed, must be by verification.

PROGRAMMES:

The Diploma programme is JOIFF accredited as the JOIFF Diploma and covers key skills for emergency response in High Hazard Industry and ensures competence within both emergency response and knowing the facility in which the emergency responder operates. The programme consists of 24 Units in which there are over 100 elements and in excess of 700 competences. The outcome on successful completion is that student is awarded a Diploma certificate and can use the post nominal Dip.JOIFF The Technician programme is JOIFF accredited as the JOIFF Technician and provides the platform for persons engaged in emergency response to enhance their knowledge and skills having already demonstrated their competence in Key Response Skills in High Hazard Industry. To achieve full success in demonstrating the competences in this programme requires the student to do individual

research and study. The outcome on successful completion is that student is awarded a Technician certificate and can use the post nominal Tech.JOIFF

LEADERSHIP 1: (Team Leader) – leads a team of 5 to 8 persons - programme is JOIFF accredited and provides to persons who are technically competent to a recognised standard and have core educational skills, the path to the knowledge and skills for an emergency response Team Leader role in emergency service delivery. To achieve full success in demonstrating the competences in this programme requires the student to do individual research and study.

LEADERSHIP 2: (Officer) - leads multiple single Teams of emergency responders - programme is JOIFF accredited and provides to persons who are technically competent to a recognised standard and have core educational skills, the path to the knowledge and skills for an emergency response officer role in Team Leadership and Management for persons who lead multiple single teams of emergency responders. To achieve full success in demonstrating the competences in this programme requires the student to do individual research and study.

Responder to Hazardous Materials Incidents programme is JOIFF accredited and covers the awareness and operational skills required by emergency responders, learnt and demonstrated in
training and exercises that allows them to deal competently with emergencies involving hazardous materials identified within the Response Area Emergency Response Plan where they are employed.

To achieve full success in demonstrating the competences in this programme requires the student to do individual research and study.

Emergency Response Control Room Operator programme is JOIFF accredited and provides to persons who are technically competent to a recognised standard and have core educational skills, the path to the knowledge and skills for an emergency response Control Operator. To achieve full success in demonstrating the competences in this programme requires the student to do individual research and study.
The JOIFF accredited eLearning programmes for emergency response to industry have been developed and are marketed and administered by JOIFF Member organisation and JOIFF Secretariat Fulcrum Consultants. For further information,
email info@fulcrum-consultants.com

JOIFF QUALIFICATIONS

Dip.JOIFF

This is awarded to persons who have successfully completed the JOIFF Diploma programme which is a competency programme for personnel who respond to emergencies. It covers necessary key skills, learnt and demonstrated by the student in practical training and exercises that allows them to deal competently with site emergencies.

Tech.JOIFF

This is awarded to persons who have successfully completed the JOIFF Technician programme which allows emergency responders to enhance their knowledge and skills having already demonstrated their competence in Key Skills.

Grad.JOIFF

Graduate of JOIFF is awarded to a person from any JOIFF Member Organisation who has a minimum of 5 years full time service in an emergency response role and has shown professional attainment in Industrial Hazard Management activities. JOIFF Graduate can be awarded through Route 1 for persons who have successfully completed the JOIFF Diploma and JOIFFF Technician programmes or Route 2 by demonstration of a significant level of suitable and relevant competence in emergency response through knowledge, skills and understanding.

MJOIFF

JOIFF Member is awarded to operational personnel from any JOIFF Member Organisation who have a minimum of 10 years full time service in an emergency response role, have demonstrated competence and shown significant professional attainment in Industrial Fire and Explosion Hazard Management activities and have been successfully assessed as competent through recognised training in the range of activities in Industrial Fire and Explosion Hazard Management.

AMJOIFF

Associate JOIFF Member is awarded to non-operational personnel who have made significant contributions to the development and profile of JOIFF over a number of years by their actions and their work activities.

FJOIFF JOIFF Fellow

The award of JOIFF Fellow is by recommendation of the JOIFF Board of Directors and is given to an individual who has made an outstanding contribution to Industrial Hazard Management activities in support of

JOIFF.

For further details contact the JOIFF Secretariat
joiff@fulcrum-consultants.com

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