

THE CATALYST

Q2 2017



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**THE INTERNATIONAL ORGANISATION FOR INDUSTRIAL
EMERGENCY RESPONSE AND FIRE HAZARD MANAGEMENT**



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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
- **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

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 newsletter of JOIFF, the International Organisation for Industrial Emergency Response and Fire Hazard Management. Our policy is to bring you articles on relevant technical issues, current and new developments and other happenings in the area of Fire and Explosion Hazard Management Planning (FEHMP). The Catalyst is published quarterly - in January, April, July and October each year.

Readers are encouraged to circulate The Catalyst amongst their colleagues and interested parties. The Editors welcome any comments – please send to fulcrum.consult@iol.ie

In addition to The Catalyst, information relevant to FEHMP is posted on the JOIFF website.

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.



If you have a request for an article or advertising to be included in the Catalyst, please contact the JOIFF Secretariat, details below.

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CHAIRMANS NOTE

JOIFF members and guests,



JOIFF is evolving to meet the ever increasing demand for sound science, effective governance and practical intelligence in industrial response. Take a close look at JOIFF and you will notice changes to the Catalyst, the web site, the training resourcing, the shared learnings archives, and the scheduled Conferences. JOIFF's mission is to provide an objective perspective to the range of response disciplines. These changes are meant to enhance our ability to meet that mission.

The three pillars of JOIFF remain as the foundation of the organization and any changes are designed to strength each pillar and improve their accessibility and availability to you. As an example, one of the key purposes of the JOIFF conferences is to make response development resourcing available in a single and concentrated format (all three pillars in one setting). It brings professionals and information together for mutual benefit. Another is the improved search capability for the shared learnings you will find on the web site. We trust these and the other enhancements will increase the value JOIFF brings to our members and the response community.

Please enjoy this edition of the Catalyst. Emergency Response is a very tough business. Without apology, I seek to remind myself and readers of the potential scope and scale of incidents they may/will face. We can all have short memories, and as the impact of events fade, the determination and will to maintain sound response capability can fade as well. Take a minute to re-energize yourself.

In your service.

Highest Regards,

Randal S. Fletcher (Randy)

JOIFF Chairman

COMING SOON!



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SOME INDUSTRIAL INCIDENTS THAT TOOK PLACE DURING THE FIRST QUARTER OF 2017

USA - Fire

Workers evacuate from oil platform in Gulf after it catches fire

Philippines - LPG Fire

23 injured in fire at LPG refilling station

Japan - Petroleum Fire

Evacuation orders for over 2,900 as huge fire breaks out at Japanese petroleum plant

Major accidents

Runaway reactions

Iran - Refinery Fire

Fires Erupt in Refinery

USA - Explosion

Individual in oil tank explosion identified

Spain - Explosion

Paterna Chlorine Factory Explosion

USA - Fire

Paradis pipeline fire finally extinguished, one worker still missing presumed dead

South Africa - Gas Leak

Methane gas leak responsible for 6 deaths and 26 injured

USA - Fire

Firefighters knock down blaze at California oil refinery

Norway - Fire

Safety probe finds flaws after fire on Statoil's Statfjord 'A'

China - Explosion

13 rescued, 3 missing in explosion on-board Oil Tanker in East China Sea

USA - Explosion

Vapours blamed for rail tank fire and explosion that kills two

Belgium - Acid Leak

Entire Village Evacuated Following Nitric Acid Tank Leak

Note from the Editor.

Most reports of incidents that occur, some of which are listed here, are familiar. After all major incidents, recommendations are made but how many of the recommendations are implemented and how many are forgotten over time until another similar incident occurs? JOIFF shares valuable information with its members aimed to improve the level of knowledge of Emergency Responders and to work 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 effectively dealt with.

NEW MEMBERS // FIRST QUARTER 2017

During January, February and March 2017, the JOIFF Board of Directors were pleased to welcome the following new Members.

FULL MEMBERS:

Capital Crisis Solutions, Gold Coast, Australia represented by Allan Harper, Director Emergency Response and Kevin Waterman, Director Emergency Management. Capital Crisis Solutions are emergency services coordinators working in the LNG Industry on Curtis Island, Queensland with emergency response contract managers in the Surat Basin. The Company is an operationally focused company of emergency response professionals with extensive experience in the management and development of emergency response programs. The Company's consultants are career professionals from state and federal agencies (Fire and Rescue as well as Police and Emergency Services). Capital Crisis Solutions provides Planning and Auditing Services to the resources industry in Australia and Overseas.

Reliance Industries Limited, Navi Mumbai, Maharashtra State, India represented by Eknath Patil, Head –Central Fire Academy, Varadendra Koti, Group Head –S &OR-Fire and Ms. Vaishali Phadke, Librarian. The Reliance group is India's largest private sector enterprise with businesses in energy and materials value chain. The Flagship Company, Reliance Industries Limited the largest private sector company in India. Starting with textiles in the late seventies, Reliance pursued a strategy a backward vertical integration- in polyester, fibre intermediates, plastics, petrochemicals, petroleum refining, and oil and gas exploration and production- to be fully integrated along the material and energy value chain. Reliance enjoys global leadership in its business, being a largest polyester and yarn producer in the world and among the top five to ten producers in the world of major petrochemical products.

Solvay Solutions UK Ltd., Oldbury, England represented by Dr Tom Dutton, HSE Director, Susan MacDonald, Global Business Director, PROBAN® and Sharan Monga, Marketing, phosphorus specialities. Solvay Solutions UK Ltd. are a high hazard top tier COMAH (Seveso) site manufacturing bulk chemicals and handling toxic, flammable, pyrophoric and dangerous for the environment substances. The site has a part time emergency response team who operate carry out weekly emergency response exercises.

CORPORATE MEMBERS:

Bristol Fire Engineering, Dubai, United Arab Emirates, represented by Mohammed Awad, Regional Director, Andre Tomlinson, POG and Special Risks Technical Consultant and Saad Khayyat, Engineering Manager. Bristol Fire Engineering provides fire safety and engineering solutions throughout the UAE including specialist fire related equipment. Bristol Fire Engineering has operated since 1974 throughout the Gulf Cooperation Council region providing high quality services to a raft of industries.

Custom Fire Apparatus Inc., Osceola, Wisconsin, USA represented by James M. Kirvida, President of the Corporation, Ryan Kirvida, Industrial Apparatus Director of Sales and Kristi Scheet, Industrial Sales Administrator. CustomFire specializes in the creative design and custom manufacturing of new structural fire apparatus and rescue squads. As a second-stage vehicle manufacturer since 1978, in recent years Custom Fire has used our its experience and latest technology available to address the special needs of the industrial fire fighting world. CustomFIRE is the dealer for sales of all Sutphen lines in Minnesota and Wisconsin and it also builds high capacity foam pump modules to be used in conjunction with Sutphen's extreme duty chassis, pumper bodies and aerial apparatus for industrial firefighting. Their latest collaboration, Industrial Fire Solutions, focuses on the Industrial Firefighting Segment.

FireDos GmbH, Woelfersheim, Germany represented by Joerg Fahrenholz, Sales Manager,. Michael David and Ingo Weiss. FireDos are producers of water motor driven foam proportioners as well as firefighting monitors under the brand name "Fire Dos.

Institute of Engineering and Informational Technologies KBTU LLP (IEIT KBTU), Almaty, Republic of Kazakhstan represented by Xenia Filimonova, Head of the Corporate Training Centre, Olga Brim, Senior manager in the Corporate Training Centre and Anel Akhmenbekova, Senior specialist in the Corporate Training Centre. IEIT KBTU is a diversified organisation, which conducts IT consulting, multimedia services, promotes innovational projects and also provides short-term courses for professional retraining and advanced training for workers, technical staff and managers of oil and gas and other related sectors of the economy. The Corporate Training Centre IEIT KBTU is a leading training centre in Kazakhstan

Irkutsk National Research Technical University (INRTU), Russian Federation represented by Mikhail Korniyakov, Acting Rector, Nikolay Buglov, Director of OGE Research and Training Centre, and Estella Benua, Specialist, translator. INRTU provides educational services, which includes oil and gas staff with respect to oil and gas subject-matter.

During Q 1 2017, the Directors were also happy to welcome **Martin Sidgwick Dip.JOIFF, Shetland, Scotland** recently retired as from BP Sullom Voe, Shetland. Martin was a key player in setting up the JOIFF firefighter standard for BP firefighter competence in BP Sullom Voe. As well as the JOIFF Diploma, Martin has a CFPA Diploma in Fire Safety Management, a CFPA Advanced Diploma European examination in Fire Prevention and also Oil Spill Management IMO level3.

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



JOIFF INDUSTRIAL FIRE & EXPLOSION HAZARD MANAGEMENT AFRICAN SUMMIT

JOIFF is pleased to announce that the JOIFF Industrial Fire & Explosion Hazard Management (F.E.H.M.) Africa Summit will take place in Secunda, South Africa on 26th and 27th June 2017 hosted by Pine Pienaar, Director of JOIFF and & Chief Fire Officer (Rtd.) Sasol Secunda. The Summit will be held in the Gracelands Casino Hotel & Country Club. This is a unique opportunity to join with high level International and Regional Fire & Explosion Hazard Management specialists to listen, discuss and network with 150+ of the World's & Sub Saharan Africa's foremost experts and specialists on F.E.H.M. Pre Preparedness.

The Conference programme will include papers on:

- Intelligence; Security and Crisis Management
- Analysis of the difference between Training & Competency development & its application in Industrial Response.
- The Role of South Africa Emergency Services Institute as the Partner of the LG SETA in the Assessment Quality Process
- Fire Professional Council of South Africa – a non-statutory body to enforce National Qualification Framework Act.
- Milford Haven Tank 11 incident and other boilover incidents of note
- Major Hazard Installations and Process Involvement before and after incidents
- Tank Incidents in the Rotterdam Port area
- A Framework for the provision of fire services by industrial and private fire services in South Africa
- South Africa Foreign Disaster Assistance to International Earthquakes
- Total Wellness of Emergency Responders: Managing Post Traumatic Stress Scientifically

Speakers at the Summit will include:

- Marius Atterbury: Senior Fire Risk & Emergency Advisor - ESCOM
- Raymond Bras; United Fire Services; The Netherlands
- Colin Deiner; Chief Director; Western Cape Disaster Management and Fire/Rescue Services
- Randy Fletcher: Chairman: JOIFF and BP Global Response Advisor:
- Moses Khangale: Director Fire Services - National Disaster Management Committee
- Ronnie King; Secretary; All Party Parliamentary Fire Safety & Rescue Group; UK
- Gary McFadden: Partner: Industrial Risk - ERM
- Nthai F Monnye: Chairman of FPCSA
- Pine Pienaar Director of JOIFF and & Chief Fire Officer (Rtd.) Sasol Secunda
- Tinus Pretorius: Senior Manager; Emergency Services: Sol Plaatje Municipality
- Cobus Swart, Industrial Phycologist and pastor.
- Kevin Westwood: Technical Director JOIFF/ BP Group Fire Advisor

There will be a Trade Exhibition with opportunities for networking and premier Sponsors Marce Fire Fighting Technology; Ferrara Fire Apparatus will demonstrate their Ferrara Super Pumper and High Volume filter.

To register for attendance at the Summit or for sponsorship opportunities to the JOIFF Conference website
www.joiffconferences.com





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DRONE ZONE! ANATOMY OF A DRONE.

By Alex James Westwood

In a previous edition of the Catalyst we focused on use cases for drones in response organisations. In this edition we're going to go right back to basics and to look at the component parts. What are the functional elements of the unmanned aerial system, how does it stay in the air, how does it move and communicate with the operator and vice-versa.

In its simplest form we have the drone and payload, the ground station or controller, the communication link and of course the human interface the responder and pilot in command of the drone mission. No you can't take the 'human factor' out of this system - even in fully autonomous flight mode a human entered the coordinates for it to fly, initiated flight by pressing a button and or programmed the algorithms used to ensure safe and uneventful operation.

So let's start with the drone, the aerial platform we're going to describe, we could use a fixed wing, however, for the purposes of this article we will use the multi rotor as this will be the most widely used drone for Emergency Response (ER) use. Multi rotors which come in many variants are generally termed quads (4 rotors) Hex (6) and Octo (8) are Vertical Take Off and Landing (VTOL) capable platforms. Ideal for ER use as the multi rotor drone are very manoeuvrable and have static loiter or hover capabilities.



Sky Eye Micro

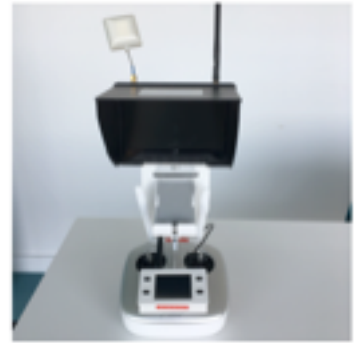
AIR FRAME: This is the physical structure on which everything is attached. It has to be light weight but strong and durable. To achieve this a common material of construction is carbon fibre. In most forms it has a central body where most of the electrical componentry is housed to which extended arms are attached with esc motors and propellers positioned at the ends.

FLIGHT CONTROLLER (AUTOPILOT): This is the brain of the drone and houses an Internal Measurement Unit (IMU) comprising an accelerometer, Gyroscope-XYZ, Barometer and magnetometer. All of these units are managed by an on board chip providing complex algorithms required for stable flight and to allow for momentum as well as pitch, roll, yaw, and altitude. These are termed the four degrees of movement (FDOM) which allow the drone to have such manoeuvrability.

GPS: The on board Ground Position System (GPS) provides



transmitter controller



ground control station



FPV Camera



Lips Battery

knowledge of the fixed location in the world the drone is in at any moment in time. The GPS provides an exact longitude, latitude and elevation based on the results of multiple satellites fixes on the drone. The more satellite fixes the more accurate the positioning. There are 27 satellites orbiting the earth of interest and at least 7 of these are required to provide sufficient accuracy for GPS guided flight to be attempted. GPS mode flight is the most stable and the flight controller uses the on-board computing power and GPS to hold the drone in the desired position by providing power to the desired rotors speeding up or slowing down to compensate for wind automatically.

ELECTRONIC SPEED CONTROLLER (ESC): As just stated the speed of the drone motors which provides the desired attitude of the drone is controlled by electronic speed controllers. The individual speed controllers send signals to each motor to which a propeller is attached to either speed up or slow down. Thus providing the desired FDOM to position the drone or provide momentum, elevation and direction.

MOTOR: Brushless motors sit at the end of the extended arms of a multi rotor drone and each with a power rating determined by the size of the drone and its weight carrying capacity requirements. Also the speed and agility at which the drone will operate will be a determining factor on the precise motor chosen.

ROTOR BLADE: Blades are what provides the lift for the drone and is equivalent to the wing on a fixed wing. In much the same way the rotor pitch and rotating speed will determine how the drone handles. When rotated the speed of air flow over the top of the rotor is quicker than the speed of the air beneath. This leads to a pressure differential with lower pressure above the blade and higher pressure below. Nature always tries to find equilibrium



DRONE ZONE! ANATOMY OF A DRONE, CONTD...

and thus there is a force applied below the rotor providing lift as the air tries to move from a higher to lower pressure zone.

TELEMETRY: This relates to the way in which the drone communicates with the operator - generally this is the data link for pictures or video transmission to a tablet or screen; however it could easily be a gas or radiation detector reading. The purpose of the drone is to capture and transmit actionable data. Through the use of reliable telemetry this can be transmitted locally to ground for viewing real time for example by the on-scene commander to gain situational awareness or potentially by a strategic control centre which could be in another town or country.

CONTROLLER/TRANSMITTER: This operates on a different frequency to the data telemetry and is used to control the drone's movement (up/down, left/right, back and forth pitch, roll yaw etc.), as well as control the stabilisation gimbal, camera/sensor functions.

POWER - LIPO: In most cases multi rotor drones are powered by Lithium Ion Polymer Batteries. These batteries provide the energy required to maintain the drone in flight for the duration of the flight. Depending on air frame and payload weight (weather also) these can provide between 15 and 45 minutes flight time. This sounds a relatively short period of time, however, the concentration levels required to fly such a craft for these time intervals is significant. Thus to some degree where you are reliant solely on manual piloting - break periods between flights should be factored in for safety reasons. Longer duration power options are coming to market such as hydrogen cell power - this can increase drone operating life to numerous hours if necessary. These longer flight times lend themselves to autonomous flight modes which we will discuss at a later date.

GIMBAL: The use of cameras and video recorders is probably the most used sensor attached to a drone whether this is an optical, thermal, hyperspectral or some other variant the objective is to capture usable data. Drones produce a lot of vibration through the air frame and this has to be removed to ensure the cameras provide no shake and have a perfectly static operating cradle. This cradle which can be a 2 axis or 3 axis is termed a 'gimbal' and with the aid of internal gyroscopes can provide perfectly stable camera fix irrespective of the drone's physical movements.

SENSORS: Sensors are arguably the most important part - in that they capture the data for which the drone flight is being conducted. In many cases this is optical imagery in many differing forms (this will be the subject of a future Catalyst feature) however, could equally be gas detection used for emissions monitoring, particulate capture such as asbestos releases or maybe its LIDAR sensor for 3D imagery generation. Sensors are the heart of the drone and in many cases they can be more expensive than the drone platform itself.

GROUND CONTROL STATION: In simple terms this is where all the data & visual telemetry as well as control telemetry is fed too and where the PIC (human interface) can monitor and control every aspect of the drone's mission. From this location single or multiple drones can be controlled.

FPV: First Person View Camera. This provides the pilot in command (PIC) with visual sight of the trajectory of the drone. The camera attached to the gimbal could be and usually is pointed anywhere that it needs to capture the data. The gimbal can have 360 degree freedom of movement this can be by a single operator by switching to camera control on the PIC transmitter; alternatively you can have a second transmitter and operator dedicated to the data capture camera. Thus an FPV is useful in that the PIC can at all times have visual reference with where the drone is pointing.

So there we have it the anatomy of a drone or at least a simplified overview. The complexity can increase significantly when you move from consumer grade drones which most folks are familiar with to commercial (such as good quality ER) and military type drones. As you can imagine there is a high degree of reliability and redundancy required for a commercial ER drone. The componentry is better quality and there are generally multiply units within the drone to ensure availability on demand at all material times. After all someone's life could depend on the drone fulfilling its mission.

Keep Safe and remember there are situations where you Risk a Drone so you don't have to Risk a Life!

If you have any ideas on use case topics you would like to hear about for future editions or maybe you have personal questions you want answering - please don't hesitate to drop me a line alex@rectrixas.com

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



Telemetry (data)



4/3rds DSLR Camera



Flight Controller



Brushless Motor



FIREFIGHTING, CANCER AND OTHER ILLNESSES

Because of the nature of uncontrolled fires and of the Personal Protective Equipment (PPE) with which firefighters are issued, firefighting can have a number of serious consequences for the wearer – rise in body temperature; dehydration; physiological stress; psychological stress etc. The potential health effects to firefighters can produce muscle damage, dehydration related cognitive illnesses, damage to muscles and organs due to overexertion etc. However clearly, one of the two major risks to firefighters when firefighting is sudden cardiac events – heart attack or total heart failure - due to heat and over-exertion and on many occasions due to lack of firefighter fitness and/or competence. The other major risk to firefighters is cancer and other serious illnesses. There is a large and growing volume of evidence that fire ground contaminants are dangerous and cancer is the most dangerous under-recognised threat to the health and safety of firefighters and the top cause of firefighter deaths in duty - and many die from cancer shortly after retirement. Some cancer studies are also noting that firefighters are developing far more aggressive types of cancers, such as brain cancers, at a younger age than the general population, which provides further indications that the cancer could be a result of firefighting.

Whilst cancer and other illnesses can be contracted for many reasons and from many sources, a huge amount of research that is being carried out shows that there is compelling evidence that there is a strong link between firefighting and cancer and other serious illnesses. Multiple studies have repeatedly demonstrated credible evidence and biologic credibility for statistically higher rates of multiple types of cancers in firefighters compared to the general population. Toxins that a firefighter will come into contact with are found in soot and trapped within the fibres of soiled ensembles and ensemble elements or absorbed into the materials themselves. Clothing attenuates exposures to some contaminants but some substances still get through.

In 2013 following work by a small group of experts from the legal, medical and social-research communities, and the fire service including volunteer, combination and career departments and chief officers, firefighters, company officers, union leaders, and local and state fire training directors the Firefighter Cancer Support Network, based in the United States of America published a paper entitled “Taking action against Cancer in the Fire Service”. This paper reported widespread findings of increased rate of cancer among firefighters.

The signs of firefighters’ exposure to carcinogens are everywhere:

- Photos appear every day of firefighters working in active and overhaul fire environments with SCBA on their backs but not masks on their faces. *Note: “overhaul” is the process of final extinguishment after the main body of a fire has been knocked down and all traces of fire are extinguished.*
- Firefighters “proudly” wear dirty and contaminated intervention (turnout) clothing and helmets.
- Many firefighters only have one set of intervention PPE which means they are continually re-contaminated from previous fires.
- Diesel exhaust, a recognised carcinogen, contaminates many fire stations apparatus bays as well as living, sleeping and eating quarters.
- Intervention PPE (Bunker gear) is stored in apparatus bays where it is bathed in diesel exhaust and it goes unwashed

for months at a time, even after significant fires.

- Firefighters carry their contaminated gear in their personal vehicles resulting in off-gassing of contaminants into the passenger compartment and sometimes even into their homes.
- Firefighters put their contaminated gear into the cabs of their apparatus both before and after fires.
- Some firefighters still take their contaminated intervention (turnout) clothing and boots into sleeping quarters.
- The interiors of apparatus cabs are rarely decontaminated.
- Cab seat belts are seldom if ever decontaminated.

In the early days of smoking, consumers did not know that smoking could kill them. How many people died because of ignorance of this fact? Then many years ago, it was proven that smoking does kill yet then and so many years later, even today, many continue to smoke and many continue to contract long term illnesses and many die as a direct result of their smoking habit.

Unfortunately, there is no immediate visible impact of carcinogenic exposure, since the time between exposure to carcinogens and the appearance of malignancies can be 20 years or longer, known as the latency period. There is currently a large body of opinion within the firefighting community that refuses to accept that fighting fires greatly increases the risk of contracting cancer and other serious illnesses. If you are one who has this opinion and you still don't believe that cancer is a particularly serious risk to firefighters, check how many current and retired members of your emergency response team have contracted a cancer or another serious illness – and how many have died long before their time.

Use this message to remind yourself to protect yourself from cancer:

Clean or change out of your PPE after very working fire

After every fire, take a shower and change your clothes asap

Never wear or place dirty PPE in living areas including your car.

Consider sunscreen and wear a hat while working in the sun

Exhaust is deadly, be sure to use your station's exhaust systems

Remember to get annual physicals including cancer screenings.

SCBAs must be worn from entry through overhaul, no exceptions !!

Editor's note: Thanks to the Firefighter Cancer Support Network for the use of extracts from their paper “Taking action against Cancer in the Fire Service” and other of their literature.





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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.

Since the JOIFF Diploma was introduced in 2008, hundreds of emergency responders in many Countries have worked to achieve the levels of competence required in the 24 Units of the Diploma programme. The most recent Organisation to introduce the JOIFF Diploma for its emergency response team is SASOL Chemical Operations Emergency Management, Secunda, South Africa.

With the introduction of the JOIFF Diploma, to gauge early reaction on the progress and to get different perspectives of the work, Zarto Williams MJOIFF, one of the Assessors and Wayne Viljoen, one of the Senior Station Officers who is a student on the Diploma programme were asked to give feedback on their experience.

Wayne reported "I am a current student enrolled for the JOIFF Diploma program. I started the Diploma in November 2016 and continue to submit the study units on a periodic basis. As a student and an experienced fire officer, I find the JOIFF Diploma content to be very relevant and exciting. The JOIFF Diploma program offers a student challenging questions that tests the students' knowledge and skills, in depth. The Diploma requires hours of work and commitment in order to deliver sensible answers and quality work.

My Assessor and Verifier provide me with valuable feedback of each Unit of the JOIFF Diploma which is beneficial to improve on my answers of the elements by integrating different perspectives when reading and answering the questions.

I am looking forward to complete the JOIFF Diploma and I confidently admit that the Diploma will develop my skills and knowledge as a fire officer. I sincerely recommend the JOIFF Diploma to all prospective fire fighters and officers as a method for career, skills and knowledge development in the Petrochemical Fire Fighting Industry."

Zarto responded "Having been awarded the honour MJOIFF - Member of JOIFF -I was assigned the role of assessor for the JOIFF Diploma program. I have a number of students assigned to me as the initial assessor and duly recommend the JOIFF Diploma course for the following reasons:

As a Senior Manager of Emergency Services, I recognise that there is a shortage of skills and knowledge in the officer divisions. Emergency Services requires skilled and competent persons to perform the roles of fire officers and this is exactly what the JOIFF Diploma addresses while I reviewed the type and quality of the questions asked throughout the Diploma. As an assessor, the competency of a student can be thoroughly assessed through the written and practical assessments of the study units and respective elements. I find the JOIFF Diploma to be a competent source for the evaluation of current and prospective officer competencies, knowledge and their skills.

The JOIFF Diploma can be a trusted source for future officer development and appointments. In my experience of the study units I have assessed, I came to the conclusion that the JOIFF Diploma acts as a valuable competency portfolio for the students who completed the course. As a Senior Manager, these "competency portfolios" greatly enhances the selection process for future officers as well as improving the general skills and knowledge of the student.

The JOIFF Diploma is an exceptional competency driven program that I confidently recommend to all Emergency Services personnel who wish to develop and enhance their own skills and knowledge for a progressive career in Emergency Services."

The next level of the JOIFF Career Path is the JOIFF Technician programme which is to allow the emergency responder to enhance their knowledge and skills having already demonstrated their competence in Key Skills.

Following are 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.

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



JOIFF ROLE OF HONOUR



JOIFF is delighted to congratulate the following people who were awarded JOIFF qualifications between January and March 2017.

DIP JOIFF



Phil Petersen, Dip JOIFF, LUKOIL Overseas Service B.V. Iraq

Phil Petersen Bach. R.N., Dip. JOIFF. Lukoil Overseas Service B.V., Basra Iraq. Phil began his Fire Fighting career in May 2008 as part of the ATCO Frontec Crash Rescue Service, for an ICAO Category 10 Military and Civilian Airfield in Kandahar Afghanistan. In July 2011 Phil departed Afghanistan and continued his career as a Lead Fire Fighter for Abu Dhabi for Onshore Oil Operations (ADCO) at the Main Oil Terminal (MOT) located in Fujairah, United Arab Emirates where he was then promoted to Fire Officer in January 2013.

In November 2014, Phil accepted a position as a Deputy Team Leader as part of the Emergency Rescue Service for Lukoil Overseas Service B.V., Basra Iraq. In April 2016 he was promoted to Emergency Rescue Service Team Leader, which is his current position.

Martin Pottinger Dip.JOIFF, BP Exploration Operating Company Ltd., Sullom Voe, Shetland, Scotland.

Martin started work with BP Sullom Voe in the Emergency Response Department in 2013 and successfully completed and was awarded his Diploma during Q1 2017.

JOIFF TECHNICIAN



Mick Salter Tech. JOIFF, England

Mick is a former retained firefighter in Humberside Fire Rescue Service where he served for 10 years. He then worked as a petrochemical industry emergency responder in in Total Lindsey Oil Refinery.

On being awarded his Tech.JOIFF Mick said:

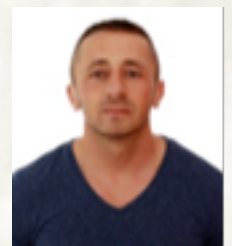
"I took on the challenge of the JOIFF Technician programme because whilst I served as an emergency responder and gained experience in both Municipal and Petrochemical areas of response, I left Humberside Fire and Rescue Service and Total Lindsey Oil Refinery with no qualifications to back up my experience. The JOIFF Technician programme was the perfect tool with which to gain an accredited way to demonstrate my competence. Progressing through the Technician programme was harder than I anticipated but I fully enjoyed doing the course learning a lot. Having now gained my qualification I can demonstrate the theory and practicalities in all emergency situations that I have and am likely to face."

Mick is now seeking new challenges in the Fire /Emergency Petrochemical industry worldwide.

JOIFF LEADERSHIP 1 TEAM LEADER

Jamie Fleming MJOIFF, Lukoil Mid-East Ltd.

Jamie successfully completed both the JOIFF Diploma and JOIFF Technician programmes in 2015, he was awarded JOIFF Member and successfully completed the JOIFF Leadership 1 Team Leader programme in 2017.



JOIFF ROLE OF HONOUR



JOIFF MEMBER



Kevin Boffy MJOIFF, England

Kevin started his career in Emergency Response as a firefighter in Cleveland (UK) Fire Brigade where he was first stationed in what was at the time, the largest manned fire station in the United Kingdom. The station operated three whole-time pumping appliances, a command and control unit and the brigade's environmental protection unit. After 3 years, Kevin was promoted to Crew Manager which involved supervising crews completing all expected tasks from routine duties to attending various types of incidents.

He was then appointed Watch Manager during which time he was responsible for site safety audits, incident pre-planning, liaison with site safety representatives, foam deployment, interface with private response companies as well as attending all types of incidents within the fire service area of response. His role also included membership of committees for firefighter fitness and occupational health as well as development and implementation of policies to ensure compliance with best practice standards. After 4 years in that role, he was

promoted to Station Manager (ADO) Responsible for Business Development, a role which involved the development of the UK fire service's first private trading company. In that role, Kevin successfully identified and completed several projects, small and large with many clients providing a range of services from incident pre plans to a fully outsourced response service.

During his time as officer in the Fire Brigade, he has been in command over a vast array of incidents including fires, road traffic collisions, hazardous material incidents, water rescue, rescue from height, confined spaces and medical emergencies.

On being awarded his MJOIFF Kevin said "I am very grateful to JOIFF for this award and very proud to join the list of JOIFF Members. The ability to liaise with other responders within the JOIFF organisation has allowed me to foster a greater understanding of the industry as a whole, whilst also enabling me to learn from like-minded individuals to further my knowledge."

Michael Clarke MJOIFF, Chief Fire Officer & Ambulance Service Manager, Cape Town Refinery, Chevron South Africa (Pty) Limited, Milnerton, South Africa

Michael has 14 years' experience in petrochemical fire services, with a further 9 years as a volunteer fire fighter in the Local Authority fire service. During his employment with Sasol Pty, Sasolburg, South Africa, he was employed as an operational firefighter/ILS EMT responding to various alarms as responder and Incident commander (HAZMAT, Fire, Explosion, LOC and medical) and later as Technician Fire Engineering. He was responsible for enforcing compliance to all fire protection standards including South African standards, Sasol standards and various international standards. For his final 3 years with Sasol he was Manager - Emergency Management Engineering with a wide range of responsibilities.



He has attended an industrial firefighting course at TEEK in Texas USA and completed ICS 430 (operations section chief) during an Oil spill exercise in New Orleans USA. Michael currently holds the position of Chief Fire Officer responsible for all Emergency Management functions within Chevron South Africa including prevention, protection preparedness, response and recovery. His responsibilities includes a 110 000 crude oil refinery with a large tank farm , 2 x tanker berths and atmospheric storage tank facilities in the Port of Cape Town, 110 km oil pipeline from Saldanha port and truck tanker loading facility. He is secretary of the South African Petrochemical fire chiefs committee, a member of the Western Cape Fire Chiefs committee, a member of the Chevron global Fire Chiefs committee, a member of the Institution of Fire Engineers, of the Fire Protection Association of South Africa and the South African Emergency Services institute.

When he was advised of the award to him of MJOIFF, Michael said "JOIFF is an internationally recognised forum and as CFO of Chevron, Cape Town, as well as the Secretary of the SAPFCC (South Africa Petro-Chemical Fire Chiefs Committee) it is an honor to be recognised by JOIFF based on my technical experience and qualifications".

JOIFF ROLE OF HONOUR



JOIFF MEMBER

Jamie Fleming MJOIFF, Lukoil Mid-East Ltd.

Jamie started his career with Cleveland County Fire Brigade as a Retained Duty System (RDS) fire fighter in 1997. In 2001 he joined SembCorp Asset Protection (Formerly ICI Fire Service) in a fulltime capacity, working as part of a team providing protection to one of Europe's largest clusters of Tier 1 COMAH (Seveso) sites, comprising of both Petro & Aggro chemical risks.

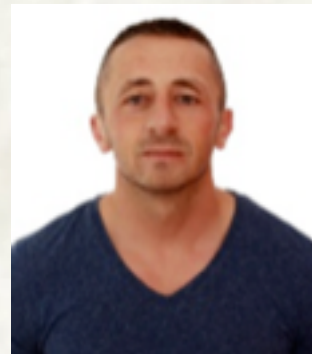
After serving over ten years on Teesside, he got the opportunity to work in the Middle East with Abu Dhabi Company for Onshore Oil Operations (ADCO) on the United Arab Emirates' (UAE) most ambitious oil & gas projects. He took up the role of Fire Officer supporting long-time colleague and friend Ian Kirkup on the ADCOP project, which involved the start-up of FUJ-TPO fire and rescue department and mentoring local national personnel.

Three years later, Jamie was given the opportunity to work for Lukoil on their first major International project in WQ2, Iraq, employed in the position of ERS Team Leader, working as part of multi-national fire and rescue team on the vast and remote development comprising of oil production, processing and storage.

He has recently been promoted to the designation of ERS Commander and continues working alongside what he refers to as "a fantastic team of people" from all over the world. He is committed to lifelong learning and is ambitious to keep progressing within the emergency response sphere.

Jamie has completed the JOIFF Diploma, the JOIFF Technician program and is currently working towards the Leadership 1 qualification. He is an advocate of JOIFF as an organization and actively promotes the benefits of JOIFF within industry.

Upon receiving confirmation of being awarded Member of JOIFF Jamie said "I will always be grateful for the advice and mentoring I have received throughout my career and the people I have worked with. I believe that the only way anything improves is through collective learning and a willingness to share experiences. No one person can provide all the answers and JOIFF offers a platform for sharing knowledge, as well as being a great support mechanism for the industry. I would strongly recommend to anyone working at any level in Industrial Emergency Response to become an affiliate of JOIFF".



COMMERCIAL EDITORIAL

Nobel Fire Systems has built on over 30 years of reliable, proven technology to develop a range of fire suppression systems that provide an ideal solution for all class of fires. One of the most innovative systems in Nobel's product range is a condensed aerosol system known as Stat-X.

Stat-X is a self-contained, environmentally friendly suppression system, that's been proven to be extremely effective in use across a wide range of applications and is especially effective where there is a need to protect critical areas and high value enclosures. By combining science and economics, it's the advanced method for protecting more challenging applications and is already in use by leading companies across the globe in areas such as: Chemicals, Oil, Utilities and Power Generation; Transport; Mining; Manufacturing, Marine & Offshore; Fire Fighting and Other First Responder Services, Telecom, Data & Nuclear power generation.

Stat-X has passed stringent US accreditation under UL and is approved to UL2127. As well as ISO 15779, MIL spec testing and others. It is the only condensed aerosol to have undergone independent assessment by the US Environmental Protection Agency and has been cleared for use in normally occupied spaces. The system also holds a wide range of international approvals including ISO 9001.

Designed to provide a controlled and safe discharge, Stat-X Primarily extinguishing mechanism is a chemical interaction inhibiting the chain reaction of combustion. All devices are hermetically sealed and carry a 10 year field life capability. On actuation the protected area is filled with a suspension of Stat-X agent consisting of carrier gases and Potassium particulate, these combine with elements of combustion to inhibit the fire chain reaction.

Unlike some gaseous agents, the potassium based aerosol in Stat-X does not decompose in the presence of fire nor does it extinguish by oxygen deprivation. The result is an ultra-fast fire knock down, with an ability to provide extended post fire security. Cost savings can be made as the system does not require distribution pipework and the strict over pressure and room integrity testing required by gaseous systems can be relaxed or totally eliminated.

Stat-X can be used as a fixed system with a portable first aid fire fighting unit available for fire service use. Stat-X is suitable for total flood and limited local application systems. As Stat-X has does not require distribution piping or pressurised

agent vessels, installation is made easy and on-going maintenance activity is reduced to an absolute minimum. Units can be sited directly in or around the risk area. They can be wall or ceiling mounted to provide even distribution around the protected enclosure. As a result important floor space is preserved for access and equipment. The combination of advantages provides a dramatically reduced cost of ownership. The unique aerosol technology employed by Stat-X provides users with many tangible benefits including;

- Significantly more effective than alternative extinguishing agents
- Environmentally friendly,
- Extremely low maintenance
- Tested and Listed to UL Standard 2127 and the others.
- Suitable for enclosed facilities and some 'local' applications configurations.
- Non-toxic, safe for personnel – not harmful at design application rates
- No over-pressure venting needed
- Approved for use on Lithium Ion cell fires.
- Compact – up to 90% reduction in space and weight requirement
- No risk of loss of expellant gasses

Stat-X condensed aerosol technology from Nobel Fire Systems, probably the most effective and economical fire extinguishing solution available.



JOIFF CONFERENCE

OVERVIEW OF TOPICS PRESENTED IN MALTA, NOVEMBER 2016

In the last edition of the Catalyst, we provided a summary of the key note addresses of the Conference held in Malta in November of last year. In this article, we will provide an overview of the topics presented within the context of the theme of the conference; Fire and Explosion Hazard Management (FEHM).

As a reminder, FEHM is both an outcome, and a process through which we address Fire and Explosion response capability. This is at the very core of what the JOIFF conference sought to address. FEHM is an outcome in that, when done well, it produces a clearly defined set of strategies for managing fire and explosion risks within a facility. It thereby reduces escalation potential, and improves consequence management. It integrates all of the components of fire protection into a comprehensive capability that recognises limitations and constraints. It is a process in that it allows for the constant and progressive adjustment and re-alignment of the various components of Emergency Response towards continuous improvement consistent with applied fire engineered solutions in a systematic way.



Our opening addresses provided an excellent review of the West Texas incident from the perspective of the Chemical Safety Board. It set the foundation for what was to follow during the conference. Virtually all components of an FEHM were factors in the fire, consequent explosion, and the Emergency Response to the incident. Site layout and configuration, active and passive systems in place, exposures and consequence modelling, response strategies and philosophy as well as competence and capabilities were meant to provide the layers of protection inherent in good FEHM. However, numerous gaps and shortfalls as described by James Reason in his Swiss Cheese model aligned to “create” the incidents escalation and fatal consequences.

The following presentation outlined all of the components of a comprehensive FEHM, and provided specific examples. The science of personnel and asset fire protection has many branches, which all must converge into the art of protection and response capability. One key component of FEHM which was highlighted was the interdependence of the different

components. Organisations typically emphasis one component over another or completely ignore others. The result is an incomplete awareness of the hazards, the risks, and the protection and response requirements.

Responder training was addressed with an emphasis on having a clearly defined training program that utilises a clearly defined set of outcomes for responders. These competencies are not regionally, or demographically variable. Competency expectations must be applied across the organisation. In order to achieve this, there must be a standardised and universally applicable training “package” that is deliverable and sustainable across all components and excellent example was provided through Shell’s centralised approach.

In assessing hazards and risk for any location/facility, explosion potential and modelling is a critical component. The science of detonation as a hazard must be included in any FEHM plan. Without a clear understanding of how an incident can escalate and what it looks like when it does, creates unrealistic response expectations. It also misses opportunities to implement appropriate passive systems and inherently safer design.

Performing and applying Fire Hazard Analysis (FHA’s) is a critical first step in any FEHM. Like detonation and explosion modelling, understanding our fuel sources, loading, volumes, pressures, and what these will look like for different scenarios in a facility is a crucial component of a comprehensive understanding of our risk mitigation strategies. In our business, we often fall short in this, through either not having FHA’s performed, not controlling their production, or not applying the results in a practical way. From a global perspective, this is one of the most grossly overlooked components of any FHMP. We rely too much on the “regulation and experience”, and a strategy that is defined by simply showing up with responders and equipment, to address what we find.

While visiting the ISTC training facility, practical observation of training and competence applied to a variety of realistic simulations was emphasised and demonstrated as a foundational building block for organisational capabilities. If our theoretical concepts are never put into the field, they remain theoretically based constructs that never see application within the variations of context. If training does not reflect the realities faced in the field, they introduce critical gaps in competence that manifests itself in ineffective response, and restrict our ability to effectively manage escalation and mitigate consequences. The result is virtual teams that have virtual capabilities. This is a certain formula for failure.

As well as risk to front line responders, poor or non-existent FEHM introduces risks to physical assets as well. Viewed from





the perspective of insurance calculations, it is possible to align our FEHM with a prioritised approach to response capability development and maintenance. What are the costs associated with any given scenario (based upon a solid FHA) and what the associated costs to that type of event. We can then take this information and compare the costs of protecting the asset. Passive and automatic/semi-automatic systems have a cost both in installation and maintenance. What is the highest value way to invest our limited fire protection budget? How can we justify a particular spend compared to the risk and the cost of protection? These are challenging questions that every response organisation is required to make. The Insurance perspective provides an objective mechanism to better calculate the most appropriate distribution of limited funds.

There are specific technical considerations for the various types of exposures that we face. ETANKFIRE update consistently focuses on the risks and behaviours of Ethanol tank fire response and offer scientifically considered solutions. How much foam do we apply and in what ratios to produce the best results. As we know, in the foam and response business, there is a wide range of opinions. Having technically validated information is critical to making our FEHM response philosophy, and response plans match scientifically proven practical application. Every facility has its own unique set of exposures and there is an ever increasing amount of research to aid in the decision making process. Passive fire protection is often overlooked as a critical component of fire protection. Not necessarily in that it is not used, (our industry invests millions of pounds a year in passive protection systems) but more in the specific types, application and maintenance of what is in place, what is designed for updates of old facilities, or designed for new.

Like other disciplines, there are specialists that focus on this critical aspect of fire protection. A well designed and maintained passive system can either buy active response efforts time, eliminate the need to focus limited response resources, and possibly even eliminate the need for response at all. It can reduce the previously mentioned insurance premiums. It can minimise response deployment, and influence the types of complimentary systems and capabilities need for any specific piece of asset. Knowing what is in place or otherwise, is a fundamental component in the overall design of a solid FEHM plan.

There was an excellent article in the previous edition of the catalyst discussing aging facilities from the conference. Suffice it to say that all assets deteriorate with time, and even with rigorous maintenance programs, the potential for loss of primary containment increases. This changes the risk profile and emphasises the need for constant updating off plans and

capabilities. Solid FEHM applications allows for these factors to be considered.

Operators and responders who use fire-fighting foam are under intense pressure from regulators and environmental groups to reduce its environmental impact "foot print". At the same time, reformulated less environmentally impactful foams are required to perform effectively for those in the response industry. It's a difficult balance to meet these two demands, and find compatibility. Every business needs to weigh higher asset loss expectancy vs. less environmental impact. This will inform modified risk profiles and mitigation plans. Foam is an expensive resource, and when used properly, a very powerful one. There is no such thing as "risk free", in either side of this discussion. It is the role of the FEHM to consider these perspectives when making the hard decisions about response strategies.



Taking an organisation from virtual infancy into mature response capability is a difficult task for a range of reasons including time, costs, personnel resourcing, and the list goes on. Having the opportunity to drive this process is both an exciting privilege and a responsibility. In designing the FEHM for ORPIC Andre Rabie included a broad range of solutions that incorporated (and incorporate) the principles, technical considerations, and philosophy of response into his plans. He provides an excellent "test case" for the value of a holistic and comprehensive approach that blends the different components together. In the long range it actually raises capability while effectively managing costs and long term viability.

A review of the incident at the Lac Megantic incident (reviewed in the last Catalyst) demonstrates several principles. One is the difficult but necessary role of a FEHM to include the recognition of the limitations of any fire protection capability. That incident was so large and escalated so quickly that the best plans would have only allowed for what in fact they did. The response



JOIFF CONFERENCE, CONT....

worked rigorously to address life safety issues, keep the problem from escalating at specific points, and maintaining a defensive posture otherwise. Those in our business must recognise our limitations and constraints. We all have them. A well-constructed FEHM looks at this in a formal way, integrating all of the components. We cannot build unlimited response capability, it is not feasible. So where are the limitations that we design too? This then becomes the data point for any organisations management to make strategic and philosophical decisions. What are realistic expectations for our response capabilities, where do we draw lines and communicate those clearly to the stakeholders?

Part of the calculation on our limitations for response capability must include the concept of Public Private Partnerships, and Mutual Aid. A well-considered PPP or MA allows for the pooling of assets, expertise, and overall resourcing into our FEHM's. What specifically and precisely can be expected in the form of help from outside our organisation? How will that help be integrated into our response, and what are the limitations and constraints. There have been successful models for PPP's and MA's and it is a important part of our overall FEHM to recognise existing capability, or plan to include/expand into this arena. In many cases it can be formally included for purposes of resourcing, insurance calculations and other components as fitting. JOIFF is supporting a global effort by Kees Kappetijn to put together a blueprint for how a solid PPP or MA can be designed and sustained by an organisation so inclined to develop of participate in one. He is looking for information from those interested to insure his work is thorough, comprehensive and applicable to a global response audience.

Partnering with Public organisations that have common goals or aligned components is a logical and constructive way to progress overall capability. We often get stuck into "silos" where we do not share information or synergise efforts. Professional isolation, competition, pride of ownership, or profound differences in approach, philosophy of "opinions" can contribute to this challenge. Most of the time, this is a loss for both parties. There are ways to share common ground while allowing for difference, but this takes maturity and strength of governance. JOIFF stands ready to promote and develop associations that support common goals without violating the integrity of the respective organisations.

Editors' note: The inaugural JOIFF FEHM conference was a huge success and JOIFF intends to build on that success with a biannual main conference program and in the interim years a smaller regional summit which will be a more focused event. This year that summit will be in South Africa in June - details of which are available from the JOIFF website www.joiff.com



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SETTING THE STANDARDS

by Daryl Bean, Grad. JOIFF

Training, by definition, is the action of teaching a particular skill or type of behaviour.

What is the outcome of the training? Certainly it is contextual in that variables do exist depending on who one talks to.

Within the evolution of training for fire emergency responders many changes are noted which drive the notion of training as contextual in the literal sense. From the simplest example of the acceptance of the different specialties, structural (domestic, local authority), industrial, aviation, maritime, wildland, offshore; placing training behind each specialty leads the casual observer to note that there "may" be differences if not quite understanding exactly what that means. This can be realized by trying to discuss or explain the differences to non-professionals of which some are holders of our training budget(s). Thain, 2016, examines this point and hones in on the various specialties in addressing the potential growth or expansion of exporting training expertise, "the demand for specific expertise across a number of industrial sectors, including nuclear energy, oil and gas, public sector, utilities, maritime, communications, military and large public events."

Parallel to the devolvement of specialties within firefighting is the responder him/herself. Today we see full-time professionals to those whose response is secondary responsibility to the volunteers (retained). In time we will look at the individual in regards to training and how their role may affect attitudes towards training, but for now a general classification of responders will suffice. As education and training has evolved, its importance in quality management shouldn't be questioned; however, its application within the quality management system faces challenges which can be argued as not befitting its standing within the system. Again this area will be further discussed when looking at the "training process" and how to meet the challenges currently faced.

Personnel, money, equipment, time, the investment is destined to meet one purpose. The satisfaction relevant stakeholders have in the "expert" emergency responders requires a constant communication between emergency operations, training and management to ensure an understanding of what is required under the authority having jurisdiction, how these requirements are met and maintained. This is the major step in maintaining a training model which will meet the expectations of everyone with a stake in the response from company owners to people living in the adjacent communities.

What requirements govern your facility? The governing requirements may include prescribed occupational competencies and basic training guidelines to achieve and maintain them. These governing requirements may be already in place or may have to be determined. Oftentimes it is left to the training manager or operation senior emergency response officer to interpret the training directives within the governing requirements in development of the station, installation



emergency plan and coordinate the mandated elements into the training plan. The emergency response training plan undoubtedly competes for time and budget space with the other site training and historically may suffer due to ill-perceived relevance and importance to site operation. The validity of the response plan can be summed up in the following statement “Is the philosophy really agreed on for the site/Emergency Responder, or just a tacit approved and approved current/post regulatory drive” BP – FEHM Philosophy for Existing Facilities. The likelihood of industrial incidents worldwide is high due to the many factors; amount of facilities, operations; hazards and risks, age of equipment and maintenance regimes, training and competence of site and contract personnel to list a few. Reported incidents are indicating not only the frequency but also highlight a developing trend of like occurrences worldwide. This should raise the importance of compliance, readiness and assurance of capability in one’s own site.

The importance of the standard not leaving the facility out in isolation cannot be under appreciated. Interoperability with the community and federal (government) response plan(s) is important as an industrial incident may involve several agencies and the better the mutual assurances the greater chances of mitigation. From the writer’s experience a lack of interoperability during a response led to greater, unwarranted loss to the facility, extended release of combustion products and contaminants to the environment, extended operations which reduced the capability for response to any other incident in two districts and bad public relations which reduced community confidence and support for a time. For facilities with more flexibility in the choice of emergency response standards, this area is imminently important and must be included in assessing the choice.

How will training meet the governing requirements?

Adoption of any standard must take in the facility’s ability to maintain it. The initial highs and focus on achieving the training to a new standard can easily dwindle into a bureaucratic nightmare if the short and medium term forecasts aren’t determined and promulgated effectively. As we may have experienced, long term forecasts are subject to much change; however, could be included if logically feasible. Senior management will not support a constantly changing training



profile and will quickly lose faith in the training process. The trainees will question applicability and feel tossed about as ultimately they will bear the brunt of training to new standards

which may cause some confusion; repetitive training to meet the new standards and operational changes which may be hard to justify against the old system which was not found to be faulty. In addition, returning over old ground stifles the competency of a team as their development past that point will be limited if at all. Consider a team who cover basic skills and tactics repetitively now involved in a complex operation. The outcome from the responders’ efforts may not be as expected with resulting negative ramifications.

Sustainability or resilience is a valued key when looking at competency based on a mature training program. Cooperation, transparency and continued communication with the management team leads to assurances of sustainability with a greater chance of positive involvement from motivated, engaged and competent emergency responders. These factors will be examined when considering the training plan.



The governing standards may have a self-contained training standard, which makes it easier to implement as a necessary component of compliance to the governing requirements. The more difficult task comes in having to choose or design a training model from a standard. Globally, this is a task many industrial facilities contend with. Whilst managers or responsible persons seek guidance from many sources; like sites, trade groups, training providers, contractors, on-site emergency response officers for answers to this task there are factors to consider:

- What views does management have towards the training standard meeting any governing requirements?
- What views does management have towards the training standard meeting the site (physical site) requirements (hazards and risks)? The training should be to meet the requirements of the Site Emergency Response Plan, which hopefully they have signed off.
- How does cooperative planning from management affect the overall training plan?
- How will management be kept up-to-date on the outcomes of the training plan?
- Will there be a mechanism in place to be kept up-to-date with the training standard?
- Is there a maintenance of competency plan (refresher training, skills maintenance)?
- How and who will assure the training plan is viable?

Effective training is the ability to transfer what is learned directly into preferred action. The choice of standards if not produced





locally must evaluate that aspect. With more influence and adoption of standards produced by recognized agencies internationally, interpretation and applicability come to the fore. Brokering an acceptable standard looks at these factors and takes these into account when developing the training outcomes. At this point investigation should take place and dialogue with the developers of the standards would be of great value. Earlier within this discourse, the specialties within fire-fighting was discussed with an external view of specialist fields being the trend. Here we can also appreciate varying fire-fighting standards, adapted to meet the “specialist fields.”

Matching the “right” standard to the specialty may outwardly seem a basic task; however, this may not be the case as newer standards and or competencies are developed to meet these fields or legacy application from more generic standards are accepted as the norm without equivocation.

Unfortunately as it stands it can be a little harder convincing an authority, maybe even the budget holder, to accept something different than what is prescribed for the “regular” fire service if that is the general perception as the historical reference for “fire-fighting”. Objectively, there are wholly suitable standards designed specifically for Industrial fire-fighting, which, upon review address the direct correlation of hazards and risks to mitigation, leading to the direct transfer of skills from training to operations. This is telling as upon reviewing 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, which can be answered by looking at the industrial fire-fighting standard, its language, definitions, identifications of hazards and risks and performance

requirements.

Choosing of a training standard in many cases may already be determined. However, if there is scope to choose or review compliance to a standard it can be shown there are variables leading to the involvement of different parties, stakeholders whose input will help make in ensuring the correct standard is chosen for the facility. It is incumbent to involve management in the discussion and include in the implementation as ultimately they will be the answering party to the outcome of managing an incident or accident and if this is a new process, discussions with competent parties. Fire-fighting principles vary with risk and preparing accurately starts with the getting the compliances right especially for the emergency responders.

Editors note: Daryl Bean Grad. JOIFF is the Offshore/Industrial 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 36 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 UK 01325 333317. For more information on the Serco International Fire Training Centre visit www.iftcentre.co.uk.

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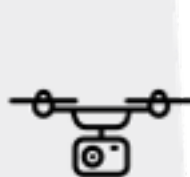
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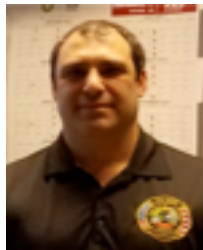
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CAPTURING SYNERGIES

by Joe Hench CPP CEM



As a security professional with minimal experience in emergency response, I began a journey 10 years ago being responsible for two major disciplines at an oil refinery. I was confident in my capability to improve upon the security organization; however, I knew I had a long learning curve ahead of me when it came to emergency response.

Most of my previous roles in security had an element of fire protection responsibility, but being responsible for emergency response at an oil refinery was like going from your high school baseball team to the major leagues the very next day! I took this opportunity to take all the necessary emergency response training and participated in all the drills and exercises to learn as much as possible while attempting to gain respect from my new team.

One day, my fire chief confided in me about his re-occurring nightmare that he had regarding the security organization. He proceeded to tell me that his nightmare was that security would stop the local fire department at the main gate from coming into the refinery during a major fire and would make them get out of their vehicles and start frisking them right there outside the main gate. I knew it was time to change a few things. It was that discussion that made me look into how security and emergency response work together and decided that I wanted to improve upon how the two disciplines could work together as one team.

Whether you call it plant protection or some other departmental name, there is no denying that the two disciplines support and depend on each other once you start peeling the layers and looking at the day to day activities. When you first look at security and emergency response from afar, you see that they are very distinct and at the opposite sides of the spectrum. Security is mostly preventative in nature and designed to keep everything out of their protective wall they have built to protect the facility and the personnel inside. Emergency Response is at the other side of the spectrum where their mission is to prepare and respond when things go wrong.

However, once you start looking closer at the day to day operations of these two disciplines, you start to see the synergies between them and you will realize that you have an opportunity to create a well-oiled machine that can become a valuable asset to the company. The success or failure lies within the ability of the leadership of security and emergency response to see the benefits of working together; or better yet, having one leader serving both.

In an industrial environment where the risks are high and the consequences severe, it will be necessary to have an internal emergency response team that has the capability to respond to fires, hazardous material incidents, confined space rescue scenarios, medical emergencies, or even oil spill response deployments. These same facilities will also need a security organization that has the ability to protect the facility perimeter and have a security response to security threats and incidents to keep the facility and personnel secure.

These two organizations or disciplines have more in common than they have in differences. One of the greatest opportunities that was presented to me was my team's willingness to train, encourage, and even give me the space to learn their world from a security perspective. During the middle of all this transition, it occurred to me that even with some of the greatest programs and processes in place, the greatest asset that make security and emergency response work well together are your team members. Having the right people in the right position can make all the difference!

When it comes to the Security organization, it is vital to understand their importance in the day to day activities that occur within the facility. Security is the first person that visitors interact with when entering the facility. Security controls the flow of all traffic within the facility to include whether critical equipment gets delivered or sent away because the driver didn't have the appropriate documentation or license to enter the facility. Security usually answers all the phones that come into the facility and directs those calls to the appropriate personnel within the plant. Security usually knows everyone who enters the facility and how often they come and go. Security usually picks up and delivers all the external and internal mail. Security conducts patrols throughout the perimeter of the facility and within the buildings throughout the entire day. And as always, Security is the one organization that you can count on to provide you with all the rumors that are going around the facility. In essence, Security has its hands in everything throughout the entire facility, especially when it comes to the people within the facility. Security is a great asset to the emergency response organization because of their technological resources and knowledgeable personnel that know how everything runs within the facility.

One of the key functions that have brought synergies between security and emergency response is the Security Operations Center (SOC) or Dispatch. The SOC has increased in capabilities over the years as we have discovered more synergies between the two disciplines. For example, the SOC has all of the security technologies like CCTV cameras, access control, and alarm functionality. The SOC also has the ability to monitor all radio traffic, weather data, as well as emergency alarm notification capability. One of the benefits of having responsibility for security and emergency response is knowing what the SOC can do and what they are capable of performing during an emergency response incident.

The SOC has the capability of being the eyes and ears of the entire facility because of the technology, training, and knowledge of that one person within the SOC. They are the center of all the information that is flowing throughout the facility at all times and have the ability to see what is going on within the facility from a holistic point of view. Emergency Response has the capability of utilizing Physical Security Information Management (PSIM) which utilizes all of security's technology and then puts all of that important information on one screen so the emergency response team can make decisions with all the information available at that time.



The SOC has the capability of providing weather information to include wind speed and direction during a vapour cloud release. They can make all the necessary phone calls to outside resources to include the local fire department or life flight while the emergency response team is managing the incident. They can dispatch more security personnel to provide scene security and safety as well as directing a squad to the scene for medical transport to the local hospital. Another key aspect that utilizes security's technology is when dealing with evacuation or shelter in place. The SOC will have the ability to tell the emergency response team if everyone has been accounted for within dedicated shelter-in-place locations by utilizing the access control system as accountability check points. Utilizing security's technology can provide personnel accountability within minutes instead of hours all by utilizing security's technology for emergency response activities.

On the other hand, the emergency response team provides a great deal of synergies within the security organization based upon their capabilities as well. Security utilizes the emergency response team when planning and responding for security incidents that deal with workplace violence or active shooter scenarios where emergency response medical capabilities are required. Security will frequently call upon the emergency response team when they respond to vehicle accidents that occur within the facility. Security receives first responder training from the emergency response team as the security team may

interact with personnel on their patrols throughout the facility. Security has learned how to inspect fire extinguishers from the emergency response team in order to be in compliance when there are over 2000 fire extinguishers within the facility. The emergency response team has provided a great deal of experience, training capability, leadership, and overall cumulative knowledge of the team members that provide a great deal of support for the security team as well.

Capturing the synergies of security and emergency response together is a great asset to the facility and has become a unified team that the personnel look up to and count on when things head south! It is imperative that the leader of each of these two disciplines work together to ensure they are utilizing their strengths for the good of the facility. In the end, if your fire chief has nightmares that security will not allow the local fire department to enter your facility, maybe it's time to capture the synergies at your facility.

Editor's note: Joe Hench has been a security and emergency response superintendent for a refinery in Midwest USA for the past 10 years. He has over 20 years' of leadership experience in security operations, criminal investigations, counterintelligence operations, and crisis management. He has earned the Certified Protection Professional certification from ASIS and Certified Emergency Manager certification from IAEM. Joe can be contacted at jthench@gmail.com



PERSONAL COMMUNICATION IN EMERGENCY SITUATIONS

By Kevin Boffy MJOIFF

The immense pressure of emergency and crisis situations often leads to poor inter personal communications between responders hampering the efficiency of response efforts. Any responders who have attended any form of emergency can recall people whose disposition drastically changes as the pressure intensifies. This can manifest itself in such ways as badly conveyed messages or poor team briefings - this only serves the purpose of unsettling those in the vicinity.

Psychology v Physiology

This is often attributed to people 'panicking' under pressure when the simple explanation is as much physiological as psychological. The body's reaction to high pressure situations is

the release of adrenalin and cortisol into the body thus affecting the body's ability to think clearly and rationally. Firstly, studies have shown that a small amount of stress does not detract from our decision making, the opposite is in fact true, small amounts of stress improve our ability to make decisions.

However, the impact of high levels of stress on decision making and our thought process are shown as loss of concentration, inability to perceive new information, hampered short-term memory, rumination, lack of initial planning of actions and hasty decision making. Also, associated with these symptoms is poor interpersonal communication. Stressed people often show poor body language, rapid speech and unstructured briefings because of the psychological/physiological effects.

4 Tips for Effective Communication

Having outlined the reasons for why people are acting the way they are, the question is what can be done to fight these effects to ensure effective communication.

Here are 4 areas to concentrate on when fighting the body's reaction to stress:

Planning and Preparation: No matter whether the communication is a quick telephone update/ radio message or a large briefing, take some time out to prepare, what are the key points you are trying to get across? Think of the structure of your communication. Emergency services communications are normally very effective because the structure of the communication is well rehearsed prior to commencement.

Positive Body language: 55% of communication is achieved through body language, humans have an innate reaction to read body language so pull your head up from the clip board and think about your posture, eye contact and energy. Always give eye contact to those you are communicating with as it's an excellent way to gauge their understanding. A good open body position instills a sense of confidence.

Don't Show signs of nerves: Even in high pressure situations, take the opportunity to slow down, prepare your message and

communicate it with calmness. Use your planning and preparation and positive body language to ensure you combat any stress. Signs of nerves can include fidgeting, swaying, rigid body position and continually staring at paperwork/ screens.

Pitch, Pace and Tone: Key to any message is the pitch, pace and tone of the deliverer, as a general rule speak with clarity, talk in a strong, steady voice neither shouting nor mumbling. Human nature in pressure situations is to raise the pitch and speed up the pace of the voice often leading to the need for repeated messages, wasting time. In these situations, make a conscious effort to think about the pitch, pace and tone of your voice.

As a rule, humans like to be lead and effective communication in emergencies is crucial to successful leadership. As part of emergency testing and exercising the ability to practice delivering emergency messages should always be considered as part of any aims and objectives. The aim to 'test internal/ external communications' is often named in the objectives of exercises yet it almost always alludes to the content of the communication rather than the method of delivery. We all know leaders with excellent communication skills and the effect this can have on the tempo it sets, you may now notice several or all of the 4 key communications tips within their delivery method.

JOIFF MUTUAL AID RESEARCH PROJECT, AN UPDATE

By Philip Stohr

In the summer of 2016, JOIFF member organisation Kappetijn Safety Specialists, The Netherlands, officially introduced the Mutual Aid Research Project in the JOIFF Catalyst. In November 2016 we were given the opportunity to speak about the Research Project at the JOIFF FEHM conference on the Island of Malta. Now it's time to give you, as a JOIFF member, an update about the progressions we made in the past months.

Mutual Aid and the Research Project

In industrial and harbor areas, private stakeholders have to organize incident and crisis management and emergency response. You can think of industrial scenarios like fires, explosions, and chemicals, but also other scenarios like earthquakes, floods, wildfires, or a lack of power supply. We speak of Mutual Aid when private stakeholders join forces to organize the emergency response or the incident and crisis management in a certain area.

It could be that there are public stakeholders involved in the Mutual Aid Organization, like municipalities or public fire services. In this case we speak of Public Private Partnership (PPP).

There are several advantages to joining forces in a Mutual Aid Organization or PPP. First of all, the quality of the emergency response preparation will increase, because of the concentration of specialized expertise, the guaranteed availability of specialized equipment, and the control and coordination over the available capacity. Moreover, joining forces makes it possible to reduce costs and show responsibility and credibility to the local

community.

Besides the benefits pointed out above, there are however several issues one needs to tackle. Examples of such issues are: the governance model, the contribution model, or the harmonization of the processes from the individual partners involved.

Mutual Aid organizations and PPP are widely spread around the world. The Netherlands seems to be a good testing ground for this kind of collaboration agreement. We have identified over ten Mutual Aid/PPP organizations in the Netherlands alone in the past few years. With the Research Project, we are looking abroad to identify which Mutual Aid Organizations and PPP have developed around the world.

The goal is to identify the factors of success in specific circumstances. The results of the project will be made available both through our own platform on the Kappetijn Safety Specialists website and through the JOIFF shared learning platform.

Current stage of the Research Project

Over the past months, we have been pleasantly surprised with the enthusiastic response from the JOIFF members and their willingness to contribute to the Research Project. We were given the opportunity to do Skype-calls with respondents located in Spain and Hungary. We also travelled to Belgium and Germany to have face-to-face meetings with respondents. All these meetings were extremely valuable to the Research Project.



MUTUAL AID RESEARCH, CONT....

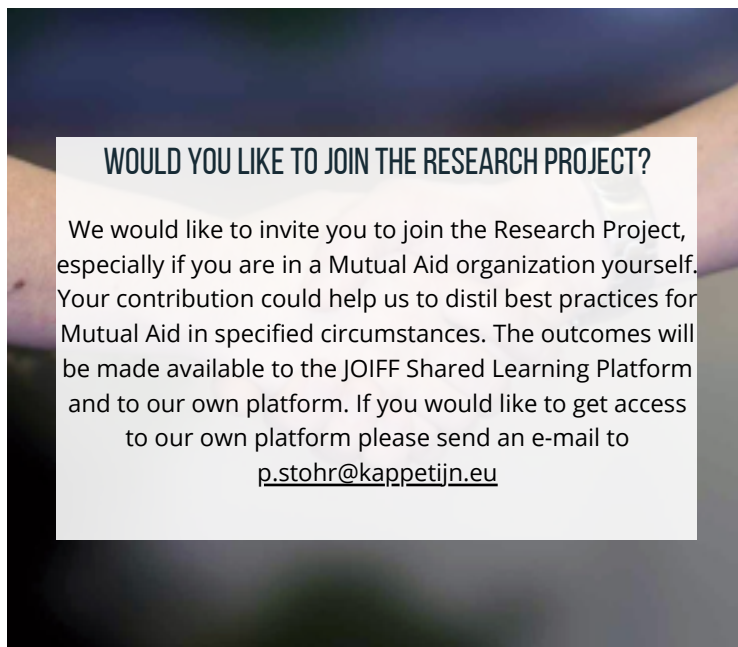
Additionally, we have frequent contact with partners in Oman, the United Arab Emirates, the UK, and the U.S.A. At this moment, we are planning more Skype-calls and face-to-face meetings for the future.

On the JOIFF Malta FEHM conference our director Kees Kappetijn gave a presentation about the Research Project. It was a big honor for us to have the opportunity to shine a light on our subject before such a highly experienced and specialized audience.

During the conference we distributed around 25 information kits to specifically interested people who are part of a Mutual Aid/PPP organization. We are currently trying to get in contact with these people. The enthusiasm that is being shown for the Research Project is overwhelming and exciting, but it turns out to be hard to receive and collect actual information and documents.

There is a conference coming up in June on the subject of Mutual Aid/PPP in Rotterdam, The Netherlands. This conference focusses on the Dutch language area. Our keynote speaker is a representative of the Swedish SMC Mutual Aid model, a Mutual Aid organization on a nation-wide scale. If this conference turns out to be a success, we have the ambition to organize a 2018 international conference on this subject in collaboration with JOIFF.

In the meantime we will keep improving our own knowledge about Mutual Aid and PPP by doing several Mutual Aid related projects both in the Netherlands and abroad. These projects include the establishment of new Mutual Aid and PPP organizations and helping already existing organizations with



their organizational problems and troubleshooting.

***Editor's note:** Philip Stohr is a consultant of Kappetijn Safety Specialists, Dordrecht, The Netherlands. Kappetijn Safety Specialists are consultants and safety specialist for public and private organizations with Seveso-dilemmas that have to prepare for large incident and disaster scenarios and must dimension, organize and train their emergency response organizations and crisis management teams. For further information, please contact Philip Stohr (p.stohr@kappetijn.eu) or Kees Kappetijn (k.kappetijn@kappetijn.eu).*

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.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 ACCREDITED COURSES 2017		
Course	Dates	Venue/Organiser
<u>Site Specific Courses</u> 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.	Arc Fire Training On your own site. Subject to Risk Assessment & Facilities. arcfiretraining@ntlworld.com
Site Incident Controller Training (2 day)	16-17th May	Eddystone Consulting opportunities@eddistone.com Tel: +44 1433 659 800
Site Main Controller (3 Day)	9th - 11th May	
Industrial Fire Brigade Incident Commander Course (IFBIC) 5 days	10-14 April 3-7 July 4-8 Sept 13-17 Nov	Falck Fire Academy , Rotterdam, Netherlands fireacademy@falck.com Tel: +31 181 376 666
Integrated Fire Safety of Intermediate Bulk Containers (IBC's) and Intermodals	11-13 April	H2K Netherlands p.deroos@h2k.nl Tel: + 31 174 414 872 +31 651 588 089
Industrial Safety and Emergency Response Course	14-16 Nov	

The dates offered here 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.



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DIARY OF EVENTS

April

- 12th – 14th SECUTECH 2017, Taiwan
- 24th – 29th FDIC International, Indianapolis U.S.A.
- 26th – 27th StocExpo Middle East, Dubai, UAE

May

- 2nd - 4th Intersec Saudi Arabia, Jeddah, Saudi Arabia
- 22nd – 23rd Disaster and Emergency Management Conference, Queensland, Australia.

June

- 4th - 7th NFPA Conference and Expo, Boston, U.S.A.
- 8th - 10th JOIFF Fire and Explosion Hazard Management Regional Summit, Secunda South Africa
- 20th - 22nd FIREX International, London, England

September

- 7th - 9th Securexpo East Africa, Nairobi, Kenya
- 20th - 21st Emergency Services Show 2017, Birmingham, UK
- 20th - 21st International Water Mist Conference, Rome, Italy

November

- 7th - 9th Firexpo East Africa, Nairobi, Kenya

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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