

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

WILDFIRES PLUS Sample and testing of firefighting foam concentrate Joiff training notes, and more



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#### **ABOUT JOIFF**

Full Members of JOIFF are organisations which are high hazard industries and/or have nominated personnel as emergency responders/hazard management team members who provide cover to such organisations. Corporate Members of JOIFF are organisations that do not meet the requirements of Full Membership but who provide goods and services to organisations in the High Hazard Industry.

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 emagazine 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.

#### **JOIFF Secretariat:**



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### **CHAIRMANS NOTE**



#### JOIFF members and guests,

Firefighting and Emergency Response occurs on three levels:

- Front line tactical response in the field to actual events,
- Response Organizational Management and
- Public and Private sector expectations and perceptions through legislation, regulation, and public opinion.

Each level is critical to overall emergency response effectiveness and needs to work as an integrated and holistic system. Each is important and has a valid perspective. Those perspective do not always fully align, nor should they. A healthy tension between each of the respective demands and expectations, when operating in concert within leadership and application, produces a balanced response capability that addresses the challenge of competing and limited resources.

This all may sound like a dry academic introduction to a paper, a pompous trade magazine article (or a note from the Chairman!). I would offer that it is actually focusing on the point of most critical contact.

Often, these three components do not integrate and synergize to produce the best outcomes. Each can view the others with a distrusting and cynical perspective. When this happens, the outcomes fail to produce that balance that we need.

For the upcoming JOIFF Fire and Explosion Hazard Management (FEHM) conference in Malta, one of our keynote speakers, Dame Judith Hackitt, will be offering a critical perspective on that integration, and what can happen when it breaks down and what specific actions we can take to insure those breakdowns do not occur. We will provide more detailed information on who Dame Hackitt is and the incredible depth of knowledge, responsibility, influence and experience she brings to our profession, as well as the rest of the opportunities we are working to bring to you during the conference. It will be one of the critical areas of focus for the conference, and reflects the constant focus JOIFF works to bring to everything we do on behalf of industry.

Please enjoy this edition of the Catalyst, and find some time to offer articles of you own as you are so inspired - it is a shared learning environment that only works when we participate in the process.

Sincerely yours, and with great anticipation,

#### Randal S. Fletcher (Randy)

JOIFF Chairman

THE CATALYST





### SOME INDUSTRIAL INCIDENTS THAT TOOK PLACE DURING THE FINAL QUARTER OF 2017

#### Australia

Worker killed in Western Sydney Confined Space Accident

#### Bahrain

Interior Minister Says Oil Pipeline Fire Dangerous Terrorist Act

#### China

explosion: Ningbo port city rocked by major blast

#### Ghana

Huge explosion rocks a fuel depot in Accra, killing at least three people

#### India

Butcher Island (near Mumbai) Storage Tank on Fire, Lightning the Reported Cause Blaze guts Ludhiana polymers factory kills 20 including 9 brave firefighters

#### Iran

Six die on top distillation tower at Tehran Oil Refinery

Fire put out at Iran's Rag-Sefid Oilfield, after 59 days

Blowout kills at least two

#### Pakistan

Defunct FPSO Catches Fire Again at Gadani **Russia** 

At least 4 dead at Lukoil subsidiary, Norsi Refinery in Kstovsky district

#### Turkey

Explosion kills 4 at oil refinery in Izmir **USA** 

Search Suspended For Worker After Rig Explodes in Louisiana Lake **Venezuela** 

#### Fire at Amuay Refinery

#### 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. 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.





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## NEW MEMBERS / FINAL QUARTER 2017

During October, November and December 2017, the JOIFF Board of Directors were pleased to welcome the following new Members.

#### FULL MEMBERS:

AIFS Limited, Haryana, India represented by Debashish Chakraborty, Chief Executive Officer. AIFS Ltd. Group was formed to provide firefighting and fire prevention support to the industrial development of India and the Company works in different aspects of fire prevention and firefighting with foreign partners who specialise in their field of expertise. AIFS manufactures a wide range of firefighting, specialist and support vehicles to Industry including vehicles for the Aviation sector and AIFS also contracts emergency response personnel to Companies in the oil, petrochemical, hazardous materials industries, oil rigs etc.

Northern Ireland Fire & Rescue Service, Lisburn, Northern Ireland represented by Paul Harper, Group Commander. Northern Ireland Fire & Rescue Service has a large complement of full time and part time personnel providing an Emergency Fire and Rescue Service for the people of Northern Ireland.

Oil and Natural Gas Corporation Ltd. (ONGC), Institute of Petroleum Safety, Health and Environment Management, Goa, India represented by Sanjay Kumar, Dy. General Manager (Fire Services), Puneet Khanna, Dy. General Manager (Fire Services) and Jayant Kumar Singh, Dy. General Manager (Fire Services). ONGC operates both onshore and offshore India and is the leader in exploration and production activities in India contributing 72 per cent to India's total production of crude oil and 48 per cent of natural gas. The Institute is ONGC's premier training and research and development institute in the field of

firefighting, health, safety and environment management and it offers a wide range of training courses including offshore survival and safety

#### **CORPORATE MEMBERS:**

**FFS Group, Praha, Czech Republic**, represented by Roger Champagne, Managing Director. FFS - Fire Fighting Systems designs, manufactures supplies complete systems for fire fighting comprising all services and equipment exclusive of piping required for installations onshore for tank farms, refineries, industrial plants etc. and in the marine market, for offshore vessels.

**TEXPORT Handelsgesellschaft mbH, Salzburg, Austria** represented by Tim Wright, Sales Manager UK/Ireland/ Scandinavia and Uwe Heinemann, Sales Director. TEXPORT TEXPORT® manufactures and markets high tech protective clothing in the FIREWEAR and WORKWEAR sectors, to cope with extreme situations yet dedicated to the principles of quality, functionality and practicality.

During Q 4 2017, the Directors were also happy to welcome **Muhammad Firdaus Md Fauzi, Selangor, Malaysia**. Muhammad is an associate member of the Institution of Fire

Engineers and an associate member in process safety of the Institute of Chemical Engineers. He became a JOIFF member to keep updated with new developments in emergency response and fire/explosion protection and for continual professional development via discussions on emergency response and fire/ explosion protection related topics.

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

### **NEWS FROM JOIFF ACCREDITED TRAINING PROVIDERS**

## ARC FIRE TRAINING SERVICES LTD UNITED KINGDOM

In December 2017, Eric Dempsey MJOIFF of JOFF accredited Training Provider Arc Fire Training Services Ltd., United Kingdom, in conjunction with Meirc - Plus Training, United Arab Emirates, presented the JOIFF accredited 5 day Seminar entitled "Crisis Management and Emergency Response" to a group from Saudi Arabian Railways. Saudi Arabian Railways are beginning a major investment programme on new national railways for passengers and freight services and they wanted their senior staff trained in Hazard Management.

The course was presented in Riyadh in the Kingdom of Saudi Arabia and having successfully completed the course the participants were presented with JOIFF accredited certification. Eric reports that the participants were very professional and participated diligently throughout the full course.



Successful participants in the Seminar after presentation of JOIFF accredited certification.

The objectives of this course, which is classroom based, are that on conclusion of the course the participants will understand

- the attributes between Incidents, Emergencies and Crisis Situations;
- how to avoid unnecessary escalation and how to design command and control response to each scenario;



### NEWS FROM JOIFF ACCREDITED TRAINING PROVIDERS CONTD..

- · how to enhance on-scene leadership capabilities and techniques;
- how to apply good Industry practice in organising Emergency Control Centres, Emergency Response Teams and Crisis Management Teams to assist the Forward Incident Control
- how to analyse the importance of the human factor and the means to best allocate duties with regards to psychological readiness, recourse allocation, deployment, discipline, leadership & welfare

Eric explains: "The sheer range of potential incidents and emergencies that can disrupt or even stop production in High Hazard Industry are increasing. If managed correctly then not all of these incidents will become critical or be classed as a crisis, but those that result in increased losses or put increased demand upon the organisation will have consequences for the company, the shareholders and stakeholders or the Country itself badly damaging the reputation of all those involved in the response."

For further information contact Eric Dempsey M.JOIFF, Arc Fire Training Services Ltd. Tel: +44 (0) 7931566295 Email: arcfiretraining@ntlworld.com website http://www.arcfiretraining@ntlworld.com

#### YASSINE MARINE SERVICES SARL TUNISIA

JOIFF is pleased to announce that following an audit in December 2017, Yassine Marine Services SARL Tunisia has been awarded JOIFF accreditation.

Yassine Marine Services (YMS) was founded in 2001 and has three main locations within Tunisia - corporate head office in Ariana Tunis, Maritime and Logistics office in Sfax and the new purpose built training centre which has been JOIFF accredited located 20 kilometres from the centre of Sfax.

Yassine Marine Services applied for JOIFF accreditation as part of their programme of constantly developing and improving their facilities and services offered to meet the demand of the Oil & Gas and other High Hazard industry within Tunisia and North Africa.

In addition to training YMS has offshore support vessels operating in Tunisia and is in the final stages of launching a new company HeliMed Services in January 2018 to deliver Onshore, Offshore and medivac Helicopter operations in a Joint Venture with Gulf Helicopter for the main operators in Tunisia including fixed wing medivac for Libya and Tunisia based in Djerba and Sfax.

YMS is an IMCA Contractor member, marine division for Europe and Africa region, accredited by the Tunisian Ministry of Transport and by the Libyan Maritime and Ports Authority for STCW, is an affiliate organisation with the Institution of Fire Engineers, Member of ROSPA, accredited by OPITO for the delivery of BOSIET FOET& HUET also an approved invigilation centre for ATLAS.

Don Sheens said "The management and staff at Yassine Marine services are proud to be associated with and accredited by JOIFF and hold the JOIFF approval for delivering accredited Fire and related training in the highest regard as to integrity and compliance conveying to clients that both JOIFF and Yassine Marine Services are partners committed to delivering the very best training to industry."

For further information contact Don Sheens Tel: + 216 36 408 290 Email: <u>yms.training@y.marineservices.com</u> website <u>www.y-marineservices.com</u>



Gerry Johnson FJOIFF JOIFF Director of Standards of Training & Competence presenting the JOIFF certificate of Accreditation to Don Sheens, Training Centre Manager. Also present Instructors Eric Dempsey & Jmaiel Mansour

#### SOME TRAINING FIRE SCENARIOS AVAILABLE IN YMS



THE CATALYS



### WILDFIRES

#### THE VIII INTERNATIONAL CONFERENCE ON FOREST FIRE RESEARCH, ICFFR 2018

A wildfire - also known as wildland fire, brush fire, bush fire, desert fire, forest fire, grass fire, hill fire, peat fire, vegetation fire, veld fire - is an unplanned, unwanted fire, burning in a natural area, such as a forest, grassland, or prairie. Wildfires can be characterised by the cause of ignition, the physical properties of the combustible material present and the effect of weather on the fire. Whilst wildfires can cause enormous damage to property and human life, they have many beneficial effects on native vegetation, animals, and ecosystems that have evolved with fire.

Wildfire behaviour and severity result from the combination of factors such as available fuels, physical setting, and weather. Temperatures in wildfires can range from an ambient air temperature 250° C up to 12,000°C in severe fire over-run or entrapment conditions. Wildfire outbreaks can generate a significant amount of atmospheric aerosols that can have regional to global impacts on earth's energy balance and surface temperature.

In certain circumstances, forest fires are actually Nature's way of keeping the balance, but as the carbon footprint of Mankind grows and changes the climate in a way that is both unnatural and dangerous, these fires are occurring in places and at times that was never Nature's intention and many are characterised by massive uncontrolled areas of wildland burning ferociously and causing widespread death and destruction.

Here are just a few facts relating to wildfires:

- Around the globe, in excess of 3 to 6 million square kilometres of vegetation are affected by land-use fires and uncontrolled wildfires annually.
- It is reported that more than 723,000 people were evacuated in wildfire situations in 32 Countries and 16,100 houses were destroyed between 2011 and 2014.
- In Northern California USA, during 2017, wildfires scorched more than a million acres in the region over the summer and were burning on another half-million acres in September.
- During January to October 2017, more than 100 people died,

hundreds more were injured and more than 1.2 million acres had burned in wildfires in Portugal, about half of all the acres that have burned in wildfires in all of Europe.

- In June 2017, storms that swept into Cape Town, South Africa killed at least nine people and unleashed winds that fanned fires, forcing evacuations of about 10,000. Combatting the Western Cape storm disaster in South Africa involved the largest operational deployment of fire fighting resources and personnel in any single incident in South Africa's history.
- The most severe large-loss incident in North America during 2017 was an enormous wildfire called the Fort McMurray Fire in Western Canada. For two months, the fire burned wildlands, homes, businesses and properties resulting in one of the largest fires in recent Canadian history. The Fort McMurray Fire resulted in an estimated economic impact loss of nearly \$10 billion Canadian. A total of 2,276 square miles (more than 1.4 million acres) of land were destroyed, resulting in property loss of \$3.9 billion Canadian with an estimated 2,400 buildings destroyed and more than 3,000 structures listed as unsafe to enter or total losses. There were no deaths directly attributed to the fire, but two people were killed in a vehicle crash while residents attempted to escape.

The VIII International Conference on Forest Fire Research, ICFFR 2018 is being held in Coimbra, Portugal, from November 10th to 16th, 2018. This Conference aims to provide an up-to-date on the developments in forest fire science and technology and an opportunity to meet persons and institutions, to promote international cooperation in this area.

There will be six major themes – Fire at the Wildland Urban Interface, Fire Risk Management, Decision Support Systems and Tools, Fire Management, Fuel Management and Socio Economic Issues.

Two Courses will be held just before the Conference, the V Short Course on Fire Safety and the VIII Short Course on Forest Fire Behaviour, as related but separate events.

For more information on this Conference, visit the website at: www.adai.pt/icffr



## Our employees fight fire and so do our products

My name is Magnus. I am working with product development at Fomtec. This picture is from a fire test in Sweden. Follow us if you want to find out more about me, the Fomtec way and all our products.

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### SAMPLE AND TESTING OF FIRE-FIGHTING FOAM CONCENTRATE - PART 1

#### BY DR. JEANNE VAN BUREN

The requirement for annual sampling and testing of fire-fighting foam concentrate is described in paragraph 12.6 of NFPA 11 (2016): Low-, medium-, and highexpansion foam.

Testing of the foam concentrate is necessary to assess if the quality was affected or compromised by:

- freezing
- elevated temperatures
- interaction with the materials of the material in which it was stored
- contamination or mixing with noncompatible foam concentrates
- ageing of the foam concentrate
- other factors

This article discusses the basic requirements for good practices for sampling of foam concentrate and is intended to create awareness about the effect incorrect sampling and sample handling and sample transport can have on the outcome of the results.

The actual testing of foam concentrate is discussed in a separate article (part 2) which will be published in the Q2 April 2018 edition of The Catalyst.

#### Introduction

NFPA emphasises that the method for sampling should result in a foam concentrate sample that represents the material in the reservoir it was taken from if we want to be able to rely on the results of the tests to which this sample is submitted.

If the results of these tests show that the

foam is not fit for purpose as a result of incorrect sampling, the operator is confronted with the costly task of removal, destruction and replacing of the foam concentrate, cleaning of the foam concentrate reservoir and the elaborate process of finding a new suitable foam concentrate as was discussed in the October 2017 JOIFF Catalyst article with the title: Replacing Fluorinated Fire-Fighting Foam.

It can have serious consequences too when incorrect sampling has resulted in positive test results, while in fact the concentrate should have been deemed "not fit for purpose" if the sample was properly resembling the foam concentrate in the reservoir. Process facilities, emergency responders and the public can be at risk, if this foam concentrate is used and does not deliver the anticipated performance when used for fighting or controlling a fire during an actual incident.

Correct reference based procedures, which have been proven to be functional and reliable should be used for taking spot samples of foam concentrates. The sampling procedure should be able to serve as a reliable basis for the analysis. It would therefore be good if the whole sampling and sample handling process, including the transport of the sample, is performed under ISO 17020<sup>i</sup> accreditation and the quality of the actual testing of these samples is performed under ISO 17025<sup>ii</sup> accreditation. This level of quality control is line with the fact that firefighting foam is usually applied as a last



line of defence in the high hazard industry during conditions where all previous lines of defence, intended to prevent the incident occurring, have already failed.

It is a widely accepted practice to produce high level risk control provisions under independent supervision. NFPA has embraced the use of ISO 170xx standards embraced in other NFPA publications<sup>iii</sup> as a reference to secure high level performance criteria.

The report of the actual sampling, which is discussed in more detail below, lists at least the following information:

- name of the person who performed the sampling
- atmospheric conditions, and other relevant conditions that can otentially affect the sample and observations relevant for the sampling process
- photos of the sample location, the foam concentrate reservoir
- marking on the container(s) with the sample(s) and other information relevant for the quality of the sample

### Preplanning for foam concentrate sampling

As stated above; good preparation for foam concentrate sampling is conditional for securing a sample that represents the actual foam concentrate which has to be tested. The preplanning for the sampling starts by requesting the following information from the operator:

#### <u>The Safety Data Sheet (SDS) of the foam</u> <u>concentrate</u>

The SDS provides information about many of the materials resent in the foam concentrate. Some materials may not be listed by its actual name, by using the wording "proprietary". These are usually substances which are considered to be a trade secret. The hazards and the hazard classification of these substances must however be provided at all times if they have hazardous properties. The SDS also provides physical properties like viscosity. The latter is relevant as sampling of viscous and non-Newtonian (also known as thixotropic) foam concentrates requires specific attention in the preplanning phase.

Product information sheet

Providing information which was not listed



#### SAMPLE TESTING OF FIRE FIGHTING FOAM CONCENTRATE CONTD....

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#### Product information sheet

Providing information which was not listed in the SDS, like the maximum and minimum temperature for storage of the foam concentrate.

This is very important as the sample will be transported to the testing facility. This transport may include transport by plane, vessel, rail or road within temperature range listed in the product information sheet to secure that the sample is in the same condition as when it was taken.

The product information sheet also provides information about % of foam concentrate to be used for water miscible products and hydrocarbons like 1%, 3%, 6% expansion ratios, in association with the test results against standards like EN 1568 tests, ICAO test, IMO 670 and 1312 tests, and LASTFIRE tests.

Date the foam concentrate was purchased, batch number and EN 1568-3 and/oe 1568-4 rating of the original foam concentrate and how it has been stored since.

All foam concentrates have a technical life. If the foam concentrate was purchased 15 or more years back and was stored in the same tank or container under controlled conditions, it may still be fit for purpose. If the foam was first stored in jerry cans and moved





Reports of result of the last three previous tests.

This information is also required for interpretation of the test results and the trend-analysis for monitoring ageing of the foam concentrate.

#### <u>Type of industry, incident scenarios for which the foam is used</u> with associated % of foam concentrate used

There are many test methods, most of them are characteristic for a specific line of industry, like aviation, maritime activities, high hazard land-based or offshore industry. Foam is used in mobile equipment with various expansion ratios, and with a direct or indirect application. All this information has to be collected as part of the pre-planning, to secure that amount of sample taken is sufficient to perform all the required tests using the appropriate test method.

Method of storage of the foam concentrate and the size (volume), model and material of the storage container. The operator should add a photo of the storage facility. A non-exhaustive list of storage methods of the foam concentrate at the operator's includes:

- Storage in plastic jerry cans, drums, IBCs
- In a horizontal or vertical tank on board a vessel or fireengine
- In a storage tank with ventilation vents
- In a horizontal or vertical bladder tank Note: include sample of water around the bladder tank, to test for leakage of foam concentrate





around many times and not stored under controlled conditions, the quality of the foam may be compromised. This information is relevant to explain the test results.

<u>Reports of result of the last three previous</u> <u>tests.</u>

This information is also required for interpretation of the test results and the trend-analysis for monitoring ageing of the foam concentrate.

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A non-exhaustive list of storage methods of the foam concentrate at the operator's includes:

- Storage in plastic jerry cans, drums, IBCs
- In a horizontal or vertical tank on board a vessel or fire-engine
- In a storage tank with ventilation vents
- In a horizontal or vertical bladder tank Note: include sample of water around the bladder tank, to test for leakage of foam concentrate
- In a vertical storage tank with a thin oil layer on top of the foam concentrate to prevent evaporation of volatile components in the foam concentrate
- In a tank under nitrogen pressure to prevent evaporation of volatile components
- In a tank with a low velocity agitator which is activated once every week or two weeks for a short period to prevent stratification of the concentrate

Note: movement of agitator should never introduce air in the foam concentrate

A detailed as-built drawing of the foam concentrate reservoir shall be provided by the operator when foam concentrate is stored in a reservoir like a tank.

The strategy and equipment for taking samples of the foam concentrate in a selection of 50 jerry cans is very different to that of sampling a storage tank with a low velocity agitator or a bladder tank, or a However it is also common practice to take a sample of no more than one litre. How much sample and how many samples are required, is determined in the sampling strategy, which is based on the tests that have to be performed. Samples should always be collected in polyethylene containers and a duplicate sample should also be taken. This duplicate sample stays sealed until there is a necessity to examine this sample too. Labelling

The sampling protocol should also include information about the intended labelling and sealing of the samples. The labelling should be unique. The name and address and the samples were taken, the name of the foam concentrate, location (tank nr, name building, bund nr., etc.), the date of sampling and the name of the person who took the samples.

#### <u>Transport</u>

The sampling protocol should describe method and conditions for securing integrity of the samples during transport to the test location.

Transport by third parties shall be done using parcel tracking.

#### <u>Sampling</u>

Only representative and authentic samples can provide reliable information about the quality, properties or composition of foam concentrate. Samples should be carried out by qualified



tank with oil on top of the foam concentrate and should therefore be determined in the preplanning process for the actual sampling.

It is also important to know the material of the storage provision as foam concentrate can react with the material of the storage container. Therefore the sediment in the foam concentrate should also be visually examined for the composition of the material in the sediment.

It is relevant to know if the foam concentrate is stored inside a building or under sheltered conditions as rain water or other material can contaminate the samples when they are taken. The above information is used to make a sampling strategy which is shared and discussed with the operator prior to the sampling. This strategy lists how much and how many samples will be taken and contains instructions for the operator to prepare accessibility of the sample location and the foam concentrate system for sampling. The EN 1568-1<sup>iv</sup> requires a foam concentrate sample of 25 litres. However it is also common practice to take a sample of no more than one litre. How much sample and how many samples are required, is determined in the sampling strategy, which is based on the tests that have to be performed. Samples should always be collected in polyethylene containers and a duplicate sample should also be taken. This duplicate sample stays sealed until there is a necessity to examine this sample too.

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#### <u>Sampling</u>

Only representative and authentic samples can provide reliable information about the quality, properties or composition of foam concentrate. Samples should be carried out by qualified personnel only, who are competent and capable and have met the requirements and training for this specific activity. It must be guaranteed that sampling is carried out exactly in accordance with reference(s), sampling protocol and with suitable sampling equipment.

A non-exhaustive illustrative list of potentially references to assist in the setup of the sampling protocol and selection of suitable the sampling equipment is provided below:

- DIN 51750-1: Sampling of petroleum products; general information
- DIN 51750-2: Sampling of liquid petroleum products Standard is suitable for non-viscous samples
- DIN 51750-3: Sampling of pasty and solid petroleum

products. Standard is suitable for viscous and non-Newtonian foam concentrates

- ASTM D6759 16: Standard Practice for Sampling Liquids Using Grab and Discrete Depth Samplers
- ASTM D6699 16: Standard Practice for Sampling Liquids Using Bailers
- ASTM D5358 93: Standard Practice for Sampling with a Dipper or Pond Sampler
- ASTM D4057 12: Standard Practice for Manual Sampling of Petroleum and Petroleum Products
- ASTM D3925 02: Standard Practice for Sampling Liquid Paints and Related Pigmented Coatings. This standard is suitable for sampling thixotropic products
- ISO 1513: Paints and varnishes Examination and preparation of test samples and ISO ISO 15528: Paints, varnishes and raw materials for paints and varnishes -Sampling. These two standards discuss sampling equipment for thixotropic materials

There is a wide range of sampling tools and supporting material on the market supplied by various manufacturers for any type of foam concentrate and foam concentrate reservoir. The catalogues of these companies often provide useful tips and guidance for correct sampling.

For illustrative purposes only and without the intention of excluding any other suppliers of sampling equipment, examples of sampling equipment can be found in the catalogues of Bürkle GmbH<sup>v</sup> and Fischer Scientific<sup>vi</sup>.

Doctor Jeanne van Buren is a senior consultant with Marsh Risk Consulting, based in Rotterdam and consults on specific risks related to the power, energy and (petro-)chemical industry sectors. This includes identifying potential hazards, evaluating these hazards and quantifying the associated risks and counselling on risk mitigation and control measures. She also develops and provides training courses in Dutch and English.

For more information about the topics addressed in the article contact Jeanne van Buren at <u>Jeanne.vanburen@marsh.com</u> or +31 10 4060404. Images used courtesy of the Alibaba website

#### ENDNOTES

- i Conformity assessment Requirements for the operation of various types of bodies performing inspection
- ii General requirements for the competence of testing and calibration laboratories
- iii NFPA publications: 790; 791; 1901; 1917
- iv Fire extinguishing media. Foam concentrates. Specification for medium expansion foam concentrates for surface application to water-immiscible liquids.
- v <u>https://www.buerkle.de/website/var/assets/catalog/en/2017/</u> index.html#94 pages:92-119
- vi https://www.fishersci.co.uk/gb/en/home.html



## FIRE PROTECTION FOR PETROLEUM, OIL AND GAS INDUSTRIES

<image>

Solberg knows the real-world challenges. C<sub>6</sub> based, PFOS-free ARCTIC<sup>™</sup> AFFF/ATC<sup>™</sup> and RE-HEALING<sup>™</sup> authentic fluoro-free firefighting foam concentrates are optimized to fit the individual needs of each customer. You can count on Solberg to work with you and deliver products that perform as needed, when you need them.

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- Docks / Jetties
- Drilling & Production Platforms
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- Hazardous Material Spill Control
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- . LNG Carriers & Terminals
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## 2ND INTERNATIONAL FIRE & EXPLOSION HAZARD MANAGEMENT CONFERENCE

CORINTHEA HOTEL AND SPA 29 - 30 October, 2018 - Malta

HOSTED BY





IN ASSOCIATION WITH

Johnson Controls

### JOIFF in association with Johnson Controls, is pleased to invite you to book your place to attend JOIFF's 2nd Bi-Annual FEHM Conference which will take place at the Corinthia Hotel, St. George's Bay, Malta on 29th and 30th October 2018.

The programme will include a blend of technical and operational topics with involvement by our valued sponsors with whom delegates will have the opportunity to see and discuss current and new equipment and technological developments. The Conference will also provide numerous networking opportunities amongst the International delegates who are engaged in Operational Response Worldwide.

This conference, which will be on the subject "Protecting Todays Assets in Tomorrow's World" will not be a repeat of the 2016 JOIFF FEHM Conference but an expansion and progression from the topics presented and the experience gained. The protracted economic downturn and a "lower for longer" oil price environment means that businesses operating as they always have is no longer an option for looking to the future. Organisations which do not embrace disruptive and diverse technologies will fall behind their peers.

This conference will addresses important topics including:

- Prevention –Inherently Safe Design
- Protection Fixed protection with minimum human intervention Preparedness
- Fire Hazard Analysis,
- Credible Scenario development;
- Risk Assessments & Reduction Options
- Response Implementation, Test & Exercise, Maintain & Review
- Training based on credible scenarios
- Recovery Predetermine critical components with long lead times to get back to production as soon as possible and reduce losses.

For further details on the Delegate Package or the Sponsorship and Exhibition Opportunities contact Event Director **Paul Budgen** on + 44 (0) 203 286 2289 or Email <u>pbudgen@edicogroup.net</u>



### **COMMERCIAL EDITORIAL**

### SHELL AND GEXCON JOIN FORCES TO BRING SHELL'S HAZARD AND RISK SOFTWARE MODELS TO MARKET

Shell's leading-edge hazard and risk software models, FRED (fire, release, explosion and dispersion) and Shepherd, are now exclusively licensed by fire and explosion safety consultant Gexcon AS.

The two companies will work together to bring flexible safety modelling tools to the industry and develop new scientific solutions.

Shell has had an unremitting focus on continuous improvement and both FRED and Shepherd tools are recognised across the oil and gas industry as leading software tools for quantitative risk assessment.

Shell has used FRED software, which helps to predict the outcome of fire, release, explosion and dispersion scenarios, at its sites and projects around the world for over 30 years. Shepherd software, which helps in managing hazard and risk, and can help to gain regulatory approval and compliance, also has a long track record.

Shell says that joining forces with Gexcon, which brings specific expertise in research, development and modelling, combined with Shell's own operational experience, will create a

unique partnership that will help to improve the tools' efficiency, accuracy and flexibility even more. The two companies will also focus on elevating the tools' user friendliness to accelerate their adoption by other companies.

"Shell developed the FRED and Shepherd tools to help meet its stringent safety requirements on all the assets and projects it manages. We hope that this exciting partnership with Gexcon will enable us to make the tools available to the global community, in line with Shell's drive for improved safety performance," said Greg Kulawski, Vice President Safety, Shell Group.

"This agreement marks another step towards our goal of making the world a safer place by extending our offering of cost-effective solutions to help prevent accidents. We draw on our indepth expertise and state-of-the-art technologies to help our clients identify their hazards, understand their risks and improve their safety performance," added Kjell Svellingen, Executive Vice President, Gexcon.

For further information on FRED & SHEPHERD please contact Mark Keating on 07751 768633 or email mark.keating@gexcon.com

GEXCON



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# JOIFF ROLE OF HONOUR

JOIFF is delighted to congratulate the following people who were awarded JOIFF qualifications during October to December 2017.



### **DIP JOIFF**

#### Ibrahim Bayram Dip.JOIFF ADNOC Fujairah Terminal Division, United Arab Emirates



Ibrahim Bayram's firefighting career started in September 1997 when he joined Akdeniz University Vocational School of Higher Education Firefighting and Fire Safety Programme, Antalya, Turkey. He graduated in September 1999 and joined the army where he served 16 months as a firefighter, achieving the rank of sergeant.

In November 2003 he joined Abu Dhabi Civil Defence Quick Intervention Unit as a Fireman. After 6½ years in Al Falah Fire Station, Ibrahim joined EGA (Emirates Global Aluminium ) as Fire and Rescue Team Shift Supervisor where he worked for 1½ years. He joined ADCO - Abu Dhabi Company for Onshore Petroleum Operations Ltd. now trading as ADNOC Onshore - in June 2011 where he is currently Leading Firefighter in the Fujirah Terminal Division.

On being awarded his JOIFF Diploma, Ibrahim said "I am still eager to learn as much as I can for my profession."



#### Peter McMahon Dip.JOIFF

Operations Officer, Tactical Operations Training Unit School of Fire and Emergency Services Training (SFEST) Queensland Fire and Emergency Service Brisbane, Queensland, Australia

Peter McMahon joined the Queensland Fire and Rescue Service in February 2005. In 2007, whilst completing his studies as a junior firefighter, he started working for the Queensland Combined Emergency Services Academy, Live Fire Campus, to further increase his knowledge into compartment firefighting and petrochemical firefighting.

After 3 years of working part time at Live Fire Campus and reaching the rank of Senior Firefighter within the QFRS, Peter sat assessments and was promoted into the position of Compartment and Petro Chemical Fire Fighting Safety officer. This allowed him to start assisting with instructing course participants both internal to the Queensland Fire and Rescue Service and commercial/industrial clients. After filling this role for a further 3 years he was nominated by senior instructors and sat assessments to move into the position of Instructor for Compartment Fire Fighting.

12 months later Peter moved into a Petrochemical Fire Fighting Instructor position. The knowledge he obtained throughout this process assisted him in progressing in rank through Queensland Fire and Rescue to the rank of station officer in 2012.

Peter has now been working at QFES Tactical Training unit, Live Fire Campus, as a senior instructor for the past 2 years. During this time he has filled the position of Course Co-ordinator and Course manager for QFES Recruits and Internal QFES Operational Crews and he has undertaken training relating to Petroleum and Gas Act, being appointed to the position of Site Safety Manager under this act and currently fills the position of Operations Officer for the facility.

On being awarded his JOIFF Diploma, Peter said "Through my nearly 13 years in the Queensland Fire & Rescue Service I have prided myself on advancing my knowledge and sharing my knowledge with others. Recently completing my JOIFF Diploma has enabled me to further my knowledge to assist with my ability in petrochemical firefighting and enhances my knowledge to share with others in a training environment."



# JOIFF ROLE OF HONOUR

**DIP JOIFF CONTD...** 



#### **Craig Jones Dip.JOIFF**

Station Officer, Tactical Operations Training Unit School of Fire and Emergency Services Training (SFEST) Queensland Fire and Emergency Service Brisbane, Queensland, Australia

Craig Jones has been a professional firefighter for almost 22 years. In 1996 he joined the New Zealand Fire Service and worked his way up the ranks serving in Auckland where he was appointed Station Officer in 2006.

In 2013, Craig was able to secure a lateral transfer at the rank of Station Officer in the Queensland Fire and Rescue Service in Brisbane and he began working at The QFES tactical Training Unit – Live Fire Campus part time in 2015 and began a fulltime secondment as an instructor in 2016 delivering both compartment and petroleum based training to recruit firefighters and industry based commercial clients.

#### Chris Bezuidenhout Dip.JOIFF Training Practitioner Sasol Chemical Operations Secunda: Emergency Management South Africa

In 1986 as a scholar in high school, Chris had a passion for firefighting and wanted to join the fire department and therefore he enrolled as a volunteer in the municipal fire department. After completing his matriculation in 1988 he was employed as a junior firefighter in the municipal fire department (Nelspruit) whereby he progressed in his firefighting career.

Seeking new opportunities in the oil and chemical industrial firefighting field Chris was employed at Sasol Secunda in 2000. Progressing further in his firefighting career, in 2013

he was transferred to the department's training Division where he currently holds the position as a learning practitioner (fire service instructor) at Sasol Emergency Management Training Academy

Chris said about his position in the Academy "It is in the best interest of this stage of my career, to develop young enthusiastic firefighters into fully fledged firefighters and develop their skills in the technical rescue field."



#### Mauritz Trüter Dip.JOIFF

Leading Firefighter Sasol Chemical Operations Secunda: Emergency Management South Africa

Mauritz Gerhard Trüter started his fire-fighting career in 2010 at the Sasol Secunda Plant in South Africa. He still serves in the facility at the level of leading fire fighter. During his journey growing up in the fire Department he gained knowledge, experience and every call presented another opportunity to help him grow as a firefighter.

.....continued on next page



# JOIFF ROLE OF HONOUR

**DIP JOIFF CONTD...** 



#### Mauritz Trüter Dip.JOIFF contd

Being a firefighter is a great sense of joy and pride for Mauritz and it is clearly visible through his efforts, whether he lends a hand to a fellow fire fighter or teaches a recruit.

Mauritz has achieved several certificates related to his occupation including fire-fighting, rescue, hazmat, basic medical, Fire Service Instructor and Petrochemical Fire instructor. He believes that education and continued training is the key to skilled professional firefighters, thus he has already completed his IFE level 2 certificate, awaiting his Level 3 certificate results and is continuing with his studies and aiming to achieve his IFE level 4 certificate.

On being awarded his JOIFF Diploma, Mauritz said "Naturally when the opportunity to start with the JOIFF program presented itself, I eagerly signed up. I am proud to have earned my qualification and recommend it to all forms of industry, to broaden the skill set of their first responders".

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



Wayne Viljoen has 15 years of experience in the petrochemical firefighting industry. He started his career in 2003 at Sasol Chemical Operations where he joined as a firefighter in training. During the course of his career he has obtained firefighter qualifications such as B-Tech Degree in Fire Technology, Fire fighter II, Hazmat Technician, Vehicle Extrication, Advanced

Petrochemical Fire Instructor and Basic Ambulance Assistant, High Angle Rescue and Confined Space Rescue.

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

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

On being awarded his JOIFF Diploma, Wayne said "I would like to thank Sasol Emergency Management for the opportunities it has granted me in my career to develop as a competent fire fighter and the leadership skills I have gained through devoted firefighters within the Firefighting Industry. To the JOIFF organisation I say thank you for the opportunity to complete the challenging JOIFF Diploma. I would certainly recommend this program to anyone who wishes to further their studies, knowledge and experience in the fire service."

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

### Firefighting Foam and Emergency Planning School





4-8 JUNE 2018 CENTRO JOVELLANOS, ASTURIAS, SPAIN

Experience the special characteristics of firefighting foam, discuss potential hazardous scenarios, mitigation strategies and emergency planning.

To find out more and register, visit www.angusfire.co.uk



### 

### **COMMERCIAL EDITORIAL**

**BRISTOL Vehicles Manufacturing Division (VMD)** is one of the leading manufacturers of bodies for all types of commercial vehicles such as rescue vehicles, firefighting vehicles, ambulances & special vehicles.

Ambulance conversion can be carried on all type of vans, minibuses or four wheel drive vehicles. Each ambulance is designed specifically for the client's particular application and in relation to the chassis & specifications.

Firefighting Vehicles are specifically designed and built for the client's own requirement and specifications, complete with all equipment, accessories & rescue tools. The unit can be fitted on any suitable chassis of the client's choice. In addition, our ambulances & firefighting vehicles are designed in accordance with international standards and chassis specification.

Apart from firefighting vehicles & ambulances, VMD offers innovative

rapid intervention vehicles, service vehicles, & extendable vehicles. VMD also provides the highest quality of service maintenance & refurbishment. For decades we've been proudly supplying the United Arab Emirates police & Civil Defense, & several other government entities with world-class equipment and services. BRISTOL VMD is located in ICAD, Abu Dhabi, the division is housed in a 20,000 sq.m assembly plant, testing facility & warehouse to guarantee the supply of excellent products, delivering robust performance and maximum reliability.

Our commitment is to meet our customer's ever-changing needs has formed an innate pursuit of continuous growth & development. The company objectives are to be seeking through its quality management procedures, whose primary emphasis is on continuous improvements & developments of products & services to achieve the goals to maintain & maximize customer satisfaction.



### **COMMERCIAL EDITORIAL**

#### **Excellence through innovation - MARCÉ** Now clean firewater, first time, every time! Virtually irrespective of the quality of the source water.



With its Head Quarters based in Centurion, (in the province of Gauteng, South Africa), Marcé is the largest specialist Manufacturer and Exporter of Fire Fighting vehicles (ARFF and RIV) and allied supporting equipment and sub-systems in South Africa and across the African Continent.

Now, Marce' Fire Fighting Technology (Pty) Ltd are delighted to advise you of a brand new, innovative and mobile automatic filter system for firewater nozzles and spray nozzles!

One of the major complications on firewater systems is the blockage of spray nozzles and/or industrial fire truck nozzles. This problem has been innovatively solved by providing a custom designed, in-line automatic flushing strainer, also known as the In-Line Guard Screen (ILS).

The ILS is installed on the firewater line, which in turn prevents any oversized material from blocking or damaging downstream equipment and nozzles. The ILS (body and filter screen) can be manufactured from mild steel (rubber lined), 304 and 316 SS, depending on the client's specifications and nature of the firewater. Manufacturing from stainless steel prevents corrosion on the ILS, which is the main cause of blocked firewater lines.

This ILS system gives you more time-on- fire, as the time-to-refillwith-water enables your vehicle mounted system to draw water from almost any source, closest to the fire (stream, stagnant water, borehole, etc). Versatility is speed and speed saves lives at the fire!



MARCE' Mobile ILS as deployed at SASOL – the South African Oil, Gas and Chemical multi-national Group

#### Main Feature of MARCE' ILS:

- The ILS is custom designed for line sizes of 80 500 mm (3" 20").
- Can operate on pressures of up to 16 bar (232 psig) line pressure, with an acceptable slight low pressure drop over the ILS.
- Flow rate capacities per single unit range from 41 to 1590 m3/hr (683 to 26500 liters/min or 180 to 7000 gallon (US)/min).
- Standard screen cartridge apertures are 0,5 mm, 1 mm, 3 mm, 5 mm and 10 mm, alternatively we can be contacted if any special aperture sizes are required (Minimum 180 μm).
- Can be fully automated to integrate with the current control philosophy
- Featuring a separate solids (debris) outlet, to remove unwanted particles from the water line during operation.

#### Specifications of the new mobile MARCE' FIREWATER ILS

- Number of screens
  4 off
- Maximum capacity per unit 10 000 l/
- Maximum total capacity

Materials of construction

Operating pressure

Screen aperture size

- Design pressure
- 12 bar 16 bar
- 500 microns

40 000 l/min

In-line screen Body - 304 SS, Screen cartridge- 316 SS

min

The ILS Filtration system was mounted on a suitable 4 x 2 freight carrier chassis that can move the unit to the required area of operations. Due to the unique nature of this application, the carrier load capacity, stability and reachability was finely tuned. The Marcé team can customise your solution, to ensure the best result for your applications.

By using the Marcé ILS Inline Guard System, you will ensure that only clean firewater reaches the incident and debris is eliminated before damage or blockage can occur, prolonging your usage cycle and reducing life cycle costs.



Stainless Steel with the ILS In-line guard screens

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 Only one person required for long distance hose collection

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The Hytrans Fire System is developed for long distance and large scale water transport, and has proven performance in:

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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.

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

Graduate of JOIFF is awarded to a person from any JOIFF Member Organisation who has a minimum of 5 years full time service in an emergency response role and has shown professional attainment in Industrial Hazard Management activities.

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

The highest award that JOIFF can bestow is FJOIFF JOIFF Fellowship. This is awarded by recommendation of the JOIFF Board of Directors to an individual who has made an outstanding contribution to Industrial Hazard Management activities in support of JOIFF.

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

### **COMMERCIAL EDITORIAL**

### **GEXCON PURCHASE FALCK NUTEC FACILITIES AT SOTRA**

Gexcon AS has purchased and taken over Falck-Nutec's fire-training and course centre at Steinsland in the county of Sund with effect from 1st December 2017.

Falck-Nutec has, since 1995, operated their activities at Steinsland as a training and course centre for fire and emergency preparedness services to the offshore and maritime industries. Falck-Nutec have their core competence in prevention, handling and learning from critical situations. Falck-Nutec do this through training, advisory services and assistance. With over 30 years of experience from the oil & gas and maritime industries, Falck-Nutec has established a solid name and reputation.

Gexcon is a global company with significant knowledge, experience and world-leading technology and software in the field of fire and explosion safety, dispersion and risk management. Gexcon is a daughter company of CMR and established, in the early 1980s, a test facility at Børnesskogen, near Klokkarvik, located approx. 15 minutes' drive from Steinsland. Gexcon has expended and upgraded these facilities over the last 4 years in Sund county and currently progressing with plans for establishing a test facility for jetfires for over 30 million NOK.

Managing Director in Gexcon AS, Sturle Harald Pedersen, is very satisfied with the current agreement now established with Falck-Nutec that allows the use of the test facilities at Steinsland, of approx. 8 hectares (~32 acres), to be continued and the significant investments that have been made there to be further utilised.

The facilities at Steinsland, including the infrastructure for fire testing and demonstration and lecturing/coursing facilities, supplement Gexcon's own test site and plans at Børnesskogen and provide good synergy effects and increased services can be offered with improved use of resources. Gexcon will work closely with Falck-Nutec in order to further develop competence and services, not only to the offshore O&G industry but also to land-based industry and authorities.

Falck-Nutec will also continue to provide their safety courses and training activities, as previously, but now as a tenant of Gexcon. Managing Director for Falck-Nutec, Aasmund Erlandsen, is also pleased that it has been possible to find new owners who are able to further develop Steinsland and with whom Falck Nutec have had a good cooperation for many years.

Any questions should be forwarded to Managing Director Aasmund Erlendsen in Falck-Nutec and/or Sturle Harald Pedersen in Gexcon AS.



### 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 ableskilled 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

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.

#### JOIFF ACCREDITED COURSES

Course	Dates	Venue/Organiser	
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) Crisis Management & Emergency Response for the Oil & Gas Industry	As required.	Arc Fire Training United Kingdom On your own site. Subject to Risk Assessment & Facilities. arcfiretraining@ntlworld.com	
Site Forward Controller (SFC) Site Incident Controller (SIC) Site Main Controller (SMC) Silver representative at Tactical Command Group (TCG) Crisis Leadership Crisis Risk Radar Crisis Spokesperson	As required.	Eddistone Consulting United Kingdom On your own site or at Eddistone Training Suite. <u>opportunities@eddistone.com</u> Tel: +44 1433 659 800	
Industrial Fire Brigade Incident Commander Course (IFBIC) 5 days	3-7 Sept 19-23 Nov 10-14 Dec	<b>Falck Fire Academy,</b> Rotterdam, Netherlands <u>fireacademy@falck.com</u> Tel: +31 181 376 666	
Industrial Fire Team Leader (IFTL) 10 days	18-29 June 29 Oct - 9 Nov		
Foam School 2018 Vernon, France 5 days	19-23 March	<b>H2K Netherlands</b> p.deroos@h2k.nl	
Tank and Bund Fires Rotterdam 3 days	12-14 June	Tel: + 31 174 414 872 +31 651 588 089	
Firefighter Training 2 days	10-11 April 16-18 May	The International Fire Training Centre Durham Tees Valley Airport Darlington DL2 1NU Contact: 01325 331125 email: bookings@iftc.co.uk	
Firefighter Training 3 days	21-23 Feb		
Firefighter Team Leader Training 5 Days	12-16 Feb 1-5 Oct		
Firefighting Foundation course 10 days	5-16 March 11-12 June	International Safety Training College, Malta Tel: + 356 2165 8282 + 356 9990 5211 email: sales@istcollege.com.mt	
Fire Team Member 3 days	29-21 Jan 26-28 March		
Fire Team Leader 5 days	29 Jan - 2 Feb 26 Feb - 2 March 2-6 April		
HTS Awareness 1 day	Jan 31; Feb 2,7,9 Please contact for full list of 2018 dates	Yassine Marine Services YMS	
Foundation Course 4 days	Feb 21-24 Please contact for full list of 2018 dates	Training Centre Sfax; Tunisia Tel: + 216 36 408 290 email: yms.training@ y.marineservices.com	
Fire Team Member 3 days	Feb 5-7, 12-14, 19-21, 26-28 Please contact for full list of 2018 dates		



### **Sky Mantis** Long endurance Emergency Response UAV platform

- 1 hour true flight time (normal conditions)
- 30X zoom RGB HD camera
- Dual cameras: thermal/IR + 30X zoom HD
- 5km secure low latency video link
- 6.5Kg all up weight
- 30 seconds from bag-to- air
- Ergonomic, rugged remote controller
- Rapid battery swap

#### Available options and add-ons:

- Triple camera gimbal
- Additional rugged video screens
- 640x512 30 FPS thermal / IR
- 1024x768 HD thermal / IR
- 20 Km video streaming
- Encrypted local high resolutoin video recording
- All around collision avoidance

- Rugged carry back pack
- 50 Mph wind capable (reduced flight time)
- Secure encrypted video stream
- Extra stable landing (no flip-over)
- Weatherproof
- Straight up / straight down view
- 225° adjustable viewing angle
- Modular upgrades



### Field to Cloud live video streaming

- Live video stream from the UAV to anywhere in the world
- Secure encrypted link
- Browser based stream viewing (encrypted/secure HTTPS)
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- True real time 1 second delay / lag
- View anywhere in the world



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### **DIARY OF EVENTS**

#### January

	21-23	Intersec, Dubai, UAE
	31 - 1 Feb	Securexpo East Africa, Nairobi, Kenya
Feb	•	
	6	JOIFF CLG 2017 AGM, Dublin, Ireland
March		
	20-21	Securex, West Africa, Lagos, Nigeria
Apr	il	
	<mark>23-</mark> 28	FIDC, Indianapolis, USA
Mag	у	
	22-24	Securex South Africa, Johannesburg, South Africa
Jun	e	
	4-7	NFPA Conference and Expo, Las Vegas, USA
	19-21	IFSEC International, London, UK
Sep	tember	
	19-20	Emergency Services Show, Birmingham, UK
Oct	ober	
	2-4	Fire and Disaster Asia, Singapore
	28	JOIFF CLG 2018 AGM, Malta
	29-31	JOIFF International Fire & Explosion Hazard Management
		Conference, Malta
Nov	vember	
	10-16	Conference on Forest Fire Research, Coimbra, Portugal

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.

#### JOIFF Secretariat:

Fulcrum Consultants ~ in Partnership with JOIFF P.O. Box 10346, Dublin 14, Ireland Email: joiff@fulcrum-consultants.com Website: www.fulcrum-consultants.com