

# The Catalyst

The Official Newsletter of JOIFF

March 2001

## WELCOME TO THE FIRST EDITION OF THE CATALYST

**W**elcome to this first edition of THE CATALYST, the Newsletter of the Joint Oil and Industry Fire Forum - JOIFF. The choice of the colour green for the Newsletter masthead reflects the commitment of members of JOIFF to protecting and improving the Environment.

The word "catalyst" is defined in the Oxford English Dictionary as "a thing that precipitates change". We hope that THE CATALYST will do just that, by becoming a voice in High Risk Industry Worldwide working towards safer Working Environments, particularly for Emergency Services personnel. We hope to carry articles and opinions of a Technical nature as well as advising our membership of the activities of JOIFF as it strives to develop and grow. As you know, we recently started a drive for more members because if the Organisation does not grow, it will die. As well as this, the more members that we have and the

more people that become involved, the greater will be our influence in making changes and improvements in peoples attitudes, regulations and Standards that effect the way we all work.

Some of the articles in this first edition address some of the issues that effect the working environment of members and we thank the authors for their contributions. If you would like to comment on any aspect, please do so and we will start a comments/letters column in future editions.

We greatly appreciate the support of our two Sponsors for this first edition, G.D. Protective Clothing and Equipment Ltd., Dublin, Ireland and Serco International Fire Training Centre, Teesside, England. G.D. Protective Clothing and Equipment Ltd. are part of the Dublin, Ireland based G.D. Group of Companies and they manufacture a range of clothing to protect against Heat and Flame including

protective clothing for Firefighters and flame retardant Station Wear. As well as its own range of purpose designed Protective Clothing, G.D. Protective Clothing and Equipment Ltd. supplies a full range of quality PPE including Firefighters helmets, fire hoods, gloves and boots.

Serco International Fire Training Centre (IFTC), Teesside is currently the only recognised Training Provider for JOIFF accredited Courses and detail on the IFTC is included in a separate article in this edition.

We hope to circulate THE CATALYST to members and friends quarterly and welcome any contributions on relevant subjects.

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## ABOUT JOIFF

**J**OIFF, the Joint Oil and Industry Fire Forum, is a grouping of Companies in High Risk Industry, represented by their Emergency Services Manager - or equivalent position - and nominated Deputies.

A JOIFF High Risk Industry is considered to be any Organisation that is engaged in processing, storage, handling and/or transport of high risk materials and that has nominated personnel as Occupational Firefighters / Emergency Responders.

## JOIFF TRAINING STANDARDS

**W**ith very few exceptions, one of them being the Offshore Oil Industry, another the Civil Aviation Industry, there is no accredited Fire Training for Industrial Emergency Services personnel. Most of such Training that is carried out results in Certificates of Attendance which really have no relevance when trying to establish competencies. In 1999, the members of JOIFF appointed a Training Standards Committee (TSC) who, since then, have been working in partnership with Fulcrum Consultants as the JOIFF Training Standards Group, to establish Training for Emergency Services personnel which they would accredit.

The Training being developed is within a Competency Based Training (CBT) framework. CBT for Emergency Services Personnel is a system of Training with the key objective of the development and use of training and assessment systems that contribute to the efficient delivery of services whilst reducing to the lowest possible levels, risk to the employing Organisation, its staff and equipment, the local Community and the Environment. The JOIFF Training Standards Group initially looked at the Training of Firefighters in High Risk Industry and

have developed a number of Courses for both full time and auxiliary Firefighters. All members of JOIFF have been issued with a copy of the JOIFF Training Manual which gives detail of the system of CBT that is aimed for and the Aims and Objectives of the Courses currently accredited. Work on the development and accreditation of further Courses is ongoing as needs are identified.

JOIFF accredited Courses currently available are: Full time Firefighters Basic, Auxiliary Firefighters Basic, Breathing Apparatus Wearer, Crew Leader, First Aid at Work, Confined Space Training and 1 and 2 day Practical Firefighting Courses. Courses currently being finalised are Emergency Planning Courses for Incident Controllers and others likely to be involved in emergencies, Hazardous Substances Courses, Maintenance and Inspection of Electrical Equipment in Hazardous Areas and Fire Extinguisher Instructor Course. Most courses are generic Courses, but where required, site specific Courses are considered for JOIFF accreditation.

All JOIFF Certificates of Qualification have their own unique number and

JOIFF offers the following to its members:

1. Discussion Forum
2. Accredited Training
3. Information dissemination
4. Technical Advisory Group

JOIFF welcomes applications for membership.

For more information, contact the JOIFF Secretariat:

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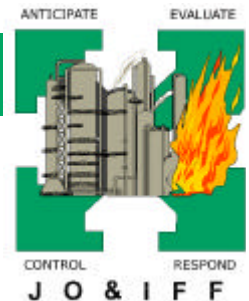
Website: [www.gdgroup.ie](http://www.gdgroup.ie)

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records of all successful Students and the Courses in which they qualify are retained. It is hoped that as JOIFF grows in size and in stature, the JOIFF Certificate of Qualification will be accepted Worldwide and when for example JOIFF qualified persons are seeking new employment, their JOIFF Certificate of Qualification will be regarded as their passport to the level of employment and rank which their qualifications enables them to deserve.

Course content alone is not sufficient as also critical to the effective provision of Training are the facilities of the Training Provider and the capabilities of the Instructing Staff. The JOIFF Training Standards Group are therefore developing systems of accreditation for Training Providers and minimum Instructional requirements for Instructors.

As will be seen from the above, the task being undertaken by the JOIFF Training Standards Group is wide ranging and has major significance to the future of Emergency Service personnel in High Risk Industry and their competencies and acceptance in the World of Fire Safety and Rescue.



## JOIFF ACCREDITED TRAINING

The first JOIFF accredited Training Courses took place during December 2000 and continue during this year. Congratulations to the following Organisations who now have JOIFF accredited Emergency personnel for the Course listed:

### Auxiliary Firefighter

- Arjobex, Essex.
- BP / Johnson Controls,

Sunbury.

- BP/Amoco, Sunbury.
- Conoco Refinery, Humberside.
- Lindsey Oil Refinery,

Humberside.

### Breathing Apparatus Wearer

- ENRON, Teesside.
- BP / Johnson Controls,

Sunbury.

### Crew Leader

- BP Chemicals Hull.
- Conoco Refinery, Humberside.
- Elf Refinery, Milford Haven.
- ENRON, Teesside.
- ESSO Refinery, Fawley.
- Lindsey Oil Refinery,

Humberside.

- MOL, Hungarian Oil, Hungary.
- Phillips Petroleum, Teesside.
- Shell Refinery, Ellesmere Port.
- Texaco Refinery, Penbroke.

### Practical Firefighting 1 day

- ENRON, Teesside.

### Practical Firefighting 2 day

- BP / Johnson Controls,
- Sunbury.

- ENRON, Teesside.

The JOIFF Training Programme for the year 2002 is already under consideration and will be available in September 2001.

Please contact [Fulcrum Consultants](http://www.fulcrumconsultants.com) if you have any specific Training requirements.

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## PERSONAL PROTECTIVE EQUIPMENT (PPE): SELECTION, USE, CARE AND MAINTENANCE

Since the early nineties, CEN, the European Organisation for Standardisation, has produced a large number of Standards on PPE based on requirements in European Directives published in the late 1980's. These Standards were primarily drawn up to create an open European market for PPE, which was typically until then, a Nationally Standardised market and they have certainly helped to improve the efficiency of PPE on the European market.

All these Standards have helped producers, distributors and laboratories (notified bodies) in the design and certification of the PPE. For the Users, on the other hand, the Standards are not always as clear and in several cases, they offer different performance levels which makes it harder for the User to select the correct PPE. Important topics such as care and maintenance of the PPE are hardly addressed in any of the Standards.

With the experience gained during the past years in the use of the Standards, many of them are currently under revision. But selection, use, care and maintenance are still not included in the Standards although several Working Groups of CEN preparing PPE standards do acknowledge the need for such guidance for users on these issues. One of these working groups is CEN Technical Committee 162 Working Group 2, responsible for protective garments against heat and flames, which recently decided to establish a Project Group to produce a technical document dealing with these important issues primarily for the Users of these types of

PPE.

This document will be User friendly and will address every part of the life cycle of the PPE, starting from the selection and ending with the disposal of the used protective garments. In annexes there will be examples to show how the link can be made between the risk and the designated standards and performance levels.

Although the document is not intended to give guidance on risk assessment, this is a crucial step in the selection of the correct PPE. With the information of the risk assessment, the Safety Manager can start the selection of the PPE taking into account the level of protection needed. The selection process can include wearer trials - not to test the protection level, but to compare e.g. the comfort of different styles of garments or to test the compatibility with other types of PPE needed. During the selection process, questions on the availability of training and service - both technical and logistical - should also be answered. Care and maintenance should be an important part of the selection process, since this will determine the lifetime and the safety of the PPE during the period of use.

Once the PPE delivered, it is important to make sure that Wearers have proper training in using the protective garments. The Supplier's information brochure delivered with the PPE can be a help in this training, but also other means should be considered, depending on the complexity of the protective garments. Wearers certainly need to be aware of the limits of the protection provided by the PPE and



need to know how they can evaluate the efficiency during the use.

The protection offered by the new garment has to be guaranteed during the lifetime of the garment. This means that the employer needs to consider care and maintenance thoroughly. Storage, cleaning, repair will influence the performance of the garments and thus need to be managed by the User in order to guarantee the safety of the wearers of the PPE. Once the garments are out of use, the disposal must be arranged in a safe and environmental friendly way. These points will be addressed in the CEN technical document which will give guidance to the employers in these matters.

Even if it is impossible to give a clear answer to each specific situation - and these are as different as Companies differ - the CEN technical document will give guidelines and checklists to assist the Employer in making the right choices. And this can only help to improve the safety of workers in Europe.

## TEST AND SURVIVE

*A few kilometers outside Geneva, Du Pont has opened a new European test facility for clothing designed to provide protection from accidental electric arcs. Roger Dettmer has been to see it in action.*

The alarm bell begins to ring, and a red light flashes. You're standing well back with your eyes shielded by a thick plate of darkened glass. In your head you know it's completely safe, but a sense of nervous apprehension is inescapable. A technician throws a switch and a 15kA arc rips across the gap between the electrodes on the test rig. There's an incandescent burst of light, the loudest bang you've ever heard and a shock wave that rattles the roll-up door of a nearby garage. If any members of the party being shown Du Pont's new Arc-Man™ test facility had previously doubted the destructive potential of an electric arc accident, then such doubts have been well and truly dispelled. On the test rig, a mannequin clothed in a double layer jacket is shrouded in thick acrid smoke. Closer inspection reveals that the outer layer of the jacket has been almost completely carbonised but, remarkably, the inner layer

appears unscathed. No worker operating in close proximity to such an arc would escape physical shock, but the danger of serious burns from flaming work clothing would seem to have been averted. Electric arc accidents are mercifully rare, but pose a serious risk to all those employed on electrical installations. Although arcs may only last a fraction of a second, in this short time they can release more energy than a flash fire incident lasting ten or twenty times longer. As a result, while the temperature of a severe flash fire is about 1300oK, an electric arc can reach ten times that figure, over twice the surface temperature of the Sun. A worker involved in an electric arc incident will be exposed to multiple hazards. The associated shock wave can rupture eardrums and throw a worker across a room, metal splatter from melting conductors can cause deep skin burns and, most serious of all, work clothing can catch fire. Almost invariably, fatalities in arc accidents are the result of second and third degree burns caused by burning clothing.

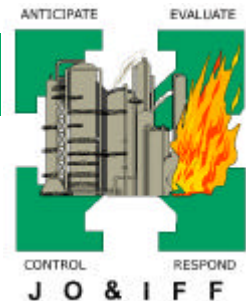
The obvious answer, and the answer enshrined in legislation, is to ensure that on those occasions

*This article was written by Henk Vanhoutte of Belgium, who is co-convenor of the project group dealing with the selection, use, care and maintenance of clothing providing protection against heat and flame. Henk is a textile engineer with several years experience in textiles, garment production and industrial laundry. After a number of years as R&D manager for one of the leading European producers of protective workwear, he started his own consultancy Company in 1998. He represents BIN, the Belgian Standardisation Organisation on TC162 WG2 and he can be contacted through the JOIFF secretariat.*

when live working is absolutely unavoidable, workers should be provided with personal protective equipment (PPE) to prevent injury in the event of an accident. In practice, arc accidents vary considerably in their severity and it is no simple matter to select PPE that is both comfortable for the wearer and which matches the level of assessed risk. Du Pont's Arc-Man™ is intended to facilitate the correct provision of PPE by helping garment manufacturers to design clothing which matches specific hazard levels and operating conditions.

The Arc-Man™ test rig has been designed around the specification for electrical protective equipment for workers devised by the American Society for Testing and Materials. A similar international norm now exists, IEC 64182. Arc-Man™ is designed for testing both fabric samples and complete garments at exposures of up to 20kA, with a maximum duration of 1s for both single and three-phase arcs. Built-in temperature sensors on the 'skin' of the mannequin mean that it is possible to predict whether a garment could prevent second degree burn injuries.

Du Pont is already exploiting the



results of the Arc-Man™ test program within its own facilities. In 1995 there was a serious arc accident at Du Pont's Uentrop plant, in Germany. In the aftermath of this accident, Du Pont undertook a detailed assessment of levels of exposure to arc accidents across

all of its 25 production sites in Europe. Today, Du Pont electricians are provided with a simple checklist, which details the specific level of PPE to be worn when working on different equipment.

This article first appeared in the IEE Review July 1998 and is reproduced with permission

## POCKET (HAND HELD) PCs.

**R**ichard Coates, Group Fire Advisor of BP Amoco, one of the founders of JOIFF, has sent us a warning regarding adaptors for particular brands of pocket PCs. Some of these units are not fused - they have basic passive adaptors to convert from US to UK plugs - and when plugged into 32A circuits as are present in many Offices in the U.K., they can be extremely risky both in terms of fire and personal injury. He reports of at least one incident where a power adapter literally went bang in someone's hand as the individual had plugged in what was an 110 volt adapter into the 240 volt supply with an illegal unfused adapter.

The correct solution to charging one of these pocket PCs in non USA 110 volt situations is to push the built-in 2 pin plug into an MK 1 amp shaver flat faced adapter and then into the 240 volt mains supply. MK shaver plugs are correctly fused with 1 amp fuse - although this should always be checked - and shuttered. This issue does not apply to pocket PCs fitted with the large fused UK adapter 3 pin plug.

It was also noted that the same system is used by some

Mobile Phone manufacturers. If your mobile phone has a cable and not a adaptor type plug, then it should have a fuse of 2 amps fitted in the plug top and this is OK. If it has an adaptor to fit 240 volt sockets it may not be protected by a fuse. A lot of electrical items are made in Asia and it is therefore important to check voltage as in USA the voltage is only 110-115 volts. Most homes have the wrong fuse fitted to electrical items as most leads are supplied with a 13 amp fuse as standard. This should be replaced with a fuse closest to the rating of the item in use.

RCD protection is not normally provided in homes and hotels and so anyone using pocket PCs, Mobile phones and laptops should ensure adapters as noted are obtained and used. Many of the adapters being purchased, mainly at airports, have no fuses or shutters and are illegal in the UK. All adapters should be inspected and marked where a competent electrician is available.

## MICROWAVE CAUTION

### Incident:

A member of JOIFF has sent us details of a person who regularly used his microwave to heat up a cup of water from the tap for instant coffee. The person does not remember for how long he set the timer on this occasion, but he did want the water to boil. When the timer shut the oven off, he removed the cup from the oven and he was surprised to see that the water did not appear to be boiling. Instantly, the water in the cup "blew up" into his face, the cup remaining intact. He suffered 1st and 2nd degree burns to his face and has possibly lost partial sight in his left eye.

### Recommendation:

The doctor attending the injured person in hospital said that this was a regular occurrence and water alone should never be heated in a microwave oven. If water is heated in this manner, something such as a wooden stir stick, tea bag etc. should be placed in the cup to diffuse the energy although a much safer choice to boil water is to use a kettle.

### Explanation:

The sudden boiling "explosion" below the surface occurs when water heats to its boiling point but there is no suitable place for bubbles to form i.e. a rough or pointed location. When suddenly agitated, as happened when the cup was lifted out of the oven, the latent energy can literally explode out. This can occur for example, with new unscratched smooth glass or porcelain lined pots or pans.

Be warned !!!!

Students at the first JOIFF accredited Crew Leader Course held in the International Fire Training Centre, Teesside from 4th - 8th December 2000.



## FATAL ACCIDENT

One of the members of JOIFF sent in this report of a most unfortunate accident that happened on his site.

### Events leading to the Accident:

The driver of a fork lift had been asked to remove materials from an area on site, as work being carried out there had been completed. The driver removed two pallets with hose on them and he returned to collect the last load of hose. This was not on a pallet so the driver coiled the hose over the forks and then lifted the forks up into the air so the hose did not drag on the ground. This impaired his vision for driving.

He drove on the left hand side of the road when he came up to a parked trailer so he pulled out to the right to pass it. In front of him on the right hand side of the road another trailer was parked, so he pulled back to the left hand side when he had passed the trailer. At that point, the fork lift struck a pedestrian whom the driver did not see and the pedestrian was fatally injured.

### Critical Events.

1. The driver's visibility was restricted.
2. A pedestrian was walking on the road.

### Contributory Factors.

1. The vehicle was quiet - the noise differential between the vehicle and background noise was 2db.

2. Insufficient attention was being paid to Road Safety, specifically to segregating pedestrians and vehicles.
3. One of the main problems was that like on many High Risk sites, there are no pedestrian foot paths beside site road ways.

### Root Causes.

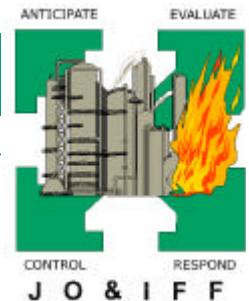
See table 1.1 below.

### Action Steps.

1. If transportation and lifting of materials and equipment is part of the job, it must be specified in a Work Procedure.
2. When moving plant in operating areas consider the use of an assistant.
3. Introduce a programme on site to challenge unsafe behaviours.
4. Extend the principles of the Highway Code to the site road system.
5. Re-educate personnel on enforcing road safety standards for vehicles and pedestrians.

Root cause category	Root Cause	Specific Description
People	Unclear Accountability Responsibility	When the last load was prepared it was not on a pallet. The hoses were coiled round the forks and the forklift travelled with the boom in the horizontal position, which impaired visibility. The responsibility for the job was unclear.
Procedures	Standards, Policies, Admin controls Confusing or incomplete	Pedestrians aren't instructed what to do when walking on certain roads on site. The safety management system is incomplete because it covers vehicles but does not include pedestrians

Table 1.1 Root Causes of Fatal Accidents.



## Mrs. Merton's Column

No, I am not Mrs. Merton, but those of you who have watched her TV Show will remember that one of the features on that show was introduced by her with the phrase "Let's have a heated debate"! The Editors of The Catalyst have asked me to start a forum for heated debate because they ask what is the point of having a Newsletter called The Catalyst if it doesn't change anything? And to create change, we need discussion and input so the purpose of this column is to try to stimulate a "heated debate" amongst the readers of the Newsletter. Let me hear from you with your comments on relevant subjects about which you feel strongly and where you would like to see change. Views will be aired through this publication and who knows, maybe we will get a sufficient consensus about a subject to allow a position to be taken that will try to bring about change.

To start the ball rolling, our heated debate for this first issue is Chemical Protective Clothing. Have you ever wondered have any of the Manufacturers of such clothing ever worn it? If they have done, do you think that they would continue to use such technology? Only those who wear such protection know how boil in the bag rice feels. Good on Uncle Ben though, at least he makes no secret of what the rice is going to be subjected to when it is called on to do its duty!!

Most of the incidents that occur in High Risk Industry and involve Emergency personnel would appear to be incidents involving hazardous substances which means that chemical protective clothing of one sort or another must be worn. So on a regular basis, our people have to kit up in their boil in the bag protection. What makes things worse is when the chemical concerned is flammable, because as we know, most chemical suits are not fire resistant. So what happens on these occasions is that the Emergency Crew must wear Fire kit underneath their chemical suit which makes things even more difficult for the poor unfortunate in the suit.

I could go on - but that's up to you. Let me know if you have any comments on this or on any other subjects and let us see if we can really ensure that The Catalyst can stimulate debate and aim for change.

## SERCO INTERNATIONAL FIRE TRAINING CENTRE

**S**erco International Fire Training Centre has been delivering training to the fire industry in excess of 50 years. It has a complement of staffing levels of 12 full-time and 4 part-time Instructors who have been recruited from various backgrounds. All the Instructors have, or are working towards, the CGLI 7306 Adult Tutor qualification and TDLB D32/D33 Assessor qualification. The support staff are all trained, or undergoing training, to firefighter level thus ensuring that there is a full understanding during the practical fire scenarios.

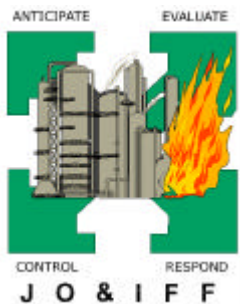
On the introduction of the National Vocational Qualification system we began the process of vocational qualification for all our staff, fully

realising that the training world was moving to a competence based training. Our main forte for many years has been the delivery of aviation training to all airports within the UK and 80 different countries overseas, however since privatisation we have been diversifying into all areas of fire training and have developed our fireground to meet the needs of this process.

Our fireground has 160 different scenarios, many of which have been specifically designed to meet the needs of industrial firefighting. We have the ability to burn kerosene and liquid petroleum gas. The systems are designed to be operated to a high safety level and can be brought into total control in under five seconds.

Our range of course programmes many of which are generic, can meet most customers needs, however our policy has always been to work with organisations such as Fulcrum to develop specific courses as defined by the customer.

To successfully deliver these courses we are involved with organisations such as Darlington College of Technology in the development of NVQ qualifications for fire personnel, namely C24, C25, TDLB D32/D33 and Preliminary Institute of Management. We are also working closely with the National Training Centre for the Police on 'Scenes of Crime' investigation and Disaster Management. In conjunction with other organisations we have carried out marine training and are



approved by the Marine Safety Agency (MSA) and the Offshore Petroleum Industry Training Organisation (OPITO). We have cross-mapped our courses and are approved by the Institute of Fire Engineers which means that on successful completion of courses at IFTC the candidate can apply to be issued with a preliminary certificate at the lower level or an Aero Studies Fire diploma at the higher level.

We have nine classrooms equipped with the latest computer presentation aids including Overhead Projection, Slide Projection and Video Presentation. On the fireground we have three further classrooms which can be utilised for pre-brief and de-brief of fireground exercises and contain tea/coffee facilities. The

fireground classrooms contain Whiteboards and Overhead Projection.

Our accommodation facility has 85 bedrooms, most of which are en-suite. This facility is open seven days per week and we serve three hot meals a day dependent on customer needs. We have a fully equipped Gymnasium and the 'Phoenix Bar' is open every weekday evening and can be open at weekends if required. Students have the facility of a computer suite to enable them to develop presentation material as their course requires it.

IFTC is investing heavily to develop a further range of fire related training courses to meet the whole of the industry's needs. We can, and have, delivered Risk Assessment, Fire Warden and Fire Extinguisher training to meet the Workplace Regulations recently introduced and Fire Prevention courses to meet industrial requirements.













We have recently acquired the services of an IT professional and are reviewing the possibility of developing computer training for Fire Service personnel and possibly those outside the Fire Service.

The strategic development of IFTC will remain a priority for the International Fire Training Centre management team.

## JOIFF ACCREDITED TRAINING FOR 2001

There are some dates/places available for the following Training Courses from the middle to the end of this year -2001. Members of the JOIFF Training Standards Group are at the final stages of discussions with Training Providers in the Midlands and South of the United Kingdom and expect that JOIFF Accredited Courses will be held in those locations. Also, for Overseas Courses, accredited Instructors are available.

Please contact [Fulcrum Consultants](#) -details at the bottom of this page - with your enquiries and requirements. Non-JOIFF members are welcome to apply to send personnel on these Courses.

-  *JOIFF Accredited Fire and Explosion Hazard Management Diploma Course for Emergency Services Managers.*
-  *5 day JOIFF accredited Crew Leader Course.*
-  *2 week JOIFF accredited Basic Course for full time Firefighters.*
-  *3 day JOIFF accredited Basic Course for auxiliary Firefighters.*
-  *5 day JOIFF accredited Breathing Apparatus Wearer Course.*
-  *3 and 4 day JOIFF accredited Confined Spaces Course.*
-  *2 week JOIFF accredited Breathing Apparatus Instructor Course.*
-  *1 and 2 day JOIFF accredited Practical Firefighting Course.*
-  *4 day JOIFF accredited site specific Hazardous Substances Course.*
-  *½ day and 1 day JOIFF accredited Emergency Planning Courses for Incident Controllers, Main Controllers and Support Teams.*
-  *1 day JOIFF accredited Course on Maintenance and Inspection of Electrical Equipment in Hazardous Areas.*
-  *3 day JOIFF accredited Fire Extinguisher Instructor Course.*

### *JOIFF Secretariat:*

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