The Catalyst

October 2016

JOIFF Shared Learning

Shared learning is one of the 3 key pillars of JOIFF. Details of the industrial incidents listed on this page which are only a small number of actual incidents reported during the past 3 months have been circulated through the JOIFF Shared Learning network to the nominees of all JOIFF member organisations.

Message from the JOIFF Chairman

JOIFF members and Guests,

In a few weeks from the date of this publication, we will be in the middle of the JOIFF International Fire and Explosion Hazard Management Conference. With Malta as the location, and the association with ISTC Malta, the venue is the perfect backdrop. The conference speakers and delegates reflect the very best of what JOIFF strives to

continued overleaf….

Some industrial incidents that took place during the third quarter of 2016

Iran - Fire at Petrochemical Plant Kills One, Say Reports ~ Russia - Eight die in fire at Bashneft Refinery ~ US - Fire From New Mexico Fracking Site, 36 Frack Tanks Burning Three Days Later ~ Canada - Husky Energy spills hydraulic fluid into the ocean ~ China - Sinopec cuts central China gas supply after pipeline fire ~ US – Kinder Morgan, King Ranch Natural Gas Pipeline Rupture ~ India – IOC Fire in Panipat Refinery Cracker Plant, 3 injured ~ IRAQ – 5 Killed, 2 Plants on Fire ~ Singapore - Firefighter injured in blaze at SembCorp Marine yard ~ USA - 1,400 employees safely evacuated after Motiva refinery fire ~ Nicaragua – Puma Energy Storage, Fire and Multiple Boilovers ~ US - Tesoro Refinery Sulfur Tank Rupture & Fire ~ Brazil – Speeding ethanol tanker loses control killing 6 motorists ~ South Africa – Pretoria, Watloo road tanker explosion and fire… ~ US – Houston Ship channel reopens after fiery incident ~ US - Faster-than-expected corrosion led to pipeline blast ~ Iran - Fire breaks out at petrochemical plant in southern Iran ~ Mexico – Fire breaks out on Pemex tanker in Gulf of Mexico, crew safe ~ Fire forces closure of key oil pipeline in Nigeria

achieve; an international exposure and profile for the purpose of elevating the Industrial Response profession with a focus on High hazard industry. I assume you have all seen the mailings and event notifications, and have had time to peruse the list of speakers. They are varied, at the top of their respective specialties, and will prove to be profoundly interesting and insightful for the delegates. The delegates themselves also reflect the full spectrum of high caliber professionals from around the globe, and will provide their own unique and highly worthwhile networking opportunities.

Though the conference is a focus for JOIFF, it is not the only activities we are engaged in as the Board of Directors. We are continuing to refine our governance and organizational structure to allow us to concentrate and deliver on our three pillars – Shared Learning, Accredited Training and Technical Advisory Group. Our accredited training continues to expand both in geography and in scope as more organizations identify the JOIFF Accreditation as a requirement for curricula. We are working to derive more clear lessons learned from our Shared Learnings and Peer Assists, and we continue to work with different governing agencies to influence outcomes to reflect Industry good practices.

In this edition of the Catalyst, besides taking advantage of the excellent articles, please take the time to recognize the sponsors for both the conference, and the publication. As a not-for-profit organization, we simply could not do what we do without the support of our membership and sponsors.

For those able to attend the conference, I look forward to seeing you there, for those that cannot attend, we will work to create other opportunities in the future to provide you maximum benefit from your membership.

Highest Regards,

RANDAL S. FLETCHER (RANDY)

JOIFF Chairman

Images taken from Shared Learning Detail, Third Quarter 2016

About JOIFF

Membership of JOIFF, the International Organisation for Industrial Emergency Response and Fire Hazard Management is open to any Organisation which is a high hazard industry and/or has nominated personnel as emergency responders/hazard management team members who provide cover to industrial/commercial organisations. Organisations which do not fully comply with these requirements and wish to support JOIFF are welcome to apply for Corporate Membership of JOIFF.

JOIFF's purpose is to prevent and/or mitigate hazardous incidents in Industry through its 3 pillars:

- Shared Learning – improving risk awareness amongst our members
- Technical Advisory Group – raising quality of safety standards in the working environment of High Hazard Industry
- Accredited Training – enhancing operational preparedness in emergency response and crisis management.

JOIFF welcomes enquiries for Membership - contact the JOIFF Secretariat.

JOIFF Ltd. Registered in Ireland. Registration number 362542. Address as secretariat.

About The Catalyst

The Catalyst is the official newsletter of JOIFF, the International Organisation for Industrial Hazard Management and is published quarterly - in January, April, July and October each year. Our policy is to bring you high quality articles on relevant technical issues and current and new developments and other happenings in the area of Emergency Services Management. In addition to The Catalyst, information relevant to Emergency Services Management is posted on the JOIFF website.

Readers are encouraged to circulate The Catalyst amongst their colleagues and interested parties. The Editors welcome any comments, you can email comments to fulcrum.consult@iol.ie

Disclaimer: The views and opinions expressed in The Catalyst are not necessarily the views of JOIFF or of its Secretariat, Fulcrum Consultants, neither of which are in any way responsible or legally liable for any statements, reports or technical anomalies made by authors in The Catalyst.

New Members

During July, August and September 2016, the JOIFF Board of Directors were pleased to welcome the following new Members:

Full Member:

Babcock Fire & Rescue Service, Cheshire, England, represented by Darren Roberts, Station Manager and Ian Swift, Fire Safety Officer. Babcock International Group (Critical Services), working in partnership with URENCO, set up a stand-alone incident response service to allow URENCO to focus on their core operation. Babcock Fire & Rescue Service provides full incident response capabilities 24/7to ensure URENCO's business continuity

Caltex Lytton Refinery, Lytton, Queensland, Australia, represented by Jaco Erasmus, Fire and Emergency Response Specialist (Fire Chief). A large team of emergency responders provide cover to the site which includes a crude oil refinery, products wharf, crude wharf, tank farm, TTLR, LPG bullets, butane Spheres.

Emergency Services Training Centre, Birkenhead, England, represented by Dave Alcock, Chief Executive Officer and Eric Dempsey, Fire Fighter Course Director. Emergency Services Training Centre (ESTC) delivers specialist emergency services and offshore training for IMCA (Institute of Marine Contractors Association). ESTC have spacious, well equipped class rooms and a series of purpose built training rigs which allow for realistic simulation, total immersion and evaluation. Their customers for training include Universities, health authorities and hospitals

E.F.O.C.I.R (Escuelas de Formación Operativa Contra Incendios y Rescate, Fire and Rescue Training School), Buenos Aires, Argentina, represented by Gerardo Crespo, Fire & Rescue Training Leader. E.F.O.C.I.R. provide training and fire and rescue services to Industrial and Urban emergency response brigades they carry out fire equipment and installations audits, and organise conferences and seminars in fire and rescue.

Falck Safety Services Esbjerg, Esbjerg, Denmark, represented by Jesper Jonø, Quality and Product Development Manager, Henrik Munk Andersen, Operations Manager and Rene Kjer Petersen, Team Coordinator Fire & Chemical. Falck Safety Services Esbjerg provide fire training for the maritime, onshore & offshore sector. They provide advanced fire training, sea survival and HUET training, contingency awareness training and boat training for the maritime and offshore sector

RectrixAS Ltd., Stockton on Tees, England, represented by Alex Westwood, Director, Christopher Young, Business Development Manager and David Westwood, Technical and Administration. RectrixAS Ltd is a technology based company specialising in providing aerial services with their UAVs (unmanned aerial vehicles/drones) to various high hazard industries, offering solutions to existing problems, as well as presenting new disruptive technology services that benefit the ER industry. Their personnel have extensive drone utilisation and integration experience in industrial environments and offer service provision, situational awareness, post incident aerial forensics, equipment provision as well as theory and hands on training.

Turkish Petroleum Refineries – Izmit Refinery, Turkey, represented by Ergun Pehlivanogullari, Technical Safety Chief, Cem Söyleyici, Technical Safety Engineer and Aytug Ayhan, Technical Safety Engineer. Turkish Petroleum Refineries – Izmit Refinery has a large team of full time emergency responders who respond to incidents in the refinery. The İzmit Refinery started production in 1961 and is located at the centre of a consumption hub that now accounts for about 33% of Turkish petroleum products consumption.

Corporate Member:

Chief Fire Technologies, Downingtown, Pennsylvania, U.S.A., represented by Tom Henning, Manager Technical Sales, Kyle Chandler, President and Sal Izzo, Sales Manager. Chief Fire Technologies is a manufacturer of high flow firefighting and hazard control equipment providing a tailored solution to the customer. Chief designs and manufactures a variety of mobile industrial fire fighting apparatus including custom high-volume pumping systems, front-line mobile monitors, tactical support systems and specialty control systems and develops fixed system technology for commercial and industrial fire suppression.

Falck Fire Consulting Limited, Buckinghamshire, England, represented by Chris George, Managing Director, Simon Neale, Engineering Manager and Paul Watkins, Fire hazard Management Specialist. Falck Fire Consulting Ltd (FFC) is part of the Danish multinational Falck Group which operates in 46 counties. FFC are a fire protection engineering and consultancy specialising in Fire and Explosion Hazard Management. FFC also supports the Industrial Fire Services divisions in 16 countries. The staff of FFC includes fire fighter trainers and experts with aviation firefighting experience.

Firemiks AB, Solna, Sweden, represented by Per Aredal, Sales Director and Mikael Aredal, Managing Director. Firemiks AB is a third generation family-owned company which designs, produces and markets water motor-driven foam proportioning systems with the trade-mark FIREMIKS®. Their main customer area is oil- and gas industry and other industries dealing with hazardous materials.

K V Fire Chemicals (I) Pvt. Ltd., Vashi, Navi Mumbai, India, represented by Rajesh H Sabadra, Executive Director and Manish Nawalakha, Director. K.V. Fire Chemicals have been manufacturing and supplying dry powders and foam concentrates for 4 decades and they currently export their products to more than 40 countries.

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

Respiratory Protection Equipment for Oil & Gas Operations

by Mohamed Elagrab, QSSP,MBA

Respiratory Protection Portfolio

First responders and HSE officers have a wide range of respiratory protection equipment to choose from. The list includes escape devices including filtering face pieces, chemical oxygen self-rescuers, and emergency escape breathing devices (EEBDs) equipped with constant flow or positive pressure technologies or SCBA's. In this whitepaper we would like to highlight some important factors to consider when considering respiratory protection equipment for Oil & Gas operations.

Important Factors to Consider

The real 'working time' of the escape devices depends on various factors such as temperature, humidity & breathing rate. It is not uncommon to see devices on the market with "inflated" working time, which is the direct result of relying on unrealistic breathing rates used during the final testing and product certification. MSA tests escape devices according to internationally recognized standards and rated duration of devices is approved by third party testing.

Keep in mind temperature limitations for usage of mask/hooded devices. Low temperatures, especially lower than -20 Celsius degrees, weaken the material of the mask, and in the case of hooded devices make it difficult to don

The risk of inward leakage is another important factor and limitation of use especially in case of higher concentrations of H2S. The seal of the face pieces, masks and hooded devices is provided by fit of masks material to the clean shaved face (in case of unshaven face, a perfect seal cannot be secured).

For very high H2S concentrations it is strongly advised to use supplied air respirators or SCBAs.

However, it is very important to pay attention to the effect of material permeation. This weakness will not be detected during standard European certification testing that relies on test gases (such as Sodium Chloride (NaCl) or Sulfur Hexafluoride (SF6)) and not the real hazard for determining protection of the device. In order to investigate the effect of H2S permeation on respirators, whilst excluding any leakage effect, MSA designed and conducted a very special test protocol that uses real H2S instead of standard test gases.

Therefore, as more oil and gas operations are in sour phases, the proper choice of emergency escape devices is more critical than ever to reduce the risk of death and injuries.

Editor's note:
Mohamed Elagrab, QSSP, MBA is Product Group Manager, Respiratory Protection with MSA Technologies and Enterprise Services GmbH. Mohamed has more than 13 years experience working closely with Oil & Gas customers around the world to design, supply and customise supplied air solutions. Mohamed is a big supporter of JOIFF and a member since 2011. For more information visit MSA's website at www.MSAsafety.com

The Four Stages of Competence

There's a series of four stages people go through as they move toward proficiency:

Unconscious incompetence: The learner is not competent, and doesn't know what they don't know.

In this stage, the learner doesn't know enough to gauge their own [low] skill, and may or may not have confidence. A confident learner who dives right into trying a skill will begin learning quickly. On the other hand, a low-confidence learner might be afraid to even try.

Conscious incompetence: The learner gains enough experience to become aware of mistakes and lack of understanding.

The learner has gained enough experience to recognize their lack of skill. At this point, competence is rising, but confidence is likely to drop. This is the perfect moment for a coach or teacher to step in and help the learner build specific aspects of skill and understanding to address the mistakes they're making.

Conscious competence: The learner has become proficient in the skill, and is able to think through the process of a skillful approach.

The learner knows that they're gaining skill, and their confidence rises along with it. These learners make great teachers, as they have freshly-gained insight into how they perform the skill and can offer it to others.

Unconscious competence: The learner has internalized the skill so thoroughly that it no longer requires conscious thought.

This is true expertise: at this point the skill has become intuitive to the learner, and they might not even be able to explain how to do it anymore! (How exactly do you tie your shoes?) Confidence has become high enough so that it's a non-issue.

From WikiPEdia

Protecting Firefighters Against Dangerous Exposures

In responding to incidents involving fire, firefighters must face not only the risks of the incident but also the workplace hazard of exposure to the contaminants given off by the fire. There is a wide range of evidence in various Countries around the World that firefighters are at a higher risk than other sectors of the working population of exposure to hazardous materials. Firefighters' PPE which is worn to allow persons to work in such hazardous environments, is itself exposed to a range of toxic chemicals, biological pathogens and other hazardous contaminant exposures that can pose dangers to firefighters immediate and long-term health with increased risk to cancer topping the list.

There is a large and growing amount of research currently taking place on cleaning PPE to effectively remove all such contaminants, but whether new cleaning procedures adequately do remove such contaminants from PPE has yet to be fully determined.

As well as any precautions included in the workplace Safety Management System, firefighters have a personal responsibility to themselves and to their families to take simple precautions to reduce the risks of exposure.

Some years ago, the Firefighters Cancer Support Network in the United States of America published "Action Points" of immediate actions that firefighters should take in any fire exposure and recently, the United Kingdom Fire Brigades Union (FBU) published a guide entitled "Dealing with Contaminants". This guide contains advice on actions that need to be taken to provide better protection against the exposures that could result in cancer and other serious illnesses and also recognises that firefighters must take responsibility for themselves and ensuring that their fire kit is clean.

The FBU guide encourages all FBU representatives to print and mount on the wall of their fire station a 10-step guide to working in an environment with contaminants.

1. Always make sure that your PPE is clean and stored in a clean environment.
2. Wear Breathing Apparatus if you are aware of the possibility of airborne products of combustion.
3. When damping down, wear full PPE and consider the use of a personal issue respirator.
4. Post incident and while still on scene, clean your PPE to remove as many products of combustion as possible.
5. Use wet-wipes as issued to remove immediately soot etc. from the head, neck, jaw, throat underarms and hands.
6. When cleaning dirty PPE and equipment, wear gloves, dust masks etc.
7. Replace dirty fire kit on return to station and clean helmet, boots etc.
8. Thoroughly clean the fire appliance interior, equipment and lockers after a fire.
9. Do not take dirty PPE home or store it in your vehicle.
10. If necessary after the removal of PPE, shower and change your clothes

Firefighters – the first step in taking action against possible exposures is to protect yourselves !!!

Editors note on Shared Learning

Most reports of incidents that occur, some of which are listed on the front page of the Catalyst, are familiar. After all major incidents, recommendations are made but how many of the recommendations are implemented? How many are forgotten over time until another similar incident occurs?

Throught the Shared Learning facility on the website, JOIFF shares valuable information with its members aimed to improve the level of knowledge of Emergency Responders. JOIFF works to ensure that members benefit from the misfortunes of some to educate against the same mistakes being repeated.

Industry needs to ask is it doing enough to educate Industry so that incidents such as these will either not be allowed happen again, or if they do, they can be more effectively dealt with.

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*Because every life has a **purpose**...*

JOIFF in association with the International Safety Training Centre Malta would like to extend a personal invitation for you to attend The International Fire & Explosion Hazard Management Conference.

Fire & Explosion Hazard Management (FEHM) – Are You Prepared?

Corinthia Hotel, St Georges Bay, Malta November 3rd & 4th 2016.

Randy Fletcher Chairman JOIFF - *"FEHMP is the foundation of all response and training efforts, and a process and approach that is often poorly conceived and integrated."*

In recent years, JOIFF has grown in size and in influence and now has member organisations all over the World. JOIFF recognises that recent economic cut backs have impacted on emergency response preparedness and felt that there is a necessity to provide a global platform for discussion and dissemination of the latest FEHM thinking.

JOIFF member organisation International Safety Training College (ISTC) Malta extended an invitation to JOIFF to hold its first FEHM Conference in Malta. The aim of the Conference is to both reinforce the JOIFF principals of Shared Learning and to provide a global platform for the World's leading FEHM specialists to meet, discuss and join with high risk fire & explosion hazard management specialists from around the world. On 3rd & 4th November 2016 the JOIFF/ISTC International Fire & Explosion Hazard Management Conference will be taking place at the Corinthia Hotel, St. Georges Bay Malta.

The principal of Shared Learning has been the foundation, direction and the driving force of this whole project, and it is this principal that has provided the platform to secure World class speakers from the four corners of the globe who have agreed to present papers and case studies on all of the most important aspects of FEHM pre-preparedness.

Speakers:

- Vanessa L Allen Sutherland - Chairperson Chemical Safety Board Federal Investigations USA
- Randall S. Fletcher - JOIFF Chairman & BP Global Response Advisor
- Kevin Westwood - BP Group Fire Advisor & Executive Director of JOIFF
- Niall Ramsden - Director of NRG Consultants
- Kees Kappetijn - Director of Kappetijn Safety
- John A. Olsen - Joint Managing Director of Strategic Fire Solutions
- Andre Rabie - Fire Service Manager at ORPIC
- J. Gordon Routley - Division Chief, Montreal Fire Department
- Chris Addiers – President of Federation of European Union Fire Officers Association
- Edward Hawthorne - Chairman NFPA 1081 Committee
- Brad Byczinski - Global Response Manager, BP International
- Jeanne van Buren - Senior Consultant, Marsh Risk Consulting B.V.
- John S. Cunningham - Executive Director at Nova Scotia Firefighters School
- Mark Samuels - Divisional Officer at Essex County Fire and Rescue Service
- Professor Vincent Tam - Advisor at BP Amoco
- Dave Price - UK President & Principal Engineer at Gexcon
- Simon Thurlbeck - Managing Director & President, MMI Engineering Ltd
- Nagi M. Ahfaf - Board Member & General Manager of Operations, Raslanuf Oil & Gas Processing Company
- Iain Clough - Risk Engineering Consultant, Duffek Consulting Ltd

Fire & Explosion Hazard Management (FEHM) – Are You Prepared?

Corinthia Hotel, St Georges Bay, Malta November 3rd & 4th 2016.

Attendees will be from North & South America, Europe, Middle East, Africa, Asia, Pacific Rim/Australia, USA, Canada, Netherlands, Iran, Saudi Arabia, Libya, Iraq, India, Ireland, Nigeria, Russia, Norway, UK, Azerbaijan, Brazil, Malta, France, Spain, Malaysia. This includes speakers and delegates from Companies including BP, Dow, Shell BV, Reliance India, Sabic, National Oil Company Iran, Total, Petrobras, Ineos, Woodside, Lukoil, Marathon, Neste, plus Municipal and Airport Fire Departments & many more Fire & Explosion Hazard Management experts from around the world.

For those JOIFF Members who have already secured their place at this ground-breaking conference we very much look forward to welcoming you to the conference, and those JOIFF members who have yet to confirm their attendance please note that the delegate registration cut off deadline is 21st October 2016.

Sponsors:

The JOIFF/ISTC International FEHM Conference would not have been possible without our conference sponsors ALBERTA, FOMTEC, SOLBERG, TYCO, MSA, SCOTT SAFETY, AUXQUIMIA, DR STHAMER and in particular the commitment, enthusiasm & complete cooperation of Andy Gilravey and his team at the ISTC Malta.

As well as assisting the conference organisers with “on the ground” logistic help, the ISTC have organised and are hosting the live fire demonstrations on the afternoon of the first day of the conference. Andy and his team have made huge efforts to ensure that the live fire demonstrations will be a great success and will compliment the topics and presentations made at the conference.

Without the commitment and support of the sponsors this event would not take place, and everybody involved in the organisation of this event would like to thank the sponsors for their support.

JOIFF Member Delegate Preferential Package includes:

If you are a JOIFF Member and you are considering attending the Conference you are entitled to Free Delegate Passes for both days, Preferential Hotel Rates - Welcome Drinks Reception, Breakfast, Morning Refreshments, Buffet Lunch, Afternoon Refreshments during the 2 day Conference, World Class Speakers, Live Demonstrations, Exhibition and Supplier Presentations, Unique Networking Opportunities

The Venue: 5* Corinthia Hotel St Georges Bay, Malta.

JOIN US AND BE PART OF THIS GROUND BREAKING CONFERENCE

To find out more about the International Fire & Explosion Hazard Management Conference Malta 2016 and to confirm your attendance at this ground-breaking event please visit the conference website http://www.2016-joiff-fehm-conference.com/ or call the Conference team on + 44 (0) 1305 858281.

DELEGATE REGISTRATION DEADLINE 21ST OCTOBER 2016

RESPONDERS & DRONES 'Disruptive Technology Today'

They're great ER tools; however, it's a little more involved than buying and flying!!!

By Alex James Westwood

Remotely Piloted Aircraft Systems (RPAS) Unmanned Aerial Vehicles (UAVs) Unmanned Aerial Systems (UAS) whatever technical acronym is used to describe them the media and the public prefer to use the term 'DRONE'.

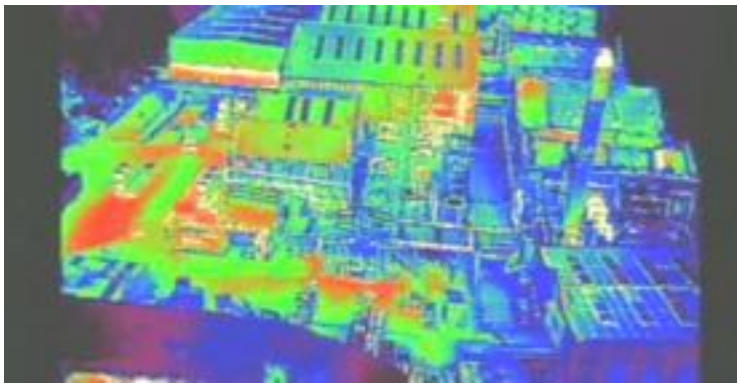
So what is a drone?

In simple terms a drone is an aircraft without a human operator or pilot on-board. Drones are operated from the ground by a Pilot who directs every part of the flight using a flight controller or ground station. Also they can be operated with a pre-determined flight plan/path (mission) which is entered into a bespoke drone program and with the press of a button it will fly that 'mission' autonomously without the need for pilot intervention.
So you're thinking about taking the leap and investing in drone technology to improve your emergency response operations. You have done your research and have concluded that the utilisation and benefits from drones could be a game changer for your organisation or department. So what to do next? What are the things to consider before you jump in with both feet?

How will you use the drone?

To understand what you want the drone to do for you. High on the list of used for responders is the ability to provide *operational situational awareness* to the on-scene commander - the 360 degree aerial overview allows for more effective informed decision making, have immediate knowledge and understanding of the dynamics of the situation from all operational sectors. Knowing where personnel, equipment and resources have been deployed ensures that the inherent threats and risks from *simultaneous operations* is managed.

This clarity of the situation and the scenario as its unfolding can be relayed to other co-responder agencies in tactical command vehicles close to the scene as well as remote strategic crisis centres. This ability to get a *common operating picture* to multiple agencies is essential. Equally important is to keep the asset operator informed of the developments as they occur. It's now possible to have live video imagery with very low latency transmitted to remote locations or even another country, maybe into company executives in a board room of a multi-national. Maybe you have company experts in another part of the world who may be able to provide valuable insights into how to mitigate certain scenarios to limit losses.This new tool provides the ideal lens through which do such.



A thermal image taken by a drone

The following list is not exhastive but provides examples of alternative utilisation of drones:

- Search and Rescue
- Accident Modelling & Forensics
- Hazard Detection
- Monitoring, Contamination Measurement
- Covert Security/Police Surveillance
- Delivering Supplies & Medicines
- Siege/Terrorism Firearms Support
- Oil Spill Response
- Disaster Response
- Data Acquisition & Analysis
- Monitoring and Assessing Damage,
- Multiple Sensor Deployment
- Post Incident Investigation
- Traffic Monitoring
- Training and Exercising
- Emergency Communications Deployment
- VOC Detection & Monitoring
- Mine Detection (GPR)
- Thermal Infrared Imaging
- Plume Dispersion Monitoring Analysis
- Mapping Accurate Measuring
- 2D & 3D Modelling
- Integrity Management Inspection
- Turnaround Monitoring
- Construction Project Safety
- Emergency Response Plan Surveying

Technology gains and lighter components mean drones are being developed at a staggering rate. Full autonomy and in

built robotics mean that in the years ahead many commonplace activities within our facilities will be conducted by drones, doing them quicker, safer with valuable data capture, analysis, immediate cloud storage and issuance of corrective actions on the fly - an extremely efficient tool of the future and the precursors of tomorrow are with us today.

Some other considerations !

You have convinced yourself of the need for a drone but who holds the purse strings? Make sure you fully engage and *educate your line management* as they will need to support this initiative when capital expenditure is needed for the drone package. They need to know the complexity of bringing this drone activity in-house and the long term commitment required and budgeted for, year on year.

What *finance* will you need? - have you budgeted fully for the hardware, software, infrastructure manpower competence acquisition and ongoing maintenance of competence. What aerial platform *specification* will you require, will it be a multi rotor (Quad, Hex or Octo) or a fixed wing or both or maybe a hybrid will do the job more effectively? What level of redundancy is required as part of the use considerations? technology? What camera and lens configuration? What degree of customisation or alternative technology integration is required? What spares parts should be procured?

What *safety use considerations* are needed - have you fully analysed your area of operation within high hazard industry and how this impacts the drones safe operating envelope, both from the facility operations on potential drone utilisation and visa-versa? Are there any no-go areas? Is there any radio interference potential which would mean communication and control problems? How will you integrate into site safety systems such as permit to work within battery limit operations such as area classification and EX rated areas? Will you expect some form of exceptions following exhaustive safety case use development?

Who is going to pilot the drone/s? If you have a shift based system and want 24hr capability for immediate drone deployment, how many staff will you need to train? You will require multiple pilots per shift to allow for holiday and sickness cover. The prospective pilots once they have been identified will require training. This comes in many forms and a whole new skill set to embed in your responders.

You will need to consider *manufacturers training* both on the flight requirements of the particular aerial platform chosen but also on the maintenance requirements to keep them operational on a daily basis. What manufacturers support is available for issues should the drone develop faults which can't be resolved in-house? Where are they located? Can they be with you within a short time frame or would you have to ship the drone for repairs?

Once you have considered all of the above, the next steps are getting your prospective pilots legal - attending and passing *ground school examinations*, this will differ from country to country and also from regulator to regulator. For example the US FAA has different requirements than the UK CAA or the French DGCA or the Malaysian DCA or Australian CASA. You can find a list of regulators online (see references) to determine your country requirements. This ground school takes them through aviation rules and safe operations of the drones and an understanding of regulated and unregulated airspace. Then a separate *flight test* is required to demonstrate safe flying and flight controls under normal and abnormal operating conditions - requiring emergency procedure demonstration.

Phew! So we are now ready to fly, right? NOPE…

Next you have to write a bespoke to your organisation *Operations Manual* - a document which outlines the technical specifications and safety systems and operations of the specific drones you will be using and the operating regime and environment for which the drones will be used. Will you be looking to use multi-rotors? Will you be conducting night flights? Maybe a tethered system! Whatever drones you're planning on using and how you will be using them it has to be documented. This once complete must be submitted to the country aviation regulator for scrutiny and acceptance before they will issue *permissions certification* to allow for legal operation. And on that note there's the little requirement for *drone specific liability insurance*.

Based on the various operating environments you may be expected to fly in there is now a need for *building up pilot hours* to assure competence. Pilots won't be flying in empty fields where it us very forgiving of the wrong controller operation. There may be complex structures, towers, stacks, columns, reactors, coolers with airflow characteristics which the pilots will need to be mindful of and master. They must ensure they have knowledge of flying with perspective of distant objects which is a function of time and experience - hours of flying are the only way to achieve this. Simulation can and should be used (especially in inclement weather) but real live flying is the best medium to gain competence.

So you purchased your drones and you trained your pilots now what?

Let the world know you have them - There has to be a communication strategy to educate the staff at the facility or department that they exist and that they will be slowly introduced into everyday responder activities. Facility

operations teams, maintenance staff, management, contractors, municipal and mutual aid responders, neighbouring facilities they all need to be aware of the new regime of responder operations. Defence in the form of a *data protection privacy statement* will be helpful should there be some complaints from those who are caught on camera.

Further questions to think about include: How will you 'store and transport' the drones? How and when do you mobilise? Will they be with the Command Vehicle, Rapid Intervention Vehicle? Or simply on the front line fire trucks? Maybe you have a dedicated vehicle with redundant communication options, ICT connections and streaming via integrated bonded cellular or satellite? Considerations for battery management and pilot *flight logs*, logging brushless propeller motor hours to determine replacement considerations have to be made.

So I hope this has provided an insight into some of the considerations for integration of drones into your responder operations.

If you're going to do this, do it right - don't take shortcuts or do this on the cheap, do understand the intricacy of requirements before you commit and you're on the road to safe and legal drone operations.

KEEP SAFE!

References: List of Country Regulators: https://en.wikipedia.org/wiki/List_of_civil_aviation_authorities

Editor's note: Alex Westwood is a Director of JOIFF member organisation RectrixAS Ltd., supplier of drone solutions, based in Stockton on Tees England. For further information, Alex can be contacted at info@rectrixas.com Website address www.rectrixas.com

SASOL Press Release

In July 2016, JOIFF Member organisation Sasol Secunda Emergency Management Team, Mpumalanga, South Africa demonstrated a first in African technology when they showcased their latest fleet addition, the Inundator Super Pumper, to the local community. The Inundator, imported from Ferrara Fire Apparatus in the United States of America, features world-class technology and is replacing Eagle 1, a 16 year old fire truck at the Sasol Fire Station.

The Inundator will enable the Emergency Management team to fight potential fire incidents with more accuracy and speed. The Inundator comes with three deck monitors and can supply pressured fire water at up to 50,000 litres per minute over an approximate distance of 150 meters.

"We are extremely proud to bring this first in African technology to Sasol. Our vision at Emergency Management is to be the best industrial fire brigade in the world and this latest technology will certainly enable us to achieve our vision," said Pine Pienaar, Senior Manager, Sasol Emergency Management.

"We fight what others fear and having the best equipment and technology at our fingertips makes our job more efficient and effective."

He thanked the agent company, Marcé, who assisted Emergency Management through the procurement and import process for their commitment against tight timelines.

"We are indeed setting the benchmark for other industrial fire brigades. With the Guinness Word Record held for the highest pumping capacity fire engine, the Inundator will enable Sasol Emergency Management to be ready for any fire event" said Pienaar.

About Sasol:

Sasol is an international integrated chemicals and energy company that leverages technologies and expertise of our 30 400 people working in 36 countries. We develop and commercialise technologies and build and operate world-scale facilities to produce a range of high-value product streams, including liquid fuels, chemicals and low-carbon electricity.

Editor's note: Pine Pienaar is a Fellow of JOIFF, of the South African Emergency Services Institute, of the Institution of Fire Engineers and is a founder member of The South African Petrochemical Fire Chief's Committee. Pine has been actively promoting JOIFF over many years and is a member of the Board of Directors of JOIFF.

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6 Steps to Creating a Capable Crisis Management Team

by Eric Dempsey GIFireE

Some major corporations have formal crisis management teams with very experienced employees that have been exposed to various corporate crises throughout their careers. However, a significant number of organizations don't have any crisis management capability at all. Or, if they have a capability in place, they have a less-than-effective program because of poor planning, ineffective processes or just the lack of knowledge and resources.

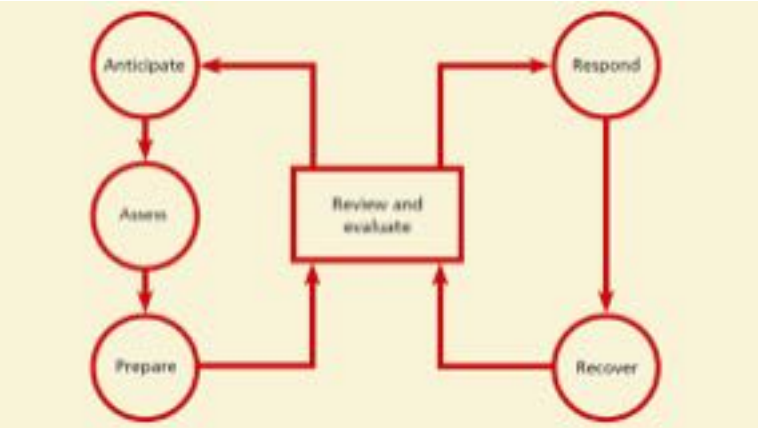
In this article, I highlight six steps that will help you and your organisation start to develop an effective crisis management program, or update and improve your existing one.

Step 1 – Understand Crises

The very first step in creating an organisation that is ready to respond to any emergency is to understand crises and how they may impact your organisation. It is important to note that it is not just the role of the leaders to understand what a crisis is, it also very important that everyone, including critical vendors and partners, understands what crises are and how they may impact the organisation, its clients, other stakeholders and operations.

Step 2 – Create the Framework and Setting Policy Direction

Before an organisation can start to evaluate risk and develop plans, it must first create a crisis management framework (see image in this article) and set the policy direction which should come from top management.



Step 3 – Create the Plan

Identify Roles and Responsibilities

Assessing which roles need to be part of the crisis management team and what the responsibilities need to be is a vital step in the overall development of the crisis management capability. Roles and responsibilities should be documented, and team members must have the skills, experience and competence to carry out those roles and responsibilities.

Other key areas within the plan include:

- Horizon scanning process (how do you assess and mitigate risks before they appear?)
- Empower leaders to make decisions (policy from top management stating this is important)
- How and who sets up the command centre during a crisis? (also see Step 4)
- Implement an information management process (how will you manage information and create situational awareness during the incident?)
- Integrate crisis management activities with other critical plans such as Business Continuity, Disaster Recovery and Incident or Emergency Response Plans.
- Ensure leaders conduct regular briefings, document the events from the very first moment and ensure everyone understands the common goal that the leader is trying to accomplish.

Step 4 – Develop an Incident Command System

This step is closely linked to Step 3. Some organisations use the Incident Command System (ICS) which is very effective for any size of incident or for preparing a team for any emergency. There are several different systems that all have similar strictures. Having an incident command system increases an organisation's chance of surviving a significant event and can limit the amount of reputation and brand damage. A system like ICS ensures you're organised before the incident even starts, which saves you time, especially during the early stages of the incident. ICS is a system that scales with the event and can remain in place for long periods depending on the scenario. It can be used for sudden emergencies (fire, explosion, hostile intruder) and it can be used for shouldering issues that can become crises (cyber-attack, insider trading, and ethics violations).

Step 5 – Validate the Plan and Team

The crisis preparedness cycle never ends. It's on ongoing improvement process that should include the validation of the crisis plan and the team that will manage the crisis. Starting with a table-top exercise and then increasing the stress testing to functional and eventually full-scale exercises will uncover any gaps, and it will also allow team members to rehearse their crisis management roles.

Step 6 – Implement Changes and Re-evaluate

Like all other business processes, if there are gaps, you will need to make changes and then validate those changes. Annual exercises will help you assess issues and gaps that could arise during real emergencies or during your exercises. Only by evaluating your changes will you truly understand if they will actually work.

Editor's note: Eric Dempsey has more than 40 years' experience in the field of emergency response and is owner and manager of JOIFF Member Organisation Arc Fire Training Services Ltd. Arc Fire Training Services Ltd, are JOIFF accredited to provide a wide range of training in emergency response competences and courses. They have developed a range of specific Confined Space training courses which have recently been JOIFF accredited and subject to a suitable risk assessment, training can be carried out on site or at any suitable location. For further information contact Eric at arcfiretraining@ntlworld.com

JOIFF Roll of Honour

During July to September 2016, the following persons were awarded JOIFF qualifications:

Hayley Ashmead ~ Tech.JOIFF, Grad JOIFF

Falck Fire Services UK
United Kingdom

Hayley Ashmead successfully completed the JOIFF Technician programme in the early part of Q3 2016 and was awarded the use of the JOIFF Post Nominal Tech.JOIFF. She moved forward to apply for the award of Graduate of JOIFF which she was awarded in September.

Hayley is currently employed full time as Industrial Fire Crew Commander by JOIFF member organisation Falck Fire Services UK at Wilton International Fire Station. She is a retained fire-fighter at the rank of acting Crew Manager in County Durham and Darlington Fire Rescue Service where she is also a part time Training Instructor for Breathing Apparatus and Rope Rescue.

She became involved in the Emergency Response Sector almost 10 years ago prior to which she spent some time in the UK Armed Forces where she gained experience across a range of activities including achieving and maintaining Physical Training Instructor competence, conducting health checks and assessments and she successfully achieved and maintained competence as a non- commissioned Officer with the Adjutants General's Corps.

Hayley has qualified in a wide range of emergency activities including JOIFF Technician Programme, JOIFF Team Leader, certificate in management, National Vocational Qualifications in Operations in the community and Emergency Fire Services Watch Management, JOIFF industrial firefighting and incident command, Breathing Apparatus Instructor, Rope Rescue Supervisor and Operator, Safe access confined spaces, Emergency Fire Appliance Driver, International Trauma Life Support, FPOS (First Person on the Scene) Foundation course, pre hospital Emergency Medical Technician and Trauma Management, she holds a NEBOSH General Certificate and is currently enrolled on and completing the NEBOSH National Diploma in Occupational Health and Safety and an honours degree in Business Management

Lonnie Roy Mullen Grad.JOIFF

Oman Oil Refineries and Petroleum Industries Company
Sohar, Oman

Lonnie is currently Fire Trainer in the Fire Department of JOIFF member organisation ORPIC (Oman Oil Refineries and Petroleum Industries Company) in Sohar Oman. Lonnie's current responsibilities are to train and ensure the on-going competence of the fire/rescue crews responsible for emergency response in ORPIC, Sohar, which operates a refinery and aromatics and polypropylene production plants which provide fuel, chemicals, plastics and other petroleum products to Oman and the world.

Lonnie has an extensive background in emergency management and has a wide range of certification including Fire Service Instructor, Advanced Exterior firefighter, Fire Officer I & II, HAZMAT Technician/Specialist, Fire Apparatus Driver/Operator, Fire Control VII Wildland Firefighting, Low Angle and High Angle Rescue Techniques, Confined Space Rescue.

Lonnie's job roles during his career included troop handler at the Infantry Training School of the US Marine Corps, Municipal firefighter with response responsibilities including medical, fires, rescues and hazmat, manger in commercial companies in the Fire Sector, a member of HQ staff to develop and manage a large fire department in the Middle East, Fire Chief for an Oil facility in West Africa and he was a member of the technical committee for the NFPA 1081 Industrial Firefighter Professional Qualifications standard.

JOIFF Roll of Honour

Zarto Williams M.JOIFF

Sasol Secunda Emergency Management,
South Africa

Zarto became involved in emergency response when he spent some years as a firefighter in the local authority fire brigade following which he took up the position of firefighter in the petro-chemical industry. He now holds the job role of Area Manager – Operations in JOIFF member organisation Sasol Secunda Emergency Management, South Africa which has a large full time staff operating in two fire stations on the Sasol Secunda Complex.

Zarto is currently a permanent member of the firewater forum with the role to address the supply and protection to the business and develop manifolds to deploy major pumpers to address firewater requirements to the business. This year Sasol purchased a “Super Pumper” with the capacity 12,000 gpm. The inline filter vehicle assists the pumper to collect the debris in the fire water.

Zarto has gained a wide range of qualifications during his many years in Sasol including senior instructor in advanced petrochemical firefighting, advanced fire prevention course, fire investigation, ISO 9002, arson workshop, wheeled unit firefighting, hazmat awareness and operations and instructor, instructor in rope rescue and confined space, high angle rescue, ambulance course, wildland firefighting, oil spill control, competence in erect, dismantle and operate sky climbers - suspended platforms on the cooling towers - scuba diver and search and recovery during diving.

As Area Manger – Operations, Zarto’s roles and responsibilities include responding and taking command of firefighting and rescue services/resources during emergency situations, advisor to all managerial levels with regards to emergency management services and fire protection and prevention issues, research into fire protection and emergency management services to ensure that the services remain abreast of new development, ensure that an effective emergency plan exists for the Sasol Secunda complex and that it is frequently practiced via simulated exercises.

GFJ (Boel) Engelbrecht M.JOIFF

Sasol Secunda Emergency Management,
South Africa

Boel has a long experience in the Petro-chemical fire services where he started as a firefighter and currently holds the position of Area Manager – Engineering and Preparedness responsible for Fire Engineering and Emergency Preparedness in JOIFF member organisation Sasol Secunda Emergency Management, South Africa.

His current role as a senior member of Works Emergency Team and includes community awareness and training of the works emergency team members for the site comprising senior management up to vice president level. He represents Sasol and the South African Petro-chemical Fire Chiefs Committee on a number of technical committees at the South African Bureau of Standards, dealing with fire and emergency related standards.

Boel has been involved in a number of large scale developments which included designing fire safety aspects in the petrochemical industry and during the execution of these large scale projects all 5 phases of Emergency management - Prevention, Protection Preparedness, Response and Recovery – were addressed to ensure effective fire safety on the Sasol Secunda site.

As Area Manger – Engineering and Preparedness, Boel’s roles and responsibilities include being accountable for Fire engineering on the Secunda site, leading the emergency management team of engineering technicians, being accountable for all SHE related actions and duties when on senior standby duty, acting as the management representative during insurer’s visits and consultation and third party audits for compliance to ISO 4001, 9001 and 18000, investigation of all types of emergency incidents, attending environmental impact assessments and he is a member of CAER (local disaster management committee).

JOIFF Roll of Honour

John Allen ~ Dip.JOIFF

BP Exploration Operating Company Ltd.
Sullom Voe, Shetland, Scotland

John has had an emergency response role for the last 21 years spending 19 years in Mid & West Wales Fire Service which provides fire and rescue services across six Commands covering all of Mid and West Wales. He then moved to Murco Oil Refinery and joined in BP Sullom Voe in February 2016.

JOIFF Qualifications

The JOIFF Diploma 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.

The JOIFF Technician programme is to allow the emergency responder to enhance their knowledge and skills having already demonstrated their competence in Key Skills.

The JOIFF Leadership programmes, comprising Leadership 1 and Leadership 2, are JOIFF accredited and have been developed as a path to the skills and knowledge of team leader and officer to personnel who are technically competent to a recognised standard and have core educational skills to a level compatible to the position.

These programmes which are drawn from National and International Standards are computer based. Each student is issued with an individual electronic portfolio which sets out a structured training path and in which each student's training and progress is tracked. An important aspect of the programmes is that they are primarily carried out on the site within the area where the student is based using the facilities and equipment that is available to them.

The Catalyst and the Directors of JOIFF extend congratulations to all those mentioned above.

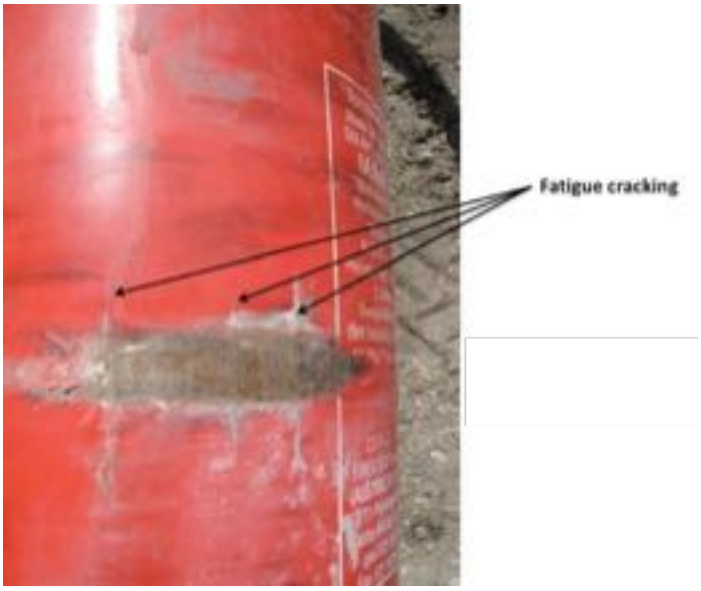
For details of the JOIFF Graduate and JOIFF Member award, contact the JOIFF Secretariat fulcrum.consult@iol.ie

Fire Extinguishers Can Be Dangerous

Portable fire extinguishers are hand held pressure vessels used to control or extinguish a fire. Over many years, they have proven their effectiveness not only in extinguishing fires but also, as a result, have saved lives and protected property from fire.

Effective fire safety policies advise that portable fire extinguishers should be provided and are intended as a first line of defence to deal with fires at their incipient stages and/or of limited size. They are an important part of the fire protection that should be provided and installed regardless of whether or not fixed systems such as sprinklers, automatic suppression systems, fire hose, fire hose reels, hose racks etc. are also provided.

Surveys carried out by the fire extinguisher industries in the United Kingdom (UK), Europe and United States of America (USA) have shown the effectiveness of fire extinguishers.



Extinguisher showing signs of fatigue cracking

In 2002, a survey by the Fire Extinguishing Trades Association (FETA) and the Independent Fire Engineering and Distributors Association (IFEDA) reviewed over 2100 fire incidents in the UK found that in 80% of the cases a portable fire extinguisher successfully extinguished the fire and in 75% of those cases, the fire department was not required to attend.

A similar survey in 2002 conducted by the European Committee of the Manufacturers of Fire Protection Equipment and Fire Fighting Vehicles (EUROFEU) in 6 European countries over 2600 incidents recorded, found that in in 81.5% of cases portable fire extinguishers successfully extinguished the fire and in 74.6% of the cases the fire department was not required to attend.

Since 1976 the National Association of Fire Equipment Distributors (NAFED) in the USA has conducted four extensive surveys to measure the effectiveness of fire extinguishers when used by occupants of buildings. The data collected during these surveys showed that portable fire extinguishers were effective in extinguishing fires 95% of the time. In many instances where there was not complete extinguishment by a fire extinguisher, the extinguisher was successful in controlling the fire until the arrival of trained firefighting personnel. Extrapolating the results of these surveys to the U.S. market provides solid statistical evidence that in approximately 80% of all fire incidents a portable fire extinguisher is the only firefighting tool needed to extinguish the fire. Further, they indicate that in 60% of all fire incidents the fire department is not notified.

While portable fire extinguishers have a proven record in saving lives and protecting property, there are also several dangers associated with them if they are not manufactured and certified to relevant standards and when in place, if they are not correctly regularly maintained by qualified and competent technicians.

There are several different kinds of portable fire extinguishers and what they have in common is that all fire extinguishers are pressure vessels. In the case of carbon dioxide fire extinguishers, these are charged to an extremely high pressure and therefore contain a vast amount of stored energy. As such, the consequences of failure can be potentially very serious and rather than improving the safety of personnel, the extinguishers themselves can pose a serious threat to their well-being, becoming in effect, time-bombs in disguise.

There have been are a number of incidents where fire extinguishers have exploded - usually due to incorrect manufacture and/or incorrect maintenance. In one such incident involving carbon dioxide (CO2) extinguishers, it was determined that the thread area on certain valve assemblies installed in welded steel cylinders can be subject to various levels of degradation under certain conditions over time. This causes the valve assembly to separate from the steel cylinder during handling, inspection or maintenance and could also result in the siphon tube separating from the valve during normal operation, affecting the discharge

Detail from the extinguisher that exploded in Dublin

levels of degradation under certain conditions over time. This causes the valve assembly to separate from the steel cylinder during handling, inspection or maintenance and could also result in the siphon tube separating from the valve during normal operation, affecting the discharge performance.

Threaded section remaining with cylinder neck of the exploded extinguisher in Dublin

In February 2012, for no apparent reason, a 2kg CO2 extinguisher discharged violently causing injury to a member of the public in a bank in the UK. This was the second incident of a violent discharge of a CO2 extinguisher over 18 months in the UK, where in both cases the extinguisher was not being serviced or touched in any other way when the discharge occurred. Investigations of both of these incidents showed that they followed a larger number of similar failures in Germany.

In February 2016 in the USA, two workers who were filling a fire extinguisher were seriously hurt when a fire extinguisher exploded at a fire equipment supply business.

The most recent such event for which we have report took place in August 2016 when a hand held portable fire extinguisher containing 2 kgs. of Carbon Dioxide exploded in an operating theatre facility in a hospital in Dublin, Ireland. Whilst there were numerous staff and members of the public in the vicinity, luckily the only injury was a minor head injury sustained by a staff member during their escape. The extinguisher was manufactured in January 2016 and the suspected cause of the explosion was potential metallurgical failure.

In August 2015, taking account of the increasing potential dangers of incorrectly manufactured and incorrectly maintained portable fire extinguishers and in particular reflecting concerns raised by a Coroner's Report into an accident that happened in Ireland in which a member of the public died as a result of being struck by part of an exploding portable fire extinguisher due to over pressurisation from excessive heat due to exposure to a fire, the National Standards Authority of Ireland published an updated version of IS 291 Selection, Commissioning, Installation, Inspection and Maintenance of Portable Fire Extinguishers. The scope of this new standard limits its application to portable fire extinguishers fitted with pressure relief devices. The inclusion of such a device will greatly reduce the risk of unexpected bursting of a fire extinguisher which could cause serious injury or death and property damage. To allow transition, a period of 12 months was allowed for all new portable fire extinguishers to comply with the standard and it is required that within a period of 3 years from publication of the new standard, all existing portable fire extinguishers will comply with the requirement to have a pressure relief device.

The inclusion of the pressure relief device requirement in the revised standard IS 291 will not remove the risk of explosion of a fire extinguishers, but it most certainly will reduce this risk. Now that the first year of publication has passed, compliance with this requirement indicates growing evidence throughout Ireland that the level of safety of fire extinguishers being installed has improved as reputable suppliers and maintenance operators of portable fire extinguishers have come to understand the purpose of this requirement.

JOIFF Training Notes

"TRAIN AS IF YOUR LIFE DEPENDS ON IT – BECAUSE SOMEDAY, IT MIGHT!"

JOIFF accredited training is within a Competency Based Training framework and involves course content, instruction and the facilities of the training provider/training establishment. All students who successfully complete a JOIFF accredited course/ programme are issued with a JOIFF Certificate of Competence which has its own unique number.

"…confident people tend to be more charismatic, extroverted, and socially skilled– which in most cultures are highly desirable features. The second one is that in virtually every culture, and especially the Western world, we tend to equate confidence with competence. So we automatically assume that confident people are also more able-skilled or talented.

In reality however, there is a very big difference between confidence and competence. Competent people are generally confident, but confident people are generally not competent. There are just good at hiding their incompetence and their insecurities– mostly because they are self-deceived themselves, so they generally think that they are much better than they actually are."

TOMAS CHAMORRO-PREMUZIC, From the Harvard Business Review.

JOIFF Training Notes

The following dates have been provided by JOIFF accredited training providers.

If you wish to find out any information or make a booking, please contact the training provider direct, contact email addresses provided.

JOIFF Accredited Course	2016 Dates	Venue/Organiser
Site Specific Courses Fire & Safety Foundation 4 x 1 Day Modules Incident Controller 2 or 4 Days SCBA Initial & Refresher Confined Space Entry Confined Space Train the Trainer (with SCBA for High Risk)	As Required	On your own site. Subject to Risk Assessment & Facilities. For further information contact arcfiretraining@ntlworld.com
Site Incident Controller Training 2 Days	15th – 16th November	**Eddistone Consulting** Email: opportunities@eddistone.com Tel: +44 1433 659 800
Site Main Controller 3 Days	8th - 10th November	**Eddistone Consulting** Email: opportunities@eddistone.com Tel: +44 1433 659 800 **Falck Fire Academy, Rotterdam**, Netherlands Email: fireacademy@falck.com Tel: +31 181 376 666
Industrial Fire Brigade Incident Commander Course (IFBIC) 5 days	21st - 25th November	
Industrial Safety and Emergency Response Course 3 days	16th - 18th November	H2K T. +31 174 41 48 72 E. info@h2k.nl www.h2k.nl

JOIFF Accredited Course	2017 Dates	Venue/Organiser
Site Incident Controller Training 2 Days	14th - 15th February 16th - 17th May	**Eddistone Consulting** Email: opportunities@eddistone.com Tel: +44 1433 659 800
Site Main Controller 3 Days	7th - 9th February 9th - 11th May	

JOIFF Diary of Events

November 2016

2nd - 8th	JOIFF International Fire and Explosion Hazard Management Conference, Malta
8th - 9th	Media Crisis Management Forum, Kuala Lumpur, Malaysia
8th – 10th	SECUREXPO East Africa, Nairobi, Kenya
22nd – 24th	Oil Spill India 2016, Goa, India

2017

January

22nd – 24th	Intersec, Dubai, UAE

March

21st – 23rd	SECUREX West Africa, Lagos, Nigeria

April

24th – 29th	FDIC International, Indianapolis, U.S.A.

May

2nd - 4th	Intersec Saudi Arabia , Jeddah, Saudi Arabia

June

4th - 7th	NFPA Conference and Expo, Boston, U.S.A.

Please contact the JOIFF Secretariat with details of any event that you think that JOIFF Members might be interested in attending.

Note: The Catalyst is not responsible for the accuracy of dates and / or venues announced. This is based on information given to the Editors and is published in good faith.

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