The Catalyst

October, 2010

About JOIFF

Membership of JOIFF, the Organisation for Emergency Services Management is open to any Organisation which is a high hazard industry and/or has nominated personnel as emergency responders/hazard management team members who provide cover to industrial/ commercial organisations.

Organisations which do not fully comply with these requirements are welcome to apply for Corporate Membership of JOIFF.

JOIFF provides a forum for discussion amongst peers, accredited training specifically developed for the sectors in which JOIFF members operate and technical advice through the JOIFF Standard and the JOIFF Shared Learning network. JOIFF welcomes enquiries for Membership - contact the JOIFF Secretariat

From the Editors

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

In the April 2010 edition of The Catalyst we published an article on the future of Firefighting Foam by Mike Willson, Consultant. In the following edition, July 2010, we printed a response to that article from Steve Smith, Solberg. Due to the serious importance to JOIFF Members of current and future issues with regard to the use of Firefighting foam, in this edition, Mike Willson is given the opportunity to reply to Solberg's response.

Note to JOIFF Members:
To compliment the JOIFF Shared Learning network, JOIFF has recently opened a JOIFF discussion group for Members, on LinkedIn. Representatives of JOIFF Members are invited to register on the new JOIFF LinkedIn site. JOIFF hopes that the first topic to be discussed on the new LinkedIn group will be a continuation of this debate and this medium will allow representatives of JOIFF Members to participate in the debate and to raise other issues that they would like to discuss with JOIFF colleagues. Representatives of JOIFF Members who require detail on how to register, should contact the Secretariat.

We encourage our Readers to circulate The Catalyst amongst their colleagues and interested parties and we welcome any comments.

New Members

During July, August and September 2010 the Executive of JOIFF were delighted to welcome the following new Members.

Full Members
BP Lingen Refinery, Germany, represented by Helmut Wekenborg, Head of Fire Brigade and HSSEQ Manager and Sebastian Schulte, Deputy Head of Fire Brigade. A team of Full Time Emergency Responders provides protection to the Refinery.
Metropolitan Fire & Emergency Services Board, Melbourne, Victoria, Australia represented by Dan Gatt, Acting Commander Capacity Development. The Metropolitan Fire Brigade covers more than 1,000 square kilometres, protecting almost four million Melbourne residents, workers and visitors, as well as billions of dollars of assets and infrastructure. MFB firefighters

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

.....New Members Contd.....

are the first to respond to Fires, industrial accidents, motor vehicle accidents, hazmat Incidents, USAR and high angle rescue incidents, marine spills (inland waters and Port Phillip Bay) and specific medical emergencies under the Emergency Medical Response First Responder Program (EMR).

SONARCO, Algeria, represented by Andrew Clarke & Rhydian Evans HSE Advisors. Sonarco is a joint venture between Sonatrach and BP, employing approximately 650 people to operate the Rhourde El Baguel oil field, which is located approximately 85 km. east of Hassi Messaoud / 720 km. south east of Algiers, in the Sahara. A team of full and part time Emergency Responders provide cover to the site.

Corporate Members

Fire Fighting Technologies International Pty Ltd., Sydney, NSW, Australia, represented by Nicolas Souchaud, Sales and Marketing Manager and Arnaud Diemont, Director. FFT is the exclusive Distributor in Australia and New Zealand of the Hytrans Volume Pump System.

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

tyco Fire Suppression & Building Products

SKUM TOWALEX ARC 1x1 Master

High Performance Fire Fighting Foam Sets a New Standard

By John Allen

Tyco has developed a new range of high performance fire fighting foam concentrates, one of which, our 1x1 foam product, is now released under the SKUM TOWALEX ARC 1x1 Master, product name. This new foam product will challenge our competitor's 3x3 foam product system solutions and offers better performance with savings via reduced delivery system requirements, less installed space needs and smaller foam concentrate volumes, for the same hazard protection schemes.

Tyco is at the forefront of performance and value driven innovation, with several world renowned foam R&D credits to its name and the leading foam brands in its portfolio. Driven by a continued commitment to quality, sustainability and value, and after assessing the industry's reaction to 'environmentally' driven new product derivatives, Tyco has introduced the SKUM Towalex ARC 1x1 Master foam product range. Unlike traditional alcohol resistant foams the 1x1 product is a high performance, very fluid, Newtonian viscosity foam. The 1x1 foam is ideally suited for accepted applications such as: bladder tank, balanced pressure proportioning and fixed and inline Venturi type proportioner systems. The 1X1 is suitable for use in both fresh or salt water system applications and carries:

- EN 1568:2008 part 3 and 4 approval
- UL 162 approval
- LASTFIRE approval
- EPA Stewardship Program 2015 compliance
- Directive PFOS 2006/122/EC compliance

The introduction of the SKUM TOWALEX ARC 1x1 Master product also delivers increased customer value and demonstrates that value through a comparison of our 1x1 concentrate against a 3x3 alternative. The tables below compare the two systems and conclude potential savings in terms of bladder tank size (and therefore system size/space/ cost savings) as well as a reduction of foam concentrate needed (and therefore a reduction in storage requirements, purchase volume and reduced transportation costs).

In the first table we consider a common, fixed bladder tank system installation as defined by NFPA30, and 15 minute discharge duration. When comparing 3x3 foam to our 1x1 foam we arrive at the following overall 1x1 foam hardware and agent system benefit:

Foam Agent	3x3	1x1
Hazard Area	4140	4140
Density	0.3	0.3
Minutes Discharge	15	15
Concentrate %	3	1
Gallons Foam Required	809	270

Another example is that of the common truck loading rack while also protecting the under truck area of 3 bays using 4 nozzles. When comparing 3x3 foam to our 1x1 foam we arrive at the following overall 1x1 foam hardware and agent system benefit:

Foam Agent	3x3	1x1
Hazard Area	6225	6225
Application Rate	0.16	0.16
Minutes Discharge	10	10
Concentrate %	3	1
Under Truck Bays	3	3
Under Truck Nozzles	4	4
Gallons Foam Required	120	40
Bladder Tank Size	150	50

The user benefits are clear: there is a real and demonstrable opportunity to create additional value through reduced system requirements, without any loss in performance or any increased risk. The introduction of the SKUM Towalex ARC 1x1 Master

Tyco Article Contd…

foam demonstrates commitment to the ongoing development of better fire protection through technological innovation and by uncovering value we can share with users of our products. If users have any questions or would like to offer feedback on how they feel we can develop better fire solutions to meet their needs, please do not hesitate to contact us: we value your input.

Editor's note: John Allen, EMEA Marketing Director at Tyco Fire Suppression & Building Products, is an engineer by training. He joined Tyco in 2006, having worked at senior marketing and general management level in a number of leading fire detection and alarm companies. Further information on John's article is available from Tyco Fire Suppression & Building Products by telephone on +44 (0) 161 875 0402, by fax on +44 (0) 161 875 0493, or via email at marketing@tyco-bspd.com

About TYCO FIRE SUPPRESSION & BUILDING PRODUCTS

Tyco Fire Suppression & Building Products is a strategically aligned business unit with globally recognized products sold under leading brands including ANSUL, GRINNELL, HYGOOD, NEURUPPIN, PYRO-CHEM, RAPID RESPONSE, SKUM, and TYCO FIRE PRODUCTS. Tyco Fire Suppression & Building Products produces fire protection and mechanical building construction solutions for commercial, industrial, institutional, governmental, and residential customers. Heavy emphasis is placed on research and development resulting in innovations and global approvals. Key products include manual firefighting equipment, detection/ suppression systems, extinguishing agents, sprinkler systems, valves, piping products, and fittings. Visit www.tycofsbp.com for more information.

Biodiesel in Tanks

By Jeanne van Buren

Have you considered the effects of biodiesel on your installations? There is reliable information in the public domain about adverse effects of the first generation biodiesel. Therefore operators should use this information in their Management of Change procedure when a tank terminal switches from petrodiesel to biodiesel. Let me share just two examples.

- Microbiologist Joseph Suflita, of the University of Oklahoma, is a co-author of an article telling us that steel weakened from biodiesel interactions could leak fuel and other hazardous materials to the environment (Energy Fuels, 2010, 24, 2924).
- The National Biodiesel Board recommends a six month storage life for B20 and B100. Due to this limited shelf life of biodiesel, storage tanks have to be emptied, cleaned and thoroughly dried every 6 months.

Carbon steel tanks are built with a life span of 20 – 30 years or 1300 tank movements (full/ empty). At present there are many existing storage tanks in the world which are older than 30 years and that are now in service for biodiesel. The aging of the storage tanks and the switch to more corrosive products coincide with an increase in tank movements. As a result factors which increase the chance of an incident occurring accumulates. These aspects should also be addressed when incidents and near misses are investigated.

To prevent incidents occurring, all these issues must be integrated in the inspection scope and inspection frequency of the storage tanks and equipment that come in contact with biodiesel.

Integrated industrial incident prevention is a compounded problem mainly because of the many stakeholders that are involved. These stakeholders have specific knowledge in their own field of expertise but very few of them have overall knowledge of all the relevant topics involved. We should also be receptive to the knowledge of experts which had not been consulted before like microbiologist Joseph Suflita. Consequently cooperation between stakeholders with very different knowledge and intentions is required.

If you have ever have had a medical condition which required the expertise of several medical specialists you may have experienced that cooperation between these specialists does not come naturally. There is a lot of disbelief between them while there is not always room for accepting the viewpoint of the other experts. If the condition requires additional research and economical issues play a role in the same process "things" become so complex that the chances for a successful treatment take a nosedive while chances for mistakes increase. Patients that are very much involved in their treatment and whose illness has not affected their alertness often must take on the role of coordinator and mediator in their treatment program.

There is still a lot of potential for improving safety throughout industry by implementing the best practices in integrated incident prevention. Integrated incident prevention suffers from similar ill effects as the medical profession. Unlike the patient, integrated incident prevention has no voice. We should make a real effort to do something about this problem. Operators can create the position of an independent spin doctor that facilitates exchange of information between the various stakeholders.

As spin doctors have their own expertise there can be categories of spin doctors, like production of chemical products, refineries, tank storage, dry bulk good and so on.

Organisations like JOIFF may be willing to describe the competence levels for these spin doctors and organise round robins to help constant improvement in the skills of these spin doctors.

Editor's Note: Jeanne van Buren is a Safety specialist working with the Rotterdam-Rijnmond regional emergency response organisation in The Netherlands. She has BSc degrees in the Dutch equivalent of Process Engineering, Chemical Engineering, Applied Chemistry and Environmental Engineering and an MSc in Environmental Quality Management as well as Risk Crisis and Disaster Management. She is currently carrying out a PhD research into integrated fire safety during the whole life cycle at SEVESO sites.

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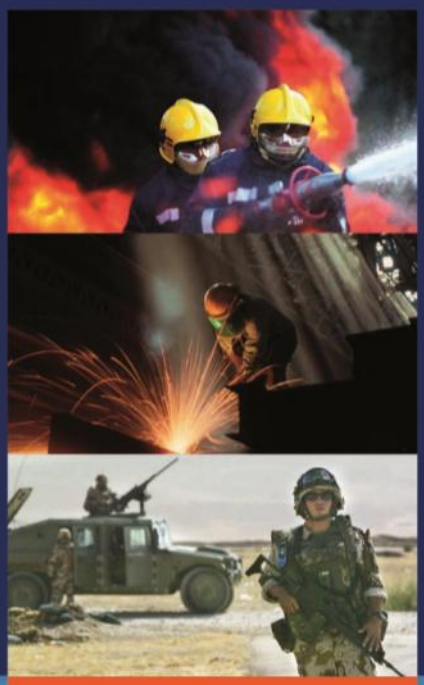

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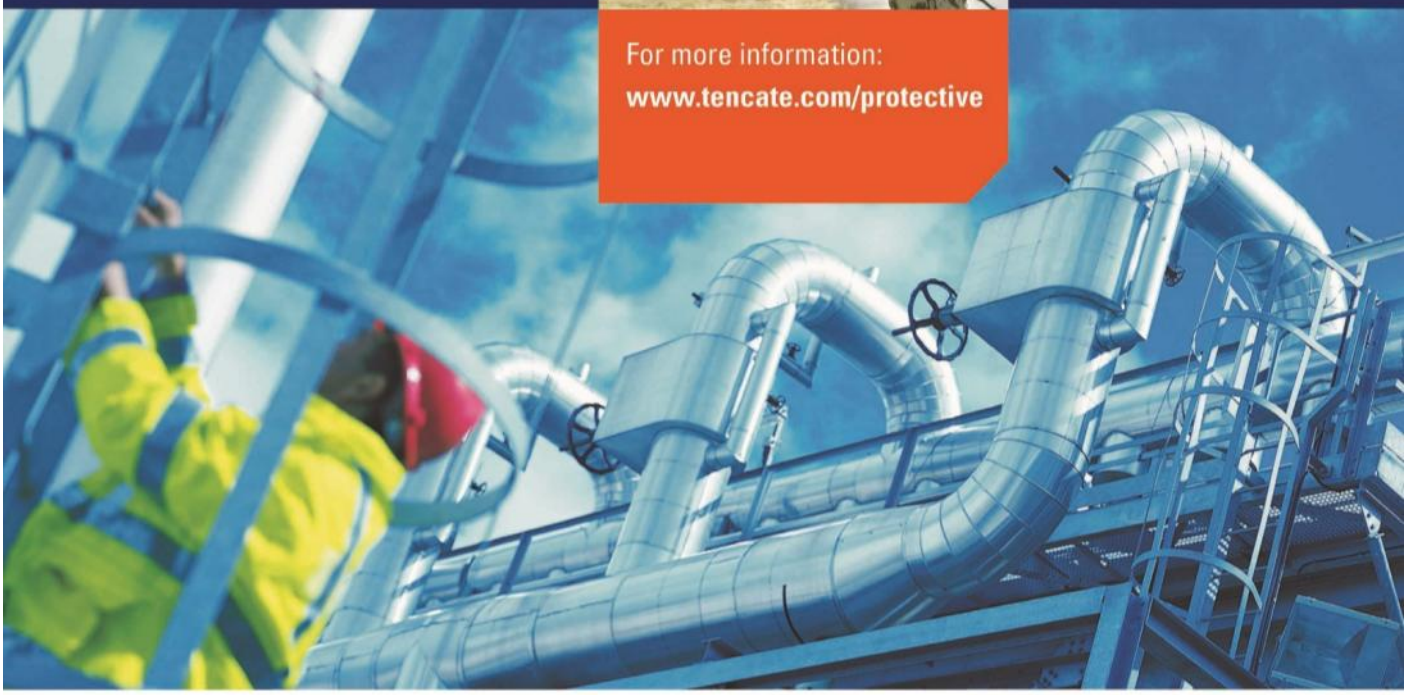

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Fluorotelomer Based Foams: Are They Safe for Continued Use?

By Mike Willson BSc(Hons), MCIM

Response to the article by Solberg in the July 2010 edition of The Catalyst

Solberg seem to have missed many of the key points and conveniently ignored the importance of recent scientific results presented. There was no attempt to "ridicule" modern Fluorine Free Foam (F3) alternatives to fluorotelomer based foams, amongst which Angus Fire's Syndura™ is one of the leaders. We all wish they were adequate and safe replacements for fluorochemical based foams, but the scientific and practical facts are that all these modern F3 products fall seriously short of fluorotelomer based foam performance in a number of key areas, and provide several potentially dangerous side effects including safety concerns for firefighters – the key reason why many are now moving away from these modern F3 products.

These serious F3 shortcomings include:

- requiring up to 3 times more F3 foam and water resources than fluorotelomer based AFFFs to extinguish a given sized fire.
- Potentially requiring up to 3 times more F3 cost in terms of pumping and delivery equipment, manpower, containment, collection, transportation and treatment of the resulting fire water run-off.
- Poor F3 performance on a number of widely used polar solvent groups like Alcohols and specific hydrocarbons like Aviation Kerosene.
- Exceptionally high aquatic toxicity because of elevated F3 detergent concentrations kill a wide range of aquatic organisms (including fish, crustaceans, algae and bacteria), notably in water treatment plants.
- Vulnerability to excessive fuel pickup into the F3 blanket during application, which can result in dangerous and sudden flashbacks for firefighters and rapid re-involvement of the fire.

High levels of fuel pick up in the F3 bubbles can be carried past fuel separators and cause pollution incidents in waterways offsite.

Solberg admits these "new [RF] products need refinement" and "it [RF] does have some problems". It seems that many potential users are not being made adequately aware of these F3 failings, hence the article to bring these important issues to the attention of firefighters, and those responsible for their safety and wellbeing.

Scaremongering denies the facts

Solberg is simply scaremongering when claiming that "all organohalogens/ fluorosurfactants are banned or at least have severe restrictions placed upon them". This is completely false. The most severe fluorochemical restrictions apply in the European Union (EU), yet Fluorotelomers are accepted for emergency use throughout the EU. Only the persistent, bioaccumulative and toxic (PBT) PFOS based firefighting foams are to be banned from use in the EU from 28th June 2011, and are recommended for disposal by high temperature incineration. Fluorotelomers, just like modern F3 products, require disposal through conventional industrial waste water treatment plants in the EU as elsewhere.

US EPA confirms routine use of fluorotelomers poses no concern

Nowhere else including USA, Canada and Australia, can I find any regulator who has any plan to ban the use of PFOS based firefighting foams, despite their 10 year PBT status. Nowhere, outside the EU, are there any restrictions on fluorotelomer based foams, and this is increasingly unlikely since fluorotelomers have been scientifically proven to be neither bioaccumulative nor toxic, yet Solberg suggests they are "already severely restricted from use"!

Even the USA seems to have made no ruling on restricting the use of existing PFOS based firefighting foam stocks. The US EPA website confirms that *:*

> ***"The information that EPA has available does not indicate that the routine use of consumer (fluorotelomer) products poses a concern. At present, there are no steps that EPA recommends that consumers take to reduce exposures to PFOA."***

What replaces the fluorotelomer in F3 foams?

When the active fluorotelomer ingredients are removed from F3, they are replaced with even higher levels of toxic synthetic detergents. This causes serious environmental and performance problems for F3. Not only do these detergent foams kill most aquatic organisms, they also attract hydrocarbon fuels into the bubble blanket as the foam mixes with fuel when applied to a fire.

These fuel vapours are released as the foam begins to break down, causing a flammable layer to build up above the foam blanket, which can suddenly flashover from any residual incandescent material, spark or embers nearby, and cause sudden re-ignition - a significant danger to any involved casualties, firefighters or other rescuers.

F3 foams behave like a time bomb waiting to go off

A thick water soluble polymer is usually added to modern F3 products to delay this process occurring, which can help F3 get through a number of fire test protocols - but it behaves like a time bomb waiting to go off for firefighters!

It lulls unsuspecting users into a false sense of security because sudden ignition still happens, but with an indeterminate delay – varied by the specific fuel and atmospheric conditions on the day! This can make modern F3 foams even more dangerous for firefighters as they think it is safe. Why? Because firefighters have safely walked through fluorotelomer based foam blankets for over 40 years - they do not exhibit such dangerous behaviour. fluorotelomer surfactants protect the bubble from fuel pickup when it is forcefully applied to a spill. They also prevent fuel being carried past fuel separators to minimise the risk of a pollution incident. Additionally they provides a vapour sealing barrier across the fuel to specifically extinguish the fire quickly, and prevent such dangerous and sudden re-ignitions – fluorotelomers are the firefighter's friend, helping to protect them from danger!

Simplistic F3 environmental impacts misleading

It's too easy for Solberg to mislead readers by asserting that "damage done by [F3] foams that are "slightly toxic" can be repaired". They simplistically claim that "foam is applied as a solution therefore it has always been greatly "diluted" before ever getting into the environment". If unintentional concentrate spilt from ruptured drums is near a pond or stream, only a few parts per million of F3 in water will kill fish. Even if just one sensitive species is wiped out by such a spill, other more tolerant species are likely to take over its vacated niche, upsetting the ecosystem's balance, so it may never recover.

Detergents are the most acutely toxic of all foam ingredients. Class A wetting agents are renowned for being highly toxic and killing aquatic organisms, but they are normally used at low 0.1% -1% concentrations. Modern F3 are regularly used at 6%, are categorised R51/53 toxic with long-term adverse effects to the environment. Their discharge can be 3-60 times higher at use strength, than Class A foams. Their toxic effects on aquatic organisms when practically used can be significantly greater than wetting agents, yet Solberg claims they are only "slightly toxic"!

Solberg also asserts that any surviving fish from an F3 spill "will not be contaminated and therefore will not pass on persistent chemicals into the food chain. In the case of fish contaminated with AFFF, FFFP or FP the organohalogen's they consume will be passed on for generations" . This is incorrect. Toxicity data confirms FP foam concentrates are typically 40 times less toxic and FFFP concentrates 375 times less toxic to aquatic organisms like water flea (the food of many fish), than modern F3 concentrates (MSDS sheet data). Even AFFFs are typically 10 times less toxic to fish than modern F3s (FFFC Toxicity report). Known records also suggest that FFFP and FP foams have not been based on materials that could break down to PFOS. Historically and currently they only use fluorotelomer based surfactants which do not bioaccumulate so cannot "be passed on for generations". Similarly, current AFFF and AR-AFFFs from leading manufacturers should only incorporate fluorotelomer surfactants, which the science confirms are neither toxic nor bioaccumulative, and the US EPA has confirmed fluorotelomers are safe for continued use.

Same run-off treatment for Fluorotelomers and F3.

Solberg inaccurately suggests that if you "continue to use AFFF, FFFP or FP make sure that provision is made to collect all fire water run-off before the commencement of fire fighting and then incinerate at 1150°C post fire and remember this requirement will not change with the introduction of the C6 molecule". This suggests that F3 run-off is somehow exempt from collection and safe disposal. It is an EU requirement that any foam (F3 or fluorotelomer) discharged in an incident is contained, collected and disposed of through an authorised waste water treatment facility, and is common practice elsewhere.

The notion that all fluorochemicals must be incinerated is wrong. Incineration only applies to PFOS based foam concentrates and their usage in EU. All fluorotelomer based foams used worldwide, including those containing the latest Capstone® C6 fluorotelomers, are accepted for treatment through authorised waste water facilities in exactly the same way as F3 products, and require no incineration. The difference is that fluorotelomer foams are far less likely to carry hydrocarbon fuels with them into the environment than F3, which could cause a pollution incident with potentially heavy fines for the polluter.

Where is all the F3 supporting scientific data?

It is curious that Solberg claim to "make public, via our website, all the information we have to enable our customers to make an educated decision." Visiting their website recently showed only data sheets and MSDS providing little ecotoxicity data. I could find no independent scientific data available to support their arguments and help anyone make a sensibly informed decision. JOIFF and THE CATALYST are doing more to help foam users weigh up the issues than most manufacturers including Solberg. DuPont are doing extensive research under the watchful eyes of the US EPA to verify that fluorotelomers are radically different from PFOS, and do not suffer the bioaccumulative and toxic effects of PFOS. Some with a vested interest would clearly have you believe otherwise!

Mike Willson ©September 2010

Editor's note: Mike Willson has over 25 years experience in the fire industry, much of it involved as a technical specialist on Class B foams and associated foam systems and delivery devices. He was also involved as the UK expert on the CEN Standards Committee helping develop the recent fixed foam firefighting systems standard. In 2008 he emigrated to Tasmania and set up Willson Consulting where he provides technical assistance and training to the fire industry, whilst also focusing on environmental work particularly sustainability, helping householders and tourism operators to reduce their energy water and waste usage. He can be contacted by e-mail: willsonconsulting@yahoo.com.au

Further Achievement by the Protection Division of Sembcorp UK

Gerry Johnson Chairman of the JOIFF Training Standards Committee presents JOIFF diplomas to Howard Carr and David Taylor, Sembcorp UK Ltd. Included in the picture are Andy Passmore and Gavin Pidgeon.

SEMBCORP HONOURED TWICE AT NATIONAL TRAINING AWARDS, 2010

Sembcorp UK has been honoured twice at a prestigious UK training awards 'Oscars' event.

The company's Protection team won both a Regional Training Award and a UK National Training Award at the National Training Awards 2010 north east regional ceremony in Newcastle.

Sembcorp, which provides utilities and services at the Wilton International site on Teesside, was recognised in the large employer category (over 250 employees) and both awards were in recognition of Sembcorp's outstanding contribution and commitment to training, learning and development in its entire workplace.

Graham Taylor, Sembcorp Training and Development Manager, said: "We are greatly honoured to have received these prestigious awards. Sembcorp has held Investors In People status for several years and we are totally committed to advancing the training and development of our entire 400 strong workforce."

The two awards were given for work done by the Sembcorp's Protection business, which became the first industrial fire fighting force in the UK to put its entire workforce of almost 100 site protection officers through a new Level 3 National Vocational Qualification (NVQ) designed specifically for people in the fire and rescue sector.

The business is responsible for guarding some of the most valuable industrial assets in the UK providing fire and spill protection to clients in the chemical, petrochemical, biofuels, power and oil and gas industries on Teesside.

Sembcorp is now invited to the National Training Awards 2010 UK ceremony being held in London on Wednesday 1st December. At the ceremony, UK Winners will find out whether they have won the overall Winner of the Year Award for their category. They will be up against all the other UK Winners from across the UK in competition for these top awards.

Run on behalf of the Department for Business, Innovation and Skills (BIS) by UK Skills, the National Training Awards inspires and encourages UK industry to invest in training and development as a route to achieving outstanding organisational and individual success. Winning an Award is recognition of best practice and provides a benchmark for standards of excellence in training in the UK. City & Guilds is the premier sponsor of the 2010 National Training Awards.

Simon Bartley, Chief Executive of UK Skills which manages the National Training Awards said: "I would like to offer congratulations to Sembcorp and all regional and UK winners for the National Training Awards 2010. Achieving an award is a fantastic achievement and one that all winners should be really proud of.

"Now more than ever it is essential for organisations to continue to invest in the development of their staff. The UK's future, after all, can only be strengthened and sustained by people who have the skills needed to meet the demands of today's globalised economy."

National Training Awards – explanation:

- The National Training Awards recognise those individuals and organisations throughout the UK that have achieved outstanding business and personal success through investment in training. Winning an Award is recognition of best practice and provides a benchmark for standards of excellence in training in the UK.
- Run on an annual basis on behalf of the Department of Business, Innovation and Skills by UK Skills, the Awards are also supported by Skills Development Scotland, The Welsh Assembly Government and the Department for Employment and Learning, Northern Ireland.
- Established in 1987, the National Training Awards are free to enter and are unique because the seven Award categories encompass all sectors, sizes of organisations, training providers and individuals. The Award categories also recognise all types of training from formal qualifications programmes to informal learning and coaching.
- The National Training Awards aim to develop entrants throughout the Awards process, from the advice and self-assessment guidance given at the outset to the constructive feedback given to each entrant after judging. Finalists and Winners of the Awards are honoured through a series of regional networking events and a national ceremony.

For more information please visit www.nationaltrainingawards.com

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Registration is now open for The Emergency Services Show

The Emergency Services Show 2010
Stoneleigh Park, Coventry
24-25 November
Planning, response and recovery

Registration for the UK's only event for anyone involved in emergency planning, response or recovery has opened at www.ess2010.co.uk. This year's show will take place on Wednesday 24th and Thursday 25th November at Stoneleigh Park, Coventry.

Last year's event attracted over 4,000 attendees and 2010 will build on the success of the previous four years, promising to be the best yet. This annual show is a unique event promoting multi agency collaboration by bringing together everyone in the UK involved in an emergency – a unique mix of commercial and non commercial exhibitors, from the manufacturers who showcase their latest products to the emergency services and first responders demonstrating how this equipment is actually used. The Emergency Services Show 2010 will provide access to the latest technology, ideas and initiatives focused on improving public safety and protecting the environment and the Critical National Infrastructure. The show will be especially relevant in light of the current uncertain political and economic climate, with opportunities to speak to contemporaries and exhibitors to help with framework agreements, income generation, outsourcing and equipment requirements.

The two day supporting conference will provide delegates with the opportunity to join like minded professionals to discuss the latest news, developments and strategic advances as well as hearing about lessons learnt and new initiatives from a range of high profile speakers.

New for 2010

To reflect the importance and popularity of this event, exhibition space has been increased to meet demand. The new Hall 3 will incorporate the larger displays of specialist equipment and vehicles previously shown outside. Under cover and protected from the elements, exhibitors will show the latest products, innovations and services, including practical demonstrations. Hall 1 includes the growing Blue Light Zone - which brings Police, Fire and Rescue and Ambulance services from around the UK together to showcase the 'Best of British' and share initiatives and examples of best practice and the popular Emergency Response Zone - which is made up of other Category 1 and 2 responders, Professional, Government and Voluntary organisations, offering perfect networking opportunities to affiliated organisations.

New for 2010, there will be a dedicated UK Search and Rescue (SAR) Zone featuring British Cave Rescue, Lowland Rescue, Maritime Incident Response Group (MIRG), MCA, Mountain Rescue England &Wales, RAF SAR and the RNLI.

David Brown, Event Director, Emergency Services (MMC) Ltd, comments: *"In these uncertain times it is more important than ever for all Category 1 and 2 responders and associated agencies to talk together to enable them to share resources and make the most of their budgets. The Emergency Services Show offers the unique opportunity to meet with specialist suppliers to facilitate mutually beneficial buying arrangements and discuss new important innovations and products."*

See the whole picture

This well established show was started in 2006 to facilitate collaboration following the publication of The Civil Contingencies Act 2004 by providing access to the latest technology, ideas and initiatives. Following recent national and global emergencies, it is proving more relevant than ever and is the one event that shouldn't be missed this year. Registration is now open.

Visit **www.ess2010.com** to register and to learn more about visiting or exhibiting.

TOTAL LINDSEY OIL REFINERY

Location: North Killingholme, North Lincolnshire

TOTAL Lindsey Oil Refinery is a key operational unit of TOTAL, one of the world's leading integrated refining & energy organisations. Employing a total of 500 staff, the refinery processes 200,000 barrels of oil per day, supplying products to the UK and Northern Europe.

SHIFT SAFETY ADVISOR

We are seeking a highly motivated individual to join our Shift Safety team. The successful applicant will be required to perform a variety of responsibilities to ensure the continued successful implementation of the Company's Safety systems and procedures, along with deputising for the Shift Fire & Safety Leader.

Applicants must have a good standard of general education and hold a Professional Safety qualification (NEBOSH or equivalent). In addition, applicants must demonstrate a good working knowledge of Health and Safety Legislation, Risk Assessment and their practical application in an industrial environment. Candidates will have significant practical fire-fighting experience, experience in incident and emergency intervention, hold a LGV licence and First Aid qualification.

In return, a comprehensive benefits package includes a competitive salary, a defined contribution pension scheme, and an attractive share scheme.

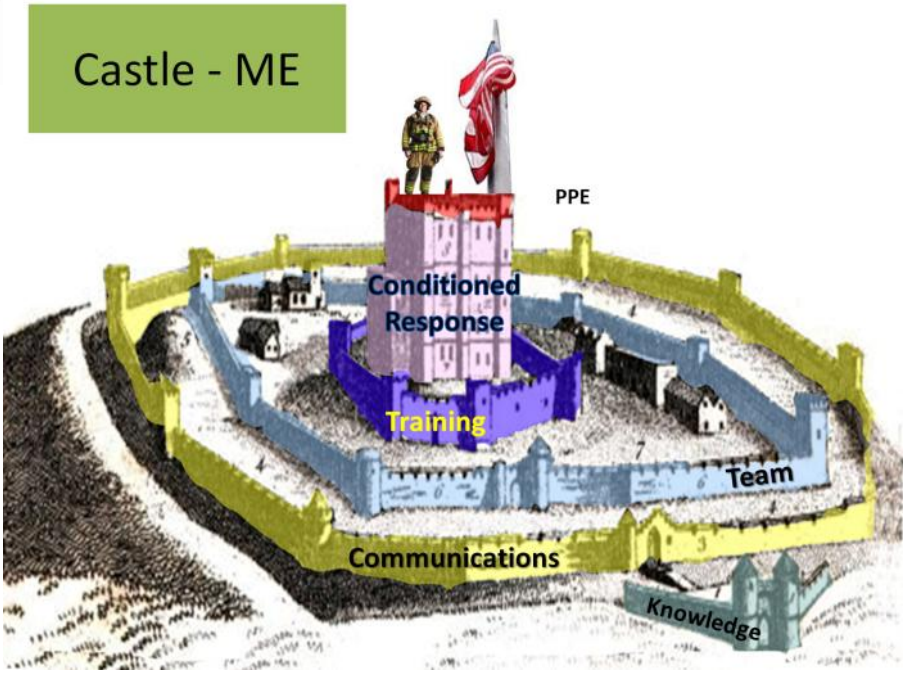
E-mail your CV with a covering letter to: LOR.recruitment@total.com
The closing date for the return of applications is Friday 22nd October

TOTAL Lindsey Oil Refinery is committed to diversity and the inclusion of all individuals, men and women regardless of background, religion, ethnic origin, nationality, age or sexual orientation.

YOUR ENERGY IS OUR ENERGY TOTAL

THE CASTLE DEFENCE

By Chief Charles Brush MS EFO



For years untold, castles provided protection from those who would hurt, plunder or conquer, given a chance. They are built for defence to the smallest detail. For example, a defender, backing up the spiral staircases of the towers could use a sword in their right hand whilst an attacker had to use the sword in his left hand or be totally exposed. The primary defensive capabilities of a castle were the number, height and strength of the castle walls, known as curtains. The proper castle had an outer curtain and several inner curtains, each encompassing a smaller area to defend than the one before until the walls of the Keep (owner's condo !!). The defending force could fall back from the outer curtain to the inner curtains to the Keep and finally to the towers of the Keep.

The defensive concept is based upon the reality that sometimes things don't go as planned. They needed the ability to retreat to new fighting positions in case a wall was breached or overrun. In WWII, the French had forgotten lessons of the past when they built the Maginot Line (singular, not plural). The resulting fight (home game, French 0, Germans 1) proved once again the wisdom of the castle defence.

What does this have to do with firefighting and us? Well, how many walls stand between you and death and how strong are they? Each wall is something that shields from harm or death. The strength of each wall lies in the time, effort, and preparation in its construction.

Asking your "troops" what they believes protects them and in what order may astound and scare at the same time. In the presence of "distilled cane sugar", an elite band of thinkers built the walls of our ultimate castle, The CASTLE ME. Perhaps you will add or change some of the curtains, but this worked for ME.

The outer curtain of CASTLE ME is constructed of knowledge. A strong, well-built wall of knowledge may allow me to avoid placing me in danger in the first place. A favourite saying of sailors, modified for CASTLE ME is: "In an emergency, the superior firefighter uses superior knowledge to avoid demonstrating superior skill."

CASTLE ME's first inner curtain is the communications wall. Conditions observed, transmitted and received helps Castle ME avoid an emergency. Should the unexpected occur, prompt, precise communications brings help, stimulates corrective action or provides knowledge can be the difference 'tween life and death in the extreme!

Note: - It is amazing that this curtain is rarely mentioned by the "troops" and yet so many injury / incidents are the result of poor or lack of proper communications and protocol.

CASTLE ME's second inner curtain is the wall of crew. A strong, tight, bonded crew can overcome adversity that as individuals we might not. Don't believe it? Ask a U.S. Navy Seal.

CASTLE ME's third inner curtain is the wall of training. Training is the ultimate form of physical preparation. Training on the "what if's" can prevent the "It was unexpected" from being uttered. Training should create an unconsciously competent firefighter for routine functions so that focus and attention can be given to environment, changing conditions, and adapting and overcoming.

CASTLE ME's Keep wall is constructed of conditioned response. Condition response should be an almost autonomic response to eat dirt and seek cover. For years after World War II, if a truck backfired in the street, combat veterans would unthinkingly drop to the ground prone and be hugging the curb before they realised it. They stood up, embarrassed, dirty but in another time that action allowed them to survive and return home.

Are we conditioned to react without hesitation to perceived threat or do we have to think about it wasting valuable time or worse, look to get a better view? Unless you are a Hollywood star, you cannot outrun an explosion but you can survive one on the ground as an example.

CASTLE ME's Tower is constructed of PPE. This is it. If the tower falls to the enemy, Castle ME falls. The shame is that in many cases, the PPE tower fails because the gear was not fully worn or was improperly worn.

So, is your defence a castle or the Maginot line?

(see overleaf for editors note)

The Castle Defence, Contd…..

Editor's Note: Chief Charles (Charlie) Brush MS EFO is Safety Programs Manager, Bureau Fire Standards and Training, Florida State Fire Marshal. Charlie comes from a diverse public / private sector background with a 20 something year emphasis on "hands-on" training. He has held the rank of chief in both career and volunteer fire departments, working his way through the ranks of firefighter to chief. Charlie's first concern has always been the safety of the troops through the acquisition of knowledge.

Joining the Fire College as an instructor in 2004, Charlie was promoted to Standards supervisor and most recently to Safety Programs Manager. Throughout his career, he has developed flammable liquids, gases, shipboard, firefighter and EMS training programs. Charlie was also an NFA adjunct instructor and has numerous articles in publication. He currently serves as a member of the NFPA 1001 – 1005 Technical committees.

Charlie holds a Master of Science degree, is a Florida Certified Instructor III and a bunch of others "suitable for framing". When not involved in emergency services, Charlie can be found on the water aboard his sailboat.

Respiratory Diseases and the Fire Service

The United States Fire Administration (USFA), in partnership with the International Association of Fire Fighters (IAFF), has released a report entitled *Respiratory Diseases and the Fire Service.* Its purpose is to provide information to the fire service on the mitigation of the long-term effects of occupational respiratory exposure.

The goal of the project that led to the publication of this report was to research the long-term effects and post-exposure mitigation of occupational respiratory exposure to firefighters and develop a report based on this research. The project involved renowned experts in the field of pulmonary medicine and it is hoped will assist in recognising and quantifying the impact of respiratory exposure, and the development of mitigation strategies and programs for firefighters, their families, and fire departments.

In the Introduction to the report, Richard Duffy, Assistant to the General President Occupational Health, Safety & Medicine of the IAFF, says that in their work place, Firefighters are at risk of exposure to many agents which could cause respiratory disease. Variability in exposures among fire fighters can be great; however, a number of exposures are commonly found in many fire scenarios. The common combustion products encountered by fire fighters that present respiratory disease hazards include but are not limited to: acrylonitrile, asbestos, arsenic, benzene, benzo(a)pyrene and other polycyclic hydrocarbons (PAHs), cadmium, chlorophenols, chromium, diesel fumes, carbon monoxide, dioxins, ethylene oxide, formaldehyde, orthotoluide, polychlorinated biphenyls and vinyl chloride. Findings from fire fighters monitored during what in the USA is called "the overhaul phase" of fires in structures, – where the fire is extinguished and clean-up begins, a phase of work and where respiratory protection is not usually available - indicates that short-term exposure levels are exceeded for acrolein, benzene, carbon monoxide, formaldehyde, glutaraldehyde, nitrogen dioxide and sulfur dioxide as well as soots and particulates.

Fire fighters are routinely exposed to respirable particulate matter consisting of liquids, hydrocarbons, soots, diesel fumes, dusts, acids from aerosols, and smoke. Health effects are known to be produced not just by the particulates themselves, but also by certain chemicals adsorbed onto the particulates. Further, the mixture of hazardous chemicals is different at every fire and the synergistic effects of these substances are largely unknown.

As well as these exposures from fires, firefighters are often exposed in their fire stations to significant levels of diesel particulate from the operation of the diesel fuelled fire apparatus.

Mr. Duffy states that fire fighters have little idea about the identity of many of the materials they are exposed to or the health hazards of such exposures --whether they are chemical, biological or particulates. Nevertheless, fire fighters and emergency medical responders continue to respond to the scene and work immediately to save lives and reduce property damage without regard to the potential health hazards that may exist. An occupational disease takes years to develop. It is the result of a career of responding to fires and hazardous materials incidents; it is caused by breathing toxic smoke, fumes, biological agents, and particulate matter on the job; and it is the response to continuous medical runs or extricating victims at accidents. Some health effects are immediate while others may take years and even decades to develop and because some respiratory diseases develop over time, it is impossible to say, "This specific emergency response caused my disease," yet fire fighters continue to get sick and die from occupationally caused respiratory diseases.

Understanding diseases of the respiratory system, identifying respiratory disease-causing agents, and avoiding exposure to these agents are key in preventing respiratory diseases.

Respiratory Diseases and the Fire Service is available from the IAFF website at http://www.iaff.org/ Further information on USFA's firefighter health and safety projects may be found on the USFA website at http://www.usfa.dhs.gov/

PRESS RELEASE

From JOIFF Member, Corporation FPEC, Yokohama, Japan.

FireMarshal is quick response simulation program to handle fire/gas/smoke disaster with its protection system. A User can input data and then calculations are quickly done to show the result on 3D Graphic layout etc., FireMarshal is composed of "Frame" and simulation "Modules". By adding the suitable simulation modules to the frame, Fire Marshal can be customised for intended purpose.
The latest trial version of FireMarshal CAD is updated to include: Selection dialogue which appears at the beginning of FireMarshal CAD version, and
the menu of frames and modules can be turned on-off as required.

Access the following DOWNLOAD page.
http://www.fpec1.co.jp/eng/fm/download.html
Start-up manuals can be downloaded from the DOWNLOAD page which enable the overall operation of FireMarshal to be understand more easily.
Corporation FPEC Email:info@fpec1.co.jp

THOUGHT FOR THE DAY

Site Risk Assessment.
When carrying out a Site Risk Assessment, keep in mind the lessons of the Maginot Line: Everything is pointing in one direction and the attack comes from another.

Explanatory note:
The Maginot Line, named after French Minister of Defense André Maginot, was a line of concrete fortifications and weaponry constructed by France in the run-up to World War II along its borders with Germany and Italy based on experience from World War I. The purpose of the fortification was to provide time for their army to mobilise in the event of attack. It was an ineffective strategic gambit, as during the attack, the Maginot Line, was flanked and the invasion of France proceeded relatively unobstructed.

JOIFF GUIDELINE ON FOAM

The newly published JOIFF Guideline on Foam provides recommended best practice on

Management of Foam stocks, including storage, inspection and testing, compatibility with other foams, foam used in vehicles/foam systems, induction accuracy, record keeping, Risk Assessment;
Foam Properties including expansion ratio, drainage time, foam concentrates compatibility with nozzles or branchpipes used, foam performance levels, specifications, Manufacturer's declaration, certification;
Regular assessment of Foam;
Foam test procedures;
The Environment and Foam Discharge;
Compatibility of different types of Foam;
A suggested practical Foam test procedure.

This is the second Guideline on Foam issued by JOIFF, the first being The JOIFF Guideline for the Use and Maintenance of Fire Extinguishers containing Foam.

Both Guidelines are available for free download from the Downloads Page of the JOIFF website., www.joiff.com

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 not only course content, as also critical to the effective provision of training are the facilities of the training provider/training establishment and the capabilities of the instructing staff. JOIFF has developed systems of accreditation for training providers and minimum instructional requirements for Instructors. All students who successfully complete a JOIFF accredited course/programme are issued with a JOIFF Certificate of Competence which has its own unique number. Records of all successful students and the courses in which they qualify are retained. There is growing recognition worldwide of the JOIFF Certificate of Competence which is coming to be regarded as a passport to the level of employment and rank which an emergency responder's qualifications enables and entitles them to deserve.

"If you think that you can do it, that is confidence. If you can do it well on an on-going basis, that is competence!"

JOIFF Accredited Training for 2010:

For further information about JOIFF accredited on-Site Competency Based Training Programmes, the range of Fire Service NVQs and any other aspect of JOIFF Training, please contact the JOIFF Secretariat

Diary of Events 2010/2011

October

5th - 8th	*Security* Essen, Germany
14th	*IFE / BRE Workshop* Garston, England
19th – 20th	*SFPE – Saudi Arabian Chapter Conference* Kingdom of Saudi Arabia
19th – 20th	*Gas Explosion Hazards on Offshore Facilities* Kuala Lumpur, Malaysia.
25th – 29th	*Storage Tank and Related Facilities Fire Hazard Management Workshop* Aylesbury, England
27th – 28th	*FIREX NORTH,* Manchester Central, England

November

8th – 10th	*Algeria Fire, Safety and Security Expo 2010* Algiers, Algeria
16th – 17th	*Incident Investigation and Organisational Learning* Amsterdam Netherlands
15th – 18th	*VI International Conference on Forest Fire Research* Coimbra, Portugal
23rd – 25th	*IFSEC India* Mumbai. India
24th – 25th	*Emergency Services Show* Warwickshire UK.

December

9th – 10th	Gas Explosion Hazards on Offshore Facilities Middlesex, England.

February 2011

1st - 2nd	*PPE Conference 2011* Brussels, Belgium
3rd - 5th	*Class A Foams and CAFS Academy* Glendale, Arizona, USA.

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

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

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