Chemicals northwest

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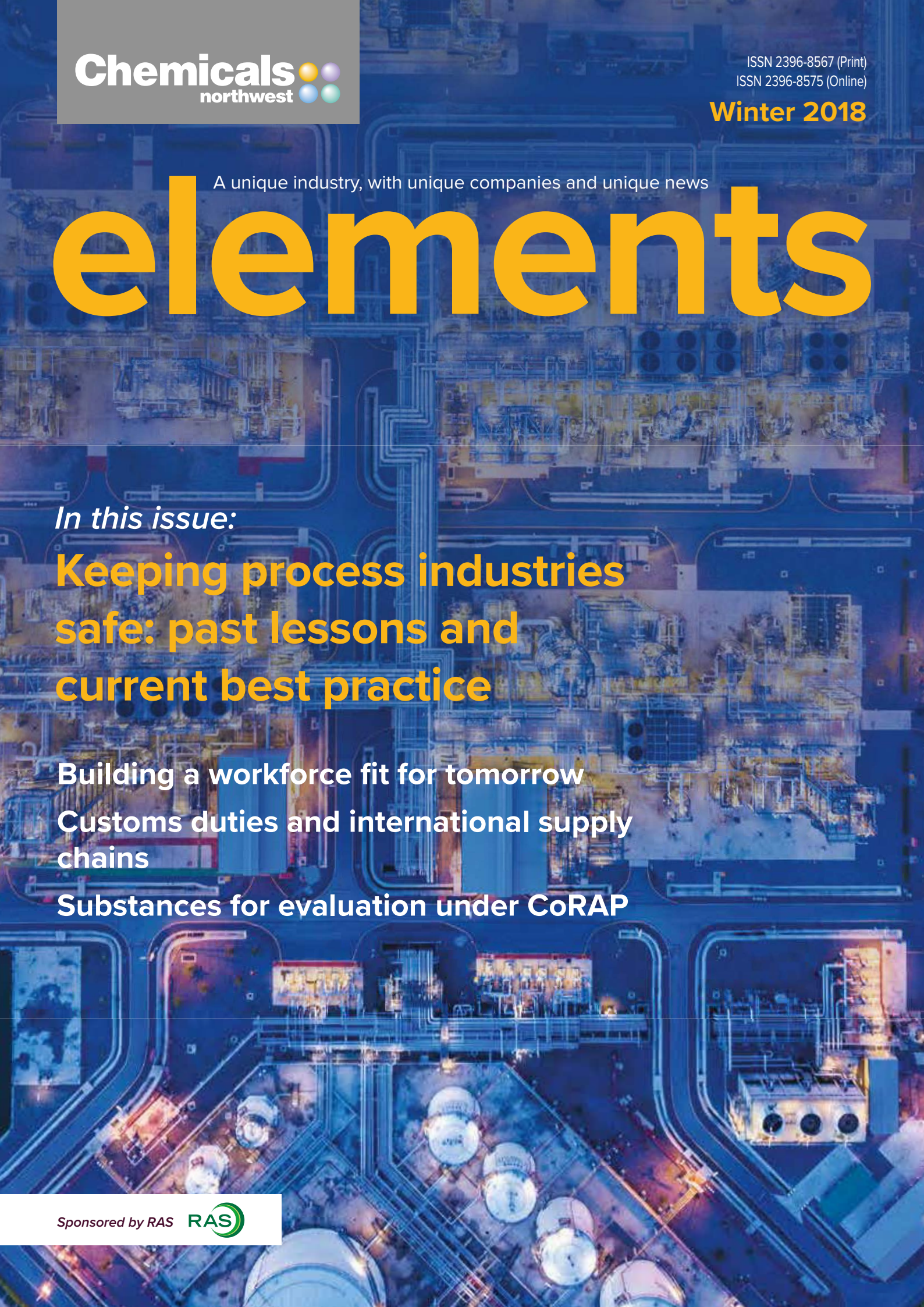
Winter 2018

A unique industry, with unique companies and unique news

elements



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Customs duties and international supply chains

Substances for evaluation under CoRAP

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Contents Winter 2018

Membership

Would your company benefit from joining an organisation that supports and promotes the chemistry-using sector in the Northwest? Do you want to understand more, and contribute to, the industry issues within the region?
If you are a manufacturer, chemical user or offer products and services to the sector, why not join us today? See over for details or please contact:
Alex Abraitis - Member services and events manager
alex.abraitis@chemicalsnorthwest.org.uk or visit:
www.chemicalsnorthwest.org.uk/membership/membership_benefits/

2018-2019 Rates

Micro corporate membership	(1 - 10 employees)	£423+VAT
Standard corporate membership	(11-100 employees)	£735+VAT
Large corporate membership	(100+ employees)	£936+VAT

Our membership year runs from 1 April to 31 March. A pro-rata basis usually applies to joining at other times in the year and we'd be happy to discuss on application.

Welcome

In this issue of 'Elements' magazine we report back on our recent process safety conference held in November. "Keeping process industries safe – past lessons and current best practice", which set out to mark the thirtieth anniversary of the Piper Alpha incident and to hear of the latest developments in the UK regulator's priorities. Many CNW members participated, introducing the support services they offer and presenting site case studies, including award-winning Stepan UK Ltd at Stalybridge. Take the opportunity too, to read some excellent articles relating to the subject in this edition.

Fully booked in advance, the November Brexit group session attempted to make sense of the recent political developments. It covered several topics including arrangements for customs duties and VAT deferment, industry's engagement with Government departments and how one company Banner Chemicals Ltd is preparing for Brexit.

We also viewed the new industry video produced by ITN during the Brexit meeting. "Solutions for the Future" clearly outlines how important our sector is to society and the environment.

CNW was also pleased to work with Chester-based member company, Hybrid Search Ltd in a special workshop considering future skills availability for the chemicals sector. Indeed the same issue was strongly highlighted during the last CNW breakfast networking meeting at Thornton Science Park.

Also in November the Chemistry Growth Partnership was re-launched as the UK Chemistry Council. Its priorities remain focused on innovation, energy and supply chains, supported by a number of enabling issues such as skills. We hope to take a closer look at the work of the Council in our next issue and how it is preparing to deliver a sector deal with Government.

John Roche - ***Chemicals Northwest***

About us...

Chemicals Northwest is an established business network wholly owned by the Chemical Industries Association.

With over 160 members we actively promote this important regional sector and our objective is to help membership to grow through;

- **facilitating** networking events, common interest groups and interactive workshops, all aimed at covering topical industry issues.
- **supporting** projects and programmes that identify and enhance business performance and generally support continuous improvement across the sector.
- **promoting** science and engineering based skills, helping to address the region's future needs.
- **improving** the image of the industry overall, including generating a positive reputation, through communicating achievements and success.
- **contributing** to the industry's strategic voice and the national growth agenda aligned to the work of the Chemical Industries Association.
- **connecting** the community of chemistry-using businesses and the vital supply chains here in the Northwest.

Chemicals Northwest really does bring people together! It is an essential feature of successful networking strategies used by many organisations. We coordinate a range of meetings and events to enable 'face to face' networking for the benefit of all members. Every successful business networking organisation also needs effective communications channels. As a result of gradual development over recent years, getting messages across, promoting member companies and reporting news, Chemical Northwest has reached new levels of topicality and quality. Here are the the main features and benefits of membership...

Annual Awards Dinner -
During the annual CNW awards programme we are privileged to witness the many achievements made in our local sector. Culminating in a great night of celebration each year's awards are a fantastic way your company can support the region's chemicals sector and help raise your own profile. Up to 300 guests from across the industry gather on the night and everyone can see for

themselves the amazing achievements made by our people and organisations.

"Focus 50" - This recently named series of seminars and networking events is becoming ever more popular.

Over the years CNW has focused on a range of highly topical and relevant business issues. Technical, regulatory and operational insights have been delivered by experts in their fields. These events ensure good practices are shared and all gain new knowledge. As businesses get to grips with the changing landscape there will always be new issues for members to analyse.

Breakfast Networking - Chemicals Northwest is gaining a growing reputation for high quality breakfast networking events. With no specific theme, delegates are encouraged to make new contacts and some will make short pitches about their company, its products and services plus news announcements! The breakfast meetings have proved to be very popular and currently run on a 2 monthly basis attracting an average of 40 people each time. New contacts can lead to new opportunities and new business. All are welcome.

Common Interest Groups - Chemicals Northwest's **REACH** group has followed closely the developments within this complex and long term piece of legislation. The initiative allows the sharing of experience, best practice and knowledge between manufacturing, supply chain and support service providers, all with a keen interest in REACH. The group meets three times a year and now has a membership of over 50 companies.

CNW started the **Brexit** user group straight after the referendum in 2016 and it is gaining more and more support from membership. Whilst there is still uncertainty, many businesses will be looking to the future impacts, so we are enabling all interested parties to meet and discuss in more detail their common issues and concerns. Up to date information, insights and reports form the basis of each agenda, which will run parallel to the national work carried out by CIA.

elements magazine - CNW produces an informative quarterly magazine called elements which contains the latest round up of member news, specialist features and 'spotlights' on new member companies. This is a great opportunity to establish an association between your organisation and important sector issues, by contributing free editorial and press releases. Companies who do business in the chemicals sector may also wish to look at advertising options. The CNW sector directory is now integrated into elements.

Website - Visits to the CNW website have almost doubled in the past 12 months. The website is regularly updated with industry news and the events programme. Companies are increasingly using it for enquiries and advertising. There is an efficient "e-shot" function which allows direct messaging to our contacts list. Viewers of the directory pages can search the whole of our supply chain providers to find where to buy products and services.

LinkedIn - The Chemicals Northwest LinkedIn group was created in the latter half of 2010 and has an ever increasing membership, with over 1300 members now connected. The group provides the opportunity for chemical industry professionals to share ideas and knowledge.

Twitter - The CNW Twitter account is growing, so to hear about the latest news from CNW and the wider sector, why not follow us. In addition we'd be happy to re-tweet any news or updates that members themselves tweet.

Process safety training from IChemE

IChemE is a market leader in process safety training, with our courses providing the essential knowledge and skills to help you implement and manage successful process safety programmes.

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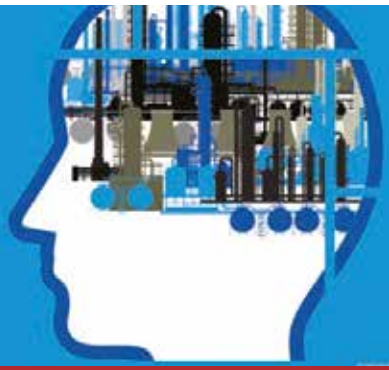
- HAZOP Leadership and Management
- HAZOP Study for Team Leaders and Team Members
- Layer of Protection Analysis (LOPA)

Human Factors

Human Factors in Health and Safety



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Understanding functional safety

The chemicals industry is among the many sectors in the UK faced by complicated messaging around functional safety standards, according to Chemicals Northwest member BPE. The company, which specialises in chemical and biochemical engineering design, has produced a whitepaper on understanding functional safety. Here, author Peter Stabler shares his take on how process engineers can guide their way through.

There's no doubt that functional safety requires a joined-up approach, uniting two often separated components; engineering and management. HSE increasingly requires evidence that best practice has indeed been adopted in UK-based process facilities. Demonstrating compliance with both engineering and management aspects of functional safety standards provides unambiguous, documented and auditable evidence of this.

There is, however, a more positive motivation for businesses to seek compliance with functional safety standards – they represent best practice for a reason. Companies that comply with the standards benefit from a comprehensive, "joined-up" and cutting-edge approach to the management of safety because their standards incorporate more than narrow engineering guidance. Equally important are the management practices that must be implemented to ensure both initial and ongoing compliance.

Appraising risk

In the chemical process industries, plant owners need to systematically appraise risk for their process operations and to define criteria for the acceptability of these risks. Engineering risk is defined as the product of the frequency of occurrence of a hazardous event, and the consequences associated with the event. Risk levels can therefore be mitigated by reducing either the frequency of a hazardous event occurring, or by minimizing any consequences should it occur.

Functional safety standards acknowledge such risk reduction measures and allow process plant owners to take credit for associated reductions in risk. Formal techniques, such as a Layer of Protection Analysis (LOPA), have been developed to enable a systematic appraisal of existing protection layers and to quantify the risk reductions that they confer. After existing protection layers have been taken into account, further reductions in risk may be achieved through the implementation of safety instrumented systems.

SIS and other protection layers

In order to achieve functional safety, a safety instrumented system must work as designed, and with a high probability of success. Functional safety is thus the primary objective in specifying, designing, installing and maintaining an SIS. To achieve an acceptable level of functional safety, both the engineering and management of the SIS must comply with the standards throughout its lifecycle.

Safety instrumented systems are not process control systems

Safety instrumented systems are distinct from process control systems. They are designed to provide a "final protection layer" to prevent harm to people or the environment in the event of the occurrence of a hazardous event. A safety instrumented system is distinct from a process control system in that it is required to operate with a high and predictable probability of success at infrequent intervals. In contrast, process control systems are designed to operate continually in order to keep process variables within pre-defined ranges. Safety instrumented systems sit "on top" of the process plant and its associated process control system, only coming into action when they are required to do so in response to a hazardous event in order to prevent an accident occurring.

The safety lifecycle

A key feature of functional safety standards is the concept of a safety lifecycle for safety instrumented systems. The concept of the safety lifecycle addresses both engineering and management issues relating to safety instrumented systems. Management of the SIS safety lifecycle is crucial in order to ensure that safety instrumented systems are not only designed and installed where needed, but also that they achieve the required levels of functional safety over the entire safety lifecycle from specification to decommissioning.

Who is responsible?

The ultimate responsibility for compliance with functional safety standards lies with the end user – the entity that owns and relies upon the safety instrumented system. The end user must not only ensure that safety instrumented systems are operated in compliance with functional safety standards, but that they are correctly specified, designed and installed prior to operation. This demands a holistic view incorporating not only the safety lifecycle of such systems but also stringent management of the supply chain involved in the creation of such systems.

You can request a copy of the Understanding Functional Safety whitepaper via ***www.bpe-ds.com***

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Looking to 2019: The Year of Leadership

In terms of regulatory focus for COMAH establishments, 2019 will be the year of leadership. In this article, we will explore what this really means for operators and how they can provide the demonstration that process safety leadership is a successful mechanism for major accident hazard management at their sites.

Time flies; it might seem like yesterday that process safety leadership was brought to the forefront by PSLG, but it was more than a decade ago. Ten years on, the COMAH Competent Authority (CA) want to ensure that these principles haven't drifted. With a new delivery guide and planned interventions in the pipeline, it is time for COMAH operators to re-evaluate the influence their leaders have on major accident hazard management on their sites.

For many, the principles of leadership are already there, but how can we demonstrate this somewhat intangible concept to the regulator? It is worth going back to basics and revisiting the eight principles of process safety leadership, introduced by PSLG, and remembering a few key points:

Collaboration is key

The importance of sharing, both within the organisation and in the wider industry, is often overlooked. Externally, there is a lot to be learnt from the experience of other sites and incidents and considering how to implement those lessons onsite. Internally, everyone needs to understand the requirements and be on the same page for the principles to work.

Knowledge doesn't equal competence

Operators need to ensure that at least one member of the Board has competence in process safety, to make sure that it is factored into big decisions. Making sure our leaders are aware of what process safety is and how it impacts on their site is just the beginning. For process safety leadership to be considered successful, leaders must understand at a deeper level how process safety should be integrated into decision making.

Competence is the experience and ability to understand how all aspects of process safety link together, from identifying and assessing hazards, to managing the level of risk to ALARP (As Low As Reasonably Practicable) through technical measures and safety management system processes, right through to ensuring that emergency plans are robust enough if things were to go wrong. This enables the leaders to pinpoint priorities and understand the outcomes of their decisions.

Reporting doesn't guarantee engagement

Most operators will report information about their establishments to the Board on a regular basis, but how much information is process safety vs profit and quality? Leaders must ensure that process safety is high on their agendas to demonstrate that they recognise the dependence of their business successes on safety. Furthermore, careful consideration should be given to the information provided. Are performance indicators still relevant to the establishment, or have they failed to evolve in line with changes in the risk profile?

Everyone is a leader

Yes, leadership traditionally refers to those at the top, and a great deal of successful process safety lies with ensuring that resources are in the right places, but we are all leaders when it comes to process safety management. Success relies on a healthy process safety culture, which can only be maintained when the majority of the workforce are engaged.

In 2019, robust process safety leadership is more important than ever. With impending regulatory and economic uncertainty, it is important not to let safety fall by the wayside and continue to make this a key focus of resource allocation. The familiar adage 'if you think process safety is expensive, try having an accident' is true – having process safety at the heart of leadership makes good business sense.

Working with the Chemical Industries Association in partnership with ITN Productions, RAS have begun to make this a key focus for the year ahead in the programme Solutions for Our Future. Visit our website for more details.

Authors: Carolyn Nicholls (carolyn.nicholls@ras.ltd.uk) and Jennifer Hill (jennifer.hill@ras.ltd.uk)

Do I need a specific DSEAR risk assessment for my site?

The simple answer is, maybe. Regulation 5 of DSEAR states that any activities involving a dangerous substance require a risk assessment (RA) to be carried out. However, you may not need to carry out a specific assessment. In the Approved Code of Practice, L138, the guidance states that the DSEAR RA may be incorporated into other assessments carried out, providing that they address the applicable aspects of DSEAR.

If you have carried out a hazard study that identified scenarios resulting in a fire or explosion and then detailed how such an event could be either prevented or its effects mitigated so that the risk is as low as reasonably practicable, your obligations under DSEAR may have been met. It is our experience that many operators comply with DSEAR using this approach but often find that a number of issues, including these listed below, are missed due in the hazard study.

Has the Regulation 6 hierarchy of control been followed?

Many people see DSEAR purely as ignition source control. Whilst this is a significant factor, it is quite low down the hierarchy of control. So, consider the substitution of materials, reduction in inventories, more effective containment, control of releases and better ventilation.

Have all ignition sources arising from the installed equipment been considered?

The need to install certified electrical equipment inside a hazardous area is well understood. But is this equipment correctly maintained, inspected and overhauled? Has the potential for non-electrical ignition sources been considered and is new mechanical equipment ATEX certified?

Have static electricity discharges been considered?

Fixed equipment is often earthed, but what about discharges from people, mobile plant, containers, materials handling and insulating materials.

Have all ancillary areas been considered?

Whilst the focus may be the production areas, what about boilers, pressurised cylinders, laboratories etc.? These areas must be assessed. RPS finds that these areas are not included in hazard studies and so are missed off other process safety activities. Whilst the hazards are lower than the main process, there are risks that must be identified and controlled.

Have high flash point liquids been considered?

Liquids handled at a temperature below their flash points may be released as a mist. Whilst this mechanism requires a number of factors to be present, it is an area that the regulator is looking into, undertaking research studies into the phenomena. Any DSEAR RA should consider whether a mist explosion is a credible risk.

Can a leak be detected?

The concept of Zone 2 relies on the release of material being identified quickly and many organisations use gas detectors to alert them of a leak. Operators must ensure that gas detectors correctly placed. At present there is little published guidance on the placement of detectors. A British Standard is currently being drafted (BS 60080 Explosive and Toxic Atmospheres: Hazard Detection Mapping – Guidance on the placement of permanently installed detection devices using software tools and other techniques) that aims to provide guidance to justify the number and placement of detectors with respect to the hazard you are trying to mitigate. It is anticipated that the first draft will be published in November 2019.

Another common misconception is that a Hazardous Area Classification (HAC) study is a DSEAR RA. This is incorrect; firstly, a HAC study is purely a tool for identifying the frequency and size of a release. It does not address the consequence of the release being ignited. Secondly, the DSEAR RA will inevitably identify that where there is a flammable atmosphere, ignition sources must be controlled. This is achieved by a HAC; so it is a layer of protection, not a RA.

Finally, a Regulatory Reform (Fire Safety) Order (RR(FS)O) RA is not a DSEAR RA. Whilst fire can lead to explosion, the risks are addressed in different ways. For example, in complying with the RR(FS)O, one of the main mitigations is providing adequate means of escape. In DSEAR, as an explosion or flash fire is such a rapid event, escape may not be possible; the emphasis must be on prevention of the hazard.

So in summary, maybe you already have a DSEAR RA, it may not have that title but you may be closer to compliance than you thought. Just ensure that you haven't overlooked any areas of the site or specific DSEAR requirements.

Author: Steve Sherwen, RPS Group

Keeping process industries safe: past lessons and current best practice

Sponsored by RPS Group

Chair, Phil Scott, director of safety and security at **Chemical Industries Association** (CIA), opened this year's CNW conference held at Sci-Tech Daresbury on 1 November 2018. Its aim was to share best practices as well as to review the process safety management training programe and the range of professional support and services available in the sector.

Andrea Longley of CIA recounted the Piper Alpha disaster which occurred on 6 July 1988. 167 people died and the bodies of 30 other people were never found. There were 61 survivors. The subsequent Cullen Report concluded that a low-lying gas cloud containing probably 30-80kg of fuel escaped from a blind flange where a missing relief valve should have been, was the cause.

The fire which followed the initial explosion was fuelled by a pool of crude oil released by the rupture of a 4" line from projectiles generated from the disintegration of a firewall in the initial explosion. The subsequent massive explosions resulted from the ruptures of the gas risers from other platforms which continued to feed Piper Alpha.

The outcomes from the incident have shaped how safety management systems have evolved over the years including; permit to work, training, safety committees, safe isolation with locks and tags emergency response shift handover. Moreover, the safety culture and leadership within organisations was given a much higher profile.

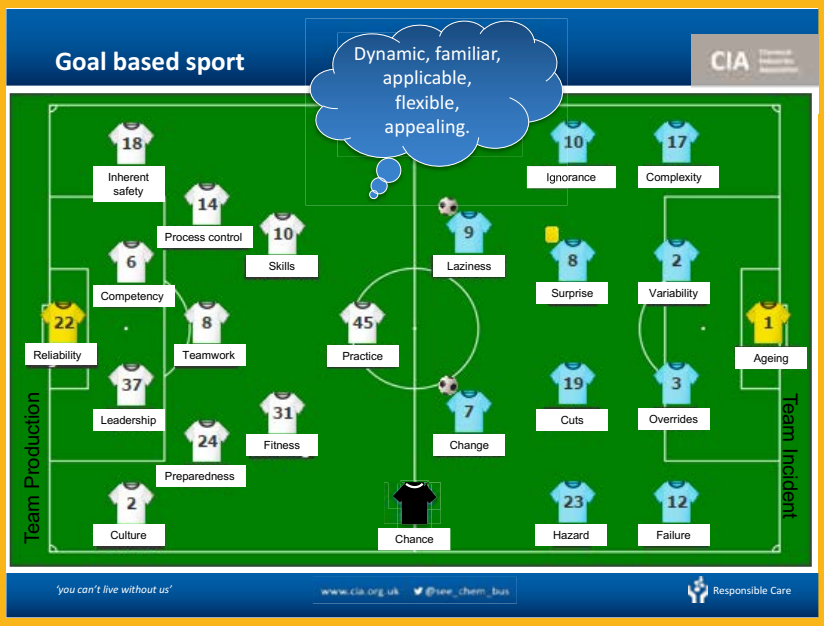
The primary responsibility for safety lies with those who create the risks and those who work with them. One key message was that the important learnings have not just been for offshore oil processes, are applicable to other sectors including the chemical industry.

Andrea introduced a 'fantasy football' model for process safety assessment ... if your team is '**production**' (a goal represents material being manufactured) then the opposition team is '**process safety incident**', (their goals represent a loss of containment event). Every tackle is a challenge to a safety barrier, every pass is a processing step with a risk of interception by the opposition.

Every safety override is a free kick and every missed vessel inspection is a penalty. Defensive set pieces are emergency response drills, normal football rules of course don't apply. You want to win every match 100 to nil at least. To do this your team needs to include players such as ***leadership***, ***culture***, ***planning***, ***training***, ***competence*** and ***inherent safety*** while the opposition has ***change***, ***failure***, ***ageing*** and ***hazard***.

Cost cutting and ***ignorance*** are also on the opposition team but you could have the opportunity to have them sent off with a red card. The referee is ***chance*** as he can't always be guaranteed to be on your side. The ball represents workload and there could be more than one of these on the pitch at any time.

The idea is that envisioning process safety management as this type of football match gives an element of familiarity to the language and would encourage the right feelings of chronic unease and help both management and workforce realise the implications of allowing one or more of their process safety fantasy football team members to become unfit for purpose. The point being that every player on your team takes effort from the management to keep in good condition, but the opposition team is relentless!



The **Stepan UK Ltd** site at Stalybridge won this year's CIA "Process safety leadership" award based on a series of major improvements implemented with effective worker engagement and ownership. Peter Wright explained how pleased and proud he and his colleagues were on winning the award, emphasising, "we are getting better in learning from incidents and getting people across all functions participating in process safety".

There have been many drivers employed in delivering these improvements. Corporate programmes have been enhanced through more effective process safety management (PSM) audits, process hazard assessment (PHA) reviews and higher design standards. These features extend to building stronger management systems including KPIs, system audits and reviews and monitoring continuous improvement. Beyond the business itself, management is keen to engage with its peer groups in order to share best practices and incident/near miss learnings. Fifty staff members have undertaken PSMO training over the past three years, all passing their assessments and resulting in a major boost in training to address ageing workforce issues.

Dr Caroline Ladlow of **Kindlow Safety Services Ltd** challenged operators to really know what can go wrong with their processes. What happens if the cooling fails, or the concentration of reagents is incorrect, or the additions have been delayed? It is also important to understand your process and how the consequences of things not going right could be disastrous; e.g. runaway reactions or a reactor blow- up.

The company's range of services are aimed at helping companies gain more knowledge about their processes and to improve the safety of its operations. They include: thermal stability testing, dust explosions and many physio-chemical testing services.

Conference Sponsor **RPS Group** is a leading provider of risk management consultancy services. It has developed a unique Bow-Tie analysis software product that embraces the 'Hazard & Effects Management Process' philosophy, a technique that provides a graphical display of the relationship between hazards, threats, barriers, escalation factors and controls. It helps demonstrate sufficient controls are in place for the effective management of all process hazards and risks. People, processes, documents and hyperlinks can be assigned to each barrier, all captured in gap analyses and action plans. It provides for extensive reporting and auditing options. Bow-Tie analysis can be a great tool and it is recommended to include process operators when using it.

BPE Design and Support Ltd is a provider of specialist process safety support services to the high hazard process industries. Jonathan McGeehan outlined a novel approach to modelling explosions based on successful dust explosion software. The roadmap was produced in response to there not being a rigorous approach for dust explosions. It can however also be applied to flammable gases, liquids and mists.

Named "The Unwrapped Pentagon", it is a model comprising an eight-step situation assessment, starting with the presence of fuel. Then the various dispersion mechanisms are considered including; vents, leaks and evaporating liquid pools. You can optimise your dangerous substances inventory and hazardous areas classifications, review sources of equipment, and fully consider the severity and consequences of an explosion.

Sarah Grindrod of **HFL Consulting Ltd** explored the worker development challenges faced by firms in a 24/7 industry. What is the best way to train your people and how to continuously improve knowledge and competency? Accessing hidden potential is a key aim of 'blended learning', combining underpinning knowledge with learner enrichment via an andragogical approach (adult learning). That is, self-motivated, self-directed learning and seeing experience from problem-solving rather than theory, as a valuable learning resource. An agile approach to blended learning programmes accommodates everyone's needs, enabling anytime, anywhere learning fitting around individual or organisational commitments.

Many leadership lessons were learnt from the Buncefield incident in 2005, but what have we learnt and are we doing better? Carolyn Nicholls of **RAS Ltd** reminded the conference of the Process Safety Leadership Group (PSLG) principles from 2009, which are to be looked at again and built upon. "How do we know what good leadership looks like and how do we know what we know?" RAS Ltd is collaborating with Hull University

to build a knowledge pool of resource, which includes; human factors experts, risk managers and psychologists. The chemical industry has also asked if we benchmark ourselves and do we look to other sectors for the purpose of learning and collaboration, for instance nuclear or aviation?

Richard Roff is Regulatory Affairs director at **Costain Group** in addition to being Chair of the **Process Safety Leadership Training Committee**. Managing large construction projects is not dissimilar to operating in the high hazard process industries, hence process safety principles can also apply. The process safety management programme board was established in 2010 with the aim of delivering industry-approved training against standards. The training has flexibility embedded through bespoke and modular materials, with in-house or external delivery options. The number of delegates to go through the training has increased steadily since then and the total now stands at 11500.

At Costain process safety management is relevant in delivering infrastructure projects. A company leader for process safety management was created in 2013 and the following implementation of process safety management training for operations has resulted in a bespoke approach to reflect the nature of catastrophic incidents in infrastructure delivery. The organisation has benefitted from more risks and barriers being identified, improved KPIs and dashboards enabling better management decisions.

David Royle explained the features of the **Lyondel Basell** process safety improvement programme. In determining the right safety culture it was important to make it relate to people, "barriers, barriers, barriers – what are people doing to make process safety strong?" Asset integrity is an important part of a safe operation and safety integrity level demonstration is the foundation. The site users leading process safety performance indicators to monitor performance. Good process risk management entails the risk assessment of process hazards and layers of protection analysis.

It is also important to understand the human factors involved in designing the safety critical operating panel and alarms management. In terms of competence, a new assessment for site managers, in-house training for new employees and broader emergency training are in place. Learning from incidents now features highly in the process safety management system, including opportunities for peer review and remembering the past.

The **Health & Safety Executive** is rolling out a new initiative designed to deliver more focused and effective regulation: 'Profiling, Targeting and Strategy' (PTS). Helen Berry who heads the CEMHD4 division provided background to this framework for strategic thinking. The Competent Authority doesn't own the risk and it can't look at everything. ***'Profiling'***, is where key factual information regarding the site is re-visited; process description, surrounding environment, inherent hazard classification and dangerous substances inventories.

'Targeting' then focuses on those issues, including known poor performance, through identifying 'sample points' where the management system can be tested, leading to planned intervention. The following ***'Strategy'*** formation stage will ask questions such as: where is the establishment now and in terms of regulating, does it need to change in the future? The aim is to continue to deliver 'good regulation' and whilst primarily COMAH-centric, PTS is not a new approach to regulation. Sites can ask to see their own PTS strategy and they will be encouraged to take ownership. The plan is for all COMAH establishments to have 3 to 5 years strategies by the end of 2020.

The Energy Institute has described 'creeping change' in its CCHAZID guidance as the "accumulation of small unplanned changes which result in a significant change". Mark Burke of **Robinson Brothers Ltd** explained how his company is employing this philosophy. Creeping change can occur within process deviations or staff changes which become permanent without being fully assessed. It could also result from unfinished actions following planned changes, or changes where the scope of assessment is limited, such as environmental impact not fully considered or understood.

CCHAZID guidance follows a hazard identification methodology which is flexible in terms of scope and programme of work. Using the guidance, the company has learned how the methodology is highly adaptable as it is geared towards processes and not people. Mark advises that you have the right people in the room and be aware that it can be time consuming when assessing a specific target area.

Please contact John Roche: @ RocheJ@cia.org.uk for further information

Fundamentals of Process Safety

4–8 March 2019, Manchester, UK
24–28 June 2019, Edinburgh, UK

IChemE's flagship process safety course explores the key principles of process safety and its management.

Essential for anyone who is involved in the design, modification, operation and maintenance of a major hazard or process plant, or those who want to gain a thorough understanding of process safety.

The course references the six functional safety areas of IChemE's process safety framework: *knowledge and competence*, *engineering and design*, *systems and procedures*, *assurance*, *human factors* and *culture*. It features a mix of interactive exercises and workshops, case studies and theory covering the core areas of a process safety framework.

Full details and registration **www.icheme.org/process-safety-uk**

This course can also be run in-house, email **courses@icheme.org** to request a quotation.

IChemE Safety Centre

IChemE ADVANCING CHEMICAL ENGINEERING WORLDWIDE

The Institution of Chemical Engineers (IChemE) is celebrating ten years of its flagship Fundamentals of Process Safety training course.

Fundamentals of Process Safety is an intense, five-day training course and its aim is to help give all those working within the process industries a better understanding of the key principles of process safety and its management.

Having been presented across the world, training hundreds of delegates, its core belief is that it is contributing towards producing safer working environments and lessening the likelihood of future incidents. One of the originators of the course, Robin Turney CEng FIChemE, discusses the incident that triggered the development of the course and how it came together:

Following the explosion at the Texas City refinery in 2005 which resulted in 15 deaths and 170 injuries, BP established an independent panel to review process safety at its US refinery operations, the Baker Panel. One of the panel's ten recommendations related to the understanding of PSM:

Recommendation # 3:

> Process Safety Knowledge and Expertise: BP should devise and implement a system to ensure that its executive management and all refinery personnel including managers, supervisors and contractors, possess an appropriate level of process knowledge and expertise.

The requirement for a sound understanding of process safety is not restricted to BP and in 2007 IChemE's Safety & Loss Prevention Special Interest Group established a small working group to review the Institution's training portfolio, paying attention to the above findings.

We identified courses, offered by IChemE and others, covering specific process safety elements. Attending some of these courses would go a long way towards providing a broad understanding of process safety management. However, the courses would inevitably overlap and it was unlikely a non-process safety specialist would be able to attend more than one or two courses.

This thinking led the Institution to develop a new course 'Fundamentals of Process Safety'. Whist initially aimed at chemical engineers it was recognised that success in process safety requires input from scientists and engineers from many different disciplines, all of whom need to appreciate the basic principles and how their contribution interacts with that of others.

The concept was shared with the Health & Safety Executive who agreed on the need and offered technical support in course development. A working party of Institution members was then formed with representatives from the following organizations; HSE, BP, Yule Cato, Ineos, GSK, Cambridge University and IChemE. I acted as chair of the working party.

After agreeing the course aims and learning outcomes, which remain largely unchanged today, we agreed to limit the course's duration to one week, enabling as many delegates to attend as possible. Anything less than five days would not give us adequate time to cover the required syllabus.

It was considered important to provide a basic understanding of technical aspects of process safety, including ways in which the engineers' scientific and engineering training could be applied to process safety. It was however recognized that such an understanding would, by itself be insufficient to ensure that the knowledge was applied. It needed to be accompanied by an understanding that most accidents are not attributable to engineers or others who are 'bad guys', but by those who fail to apply the necessary diligence and thought to their actions.

The best way of demonstrating this was seen to be through the detailed discussion of case studies. Those used were carefully selected to demonstrate the catastrophic consequences which can arise from failings in process safety, the different failure mechanisms involved, the importance of multiple layers of protection, interdependence and the reliance on the contribution of many people in achieving safe operations. This approach was used successfully by Trevor Kletz and was helped by the extensive library of material available from the Loss Prevention Bulletin as well as detailed material on the Texas City explosion which was made available to the Institution by BP.

We also decided that some form of assessment was important and included an end-of-course exam of approximately one-hour duration in the course. Whilst the exam provides an important baseline, process safety is essentially a practical topic and its important that delegates continue to receive appropriate support and mentoring after the course, including if possible, an assignment. The pilot course took place in October 2008. The course was a success and the feedback we received from delegates helped us further improve the course, simplifying some modules and expanding others.

I strongly believe that by attending the Fundamentals of Process Safety training course, together with effective PSM systems, has helped reduce the likelihood of further incidents. Ten years on, the growth of the course both in the UK and internationally, as well as the feedback from attendees, more than justifies the effort invested.

Author: Robin Turney CEng FIChemE Professional Process Safety Engineer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People Plant Process Productivity

Process safety: meeting learner needs in modern business

Successful businesses require a capable workforce with both structure and defined processes to ensure that everyone understands what needs to be done and does what is expected. This calls for strong leadership, management alignment and competent employees with the knowledge, skills, experience and attitudes to deliver what is needed, day after day.

Leadership in process safety requires an appreciation of the risks to people, the environment and the business, plus a vision and an ability to share it with others. A good leader will also respect the creativity of others and learn from them, knowing how to motivate them to maximise their potential as individuals and as part of a team. Systems for sharing objectives, plans and information, and processes for development of individual and collective competencies are a requisite.

In the high hazard industries, competence assurance must be linked to the major accident hazards, risk assessments and critical tasks, ensuring that those carrying out the tasks receive the information and instruction they need to complete them safely. Training must not only be task specific but should cover process safety principles relevant to the role and responsibilities. Everyone from senior management to shop floor ought to be included, whether directly involved in operations or essential support functions such as warehousing, logistics, engineering, maintenance, inspection and procurement.

Developing and maintaining competency then is a significant undertaking, and training programmes based solely on classroom teaching can be particularly challenging, especially for large organisations because of the associated disruption, time and costs involved. But it is not always necessary to bring everyone together for training. While class contact time might be an indicator of value in higher education [1], the needs of adults in employment are very different.

Champions of andragogy (the principles of adult education [2]) place far less emphasis on contact time, instead advocating a move towards self-directed study, acknowledging that adults are self-directed human beings whose needs are orientated towards their roles and who are focused on problem solving rather than theory. Then again, andragogy also recognises that experience is a rich resource in itself and so teaching methods must include discussion and encourage participation by all. This means that there is still a need to bring people together to provide an opportunity to challenge experts, share ideas and relate theory and practice.

If we accept the fact that adults are able and willing to take responsibility for their own learning, with the introduction of new technologies, we can adopt a blended approach to learning where some of the lesson materials are accessed online, using laptops, tablets and mobile phones, to support more formal instructor led training.

In a Virtual Learning Environment (VLE), users can access lesson resources, search archives and replay audio-visual materials, anytime, anywhere. Standard and bespoke modules can be combined into sequences and groups to create flexible paths for individuals, teams or departments to follow, and because learners can start and stop at any time, lessons can be scheduled in and around daily routines. Blogs and messaging facilities, which are a feature of VLEs, can be used to further enhance the learning experience by allowing participants to pose questions to trainers and one another, sharing their knowledge as part of an online community. Self-assessment tools can also be used to confirm understanding and establish common strengths and weaknesses before bringing learners together in the classroom or workplace.

A key benefit of combining online lessons and instructor led training is that it allows the basics to be covered through tailored self-study so that learners can come together to really start to build on what they know through lectures, workshops and practical exercises alongside peers.

And so, adopting a blended approach to learning, mixing online digital media with traditional classroom methods developed and delivered by instructors with industry knowledge and an understanding of the principles used in adult education, can deliver programmes that are far more flexible, cost effective and better suited to the needs of adult learners in modern business.

[1] The HEPI-HEA 2018 Student Academic Experience Survey, Jonathan Neves & Nick Hillman
[2] Knowles, M. et al (1984) Andragogy in Action. Applying modern principles of adult education, San Francisco: Jossey Bass.

Author: Dr Julian Hought, Managing Director, HFL Consulting Ltd

For more information please contact: info@hflconsulting.uk

Say Hello to the new faces working with Sci-Tech to support businesses to export

"Bonjour, Hola, Guten Tag, Buenos Dias, Nĭ hăo Buongiorno, Kon'nichiwa, Merhaba, Здравствуйте"!

Sara Pomfret and Gillian Barlow, International Trade Advisers at the Department for International Trade North West (DIT NW) have both been recently appointed as advisers to Sci-Tech Daresbury to help businesses on their road to export success.

With over 30 years of experience in international trade between them, Sara and Gillian are looking forward to working closely with the businesses on campus, to help them to either start out on their export journey or to grow their activity into new and existing international marketplaces. Gillian and Sara will have a regular presence on campus and will be there every Tuesday morning from 9am – 12pm in the Atrium area in the Innovation centre, so feel free to drop in and say hello.

DIT NW offers extensive support to assist businesses at all stages of their export journey - first time exporters, occasional exporters or expert exporters. Their services include:

- programme of free workshops to improve exporting skills and knowledge
- e-exporting programme to support selling on line overseas
- use of DIT services overseas to assist with market research, finding a new partner or facilitate product launches.
- Tradeshow Access Programme (TAP) - financial support towards exhibiting overseas at over 275 selected trade shows as part of a UK Pavilion.
- Access to up and coming Northern Powerhouse trade mission programme.
- Access to sector and country related knowledge and events

Feel free to drop by and have a chat with them about your export queries or indeed just go along to find out more about what they can offer and how they can help! To get in touch with either Gillian or Sara contact:-

Gillian Barlow on 07795 815957 or gillian.barlow@tradenw.org. Sara Pomfret on 07922 581333 or sara.pomfret@tradenw.org

An analysis of customs duties and import VAT

CNW's Brexit discussion group met on 22 November 2018 at Sci-Tech Daresbury in order to catch up with the many recent developments and to hear expert presentations from member companies.

Grant Thornton LLP is helping businesses prepare as much as they can. One area of expertise they offer is around international tax and duties and Matthew Dent and Emma Lomas outlined the options available to chemical companies. In August 2018 HMRC updated its guidance in the event of "no deal", focusing on goods moving to and from EU. In particular, further reporting requirements and additional costs that relate to VAT and duties.

Authorised Economic Operator (AEO) is an internationally recognised quality mark that indicates that a business's role in international supply chains is secure (AEOS). It also shows customs controls and procedures are efficient and complaint (AEOC). It is recognised by all current EU customs administrators and those outside the EU where a 'Mutual Recognition Agreement' is in place.

Applicants must hold a European Union Registration & Identification (EORI) number for EU imports or exports and be established in the EU or UK post-Brexit. They must have a good record of compliance, a satisfactory records system and proven financial security. The benefits include, compliance cost savings, reduced security requirements and being able to release funds for other borrowings/investments. The benefits of AEO are available now and after, any type of Brexit.

Simplified Import VAT Accounting (SIVA) reduces the level of financial security required to guarantee payments of VAT on imports. Successful applicants operate a 0% VAT guarantee for import VAT purposes only (i.e. duty guarantee still required).

Customs warehousing is a method of storing dutiable goods in the UK as if they are outside the UK, deferring customs duty and/or import VAT until the goods leave the customs warehouse or enter another customs procedure.

Gal Maller commercial director at **Banner Chemicals** Ltd described how his company has been preparing for Brexit. In their efforts to lead by example, management has identified its Brexit risk factors and quantified the impact of each. Contingency plans to mitigate each risk factor have evolved. Whatever type of Brexit occurs the company says it will be well equipped to maintain its supply portfolio; based on growing experience of global import and exports, its financial resource and warehousing capacity.


Matthew Dent & Emma Lomas


Ian Cranshaw


Gal Maller

A 'Brexit champion' is now positioned at board level and other staff who take on Brexit awareness during their day job. "It starts and begins with your own people and external people". The company closely monitors and checks its own plans keeping abreast of the changes that happen as they happen, employing a useful 'Brexit calendar'.

Ian Cranshaw, head of international trade at CIA made reference to CIA's Brexit priority areas: product regulations, customs and excise trade barriers, administration, VAT/duties, retaining UK talent, REACH registration and energy costs. The EU is the UK's most important trading partner with 60% of chemical exports to the EU and 75% of chemical imports from the EU. The chemical sector registered little appetite for leaving the EU and with many of our businesses head-quartered overseas, future investment in the UK is likely to be an issue. The UK chemical industry continues to engage with Government departments and other stakeholders and manufacturing sectors.

The UK Government/industry working group was established to address key issues such as tariffs; regulations; supply chains; and people. There is also Good UK collaboration between the chemical industry and rest of manufacturing (e.g. automotive; life sciences; and aerospace), plus good Europe-wide collaboration (CIA/Cefic/EU27 countries). Positive positioning is now being joined by contingency planning, with business addressing the implications of a number of scenarios: "no deal", the Chequers Agreement and a Canada-style Free Trade Agreement. CIA and Cefic is to prepare a joint guidance on protecting against the impact of a "no deal".

Building a workforce fit for tomorrow

Hybrid Search, a Chester based Search and Consultancy business, conducted a workshop in partnership with Chemicals Northwest in October that focused on the key challenges facing succession planning within the chemicals industry. Presented as a round table discussion, the workshop offered the opportunity for business leaders to openly discuss future workforce challenges and the steps that can be taken to overcome them.

The key challenge raised within the discussion was potentially the biggest issue facing the future of the chemicals industry; an ageing population combined with a lack of engineering graduates. Although this will have an effect on the long-term landscape of the industry, it also presents a current issue that will continue to impact businesses more and more in the immediate future. Leaders are retiring, thereby leaving companies with major gaps in both the skills and experience required to drive success within the market.

The only option is to fill these gaps with professionals that are already in the game. The solution is available but isn't something that the industry as a whole seems to welcome; becoming more flexible towards talent acquisition by looking outside of the chemicals industry. The in-demand skills and abilities are available in other sectors. Companies that can take advantage of this will benefit greatly in the short term, especially with regards to the succession of senior level and strategic roles.

Gaining visibility of professionals with these skills and abilities will be a key factor in businesses continuing to drive success going forward. The most effective way of achieving this is by mapping out the structures of companies within other sectors and unearthing these professionals. Coupling this approach with proactive recruitment will allow companies to not only fill the skills gap that is being created but also bring a different mindset and fresh perspective into the fold.

However, looking at this solution as more than a 5-10 year stop-gap could expose companies to concerns further down the line. The biggest issue that companies will face from a workforce perspective is the lack of engineering graduates joining the chemicals industry. The best way to offset this is to start taking steps now towards solidifying the future workforce. When looking for an answer in combating the amount of engineering graduates coming through the pipeline, attention must be given to proactively attracting young talent. But how?

In order for companies to understand the "how", gaining the perspective of graduates by putting themselves in their shoes seems the most effective way to start. Leaders within the chemicals industry will need to accept that other sectors are currently more attractive in comparison due to the industry's traditional appearance and perception. To counter the pull from other sectors, action will need to be taken.

Developing and promoting graduate schemes is a positive way to offer young talent better opportunities for gaining experiences and developing skills earlier in their career than they would within other sectors. This will not only help the industry as a whole, but also give specific companies the ability to develop skills in house and have professionals gain an understanding of their culture early on.

Brexit: REACHing compliance goals under evolving circumstances

On 14 November 2018, United Kingdom (UK) prime minster Theresa May announced that the cabinet of the UK Government had agreed upon a "Draft Brexit Withdrawal Agreement" and an "Outline of the Political Declaration Setting Out the Framework for the Future Relationship between the European Union (EU) and the UK."

These documents can be regarded as the only substantive result of the UK-EU negotiations to date, and quite possibly represent the only basis for a Brexit outcome other than a "no-deal" or "disorderly" exit. These texts elaborate upon the practical consequences of Brexit for chemical companies engaged in commerce in UK and EU-27 markets. Critically, for the texts to hold legal relevance, approval is required from leaders of the EU-27 member states, the UK Parliament, and the European Parliament.

As of the date of this writing, 21 November 2018, Mrs. May is headed to Brussels to agree in final a Brexit deal prior to the summit of European leaders on 25 November 2018. Considering the uncertainty surrounding the Brexit process since its initiation and the resignation of several ministers in the UK in response to the above-mentioned texts, it cannot be assumed the documents will receive required approvals. This means a no-deal Brexit is still possible.

Chemical companies globally are affected by Brexit due to its potentially significant and widespread implications for compliance with the EU's Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) regulation. UK chemical manufacturers selling to the EU-27 market, EU-27 chemical manufacturers selling to the UK market, and chemical manufacturers established outside the UK and the EU-27 and engaged in either market must: (1) understand the impacts of the Draft Withdrawal Agreement and Political Declaration for their businesses, and prepare to adapt accordingly; and (2) prepare for a no-deal exit. Preparing for both scenarios appears vital to support market access and business success.

Under the Draft Withdrawal Agreement, although the UK would withdraw from the EU in March 2019, EU law would continue to apply to the UK during a transition period until 31 December 2020, unless extended once before 1 July 2020 for an unspecified time period. At the conclusion of the transition period, the UK would lose access to EU networks, information systems, and databases. Importantly, a no-deal Brexit could deprive interested parties of a transition period and potentially result in chemicals chaos if appropriate measures are not taken soon.

The Draft Withdrawal Agreement does not include measures that decrease the regulatory implications of the fact that the UK will become a "non-Community" or "third" country in the context of EU REACH. As such, it would appear the following Brexit-driven practical changes in REACH will occur, among many others, either on 29 March 2019 or at the end of the applicable transition period:

- UK chemical manufacturers become non-Community manufacturers, and are required to appoint EU-27 based Only Representatives (OR) if they wish to address REACH compliance for their EU-27 based customers;
- exclusively UK-based ORs are considered outside the scope of EU REACH, and can no longer provide OR services from the UK; and
- UK-based Downstream Users under EU REACH are no longer required to inform UK- or EU-27-based suppliers of their uses.

Companies need to adopt and implement timely REACH compliance strategies that account for wide-ranging Brexit repercussions. Such "Brexitproofing" measures for companies globally could include:

- determining if legal entities addressing EU REACH compliance are established in the UK or EU-27, and transferring operations to an EU-27 entity if required (e.g., ORs);
- evaluating and re-negotiating contracts affected by Brexit; and
- requesting confirmations from key supply chain entities to document that Brexit-related measures are in place.

Brexit is a moving target from a political viewpoint, but many matters for regulatory compliance and product stewardship teams globally appear clearer than before. If entities have not already implemented REACH compliance programs that account for Brexit, they should start sooner rather than later. Simultaneously, it appears essential to follow closely ongoing political developments due to their possible consequences for staffing and budgets, among other matters. The clock is ticking; stay tuned and act now.

Author: Zameer Qureshi, Legal Consultant to Acta EU

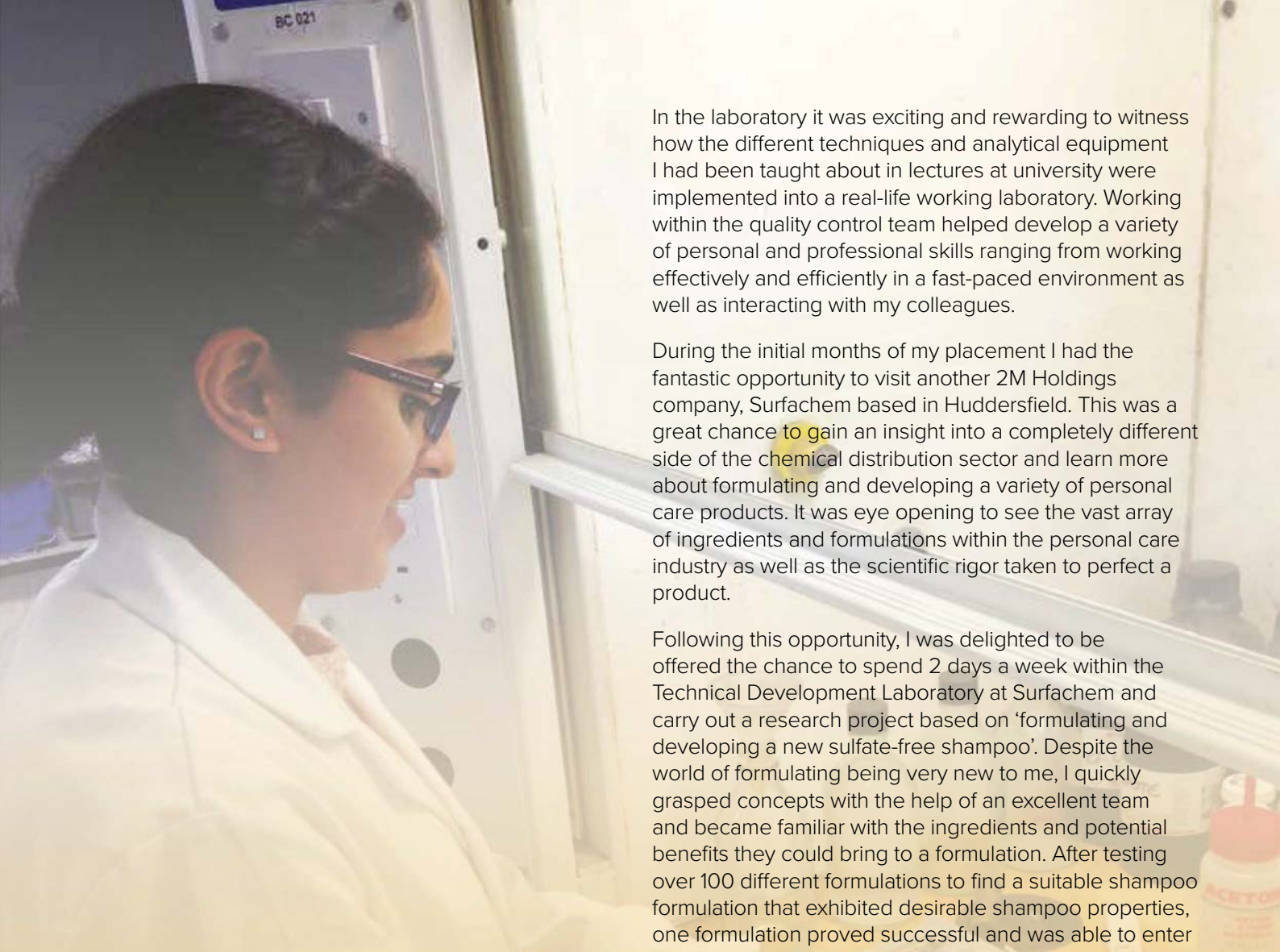
Impressive set of appointments for process engineering leader

A string of new project wins and continued growth has seen BPE bolster its team with several new members of staff. The company, which specialises in chemical and biochemical engineering design, has appointed five new starters across a range of roles as it aims to become the market leader in its field.
Phil Bowles joins as a senior biochemical engineer and consultant. He comes with an enviable track record in the industry, holding technical leadership roles with pharmaceutical manufacturing companies and engineering firms. Having started his career with Shell Research Ltd, he has gone on to oversee a wide range of projects in the UK and overseas. Most recently he was a corporate engineering director for Amgen Inc.

Andrew Stevenson also joins the BPE team in the role of design lead while Liesel Butler joins BPE as a project engineer and Barney Thornton and Jack Plested take on the roles of graduate process engineers. Managing director Noel Quigley said: "2018 has been a hugely successful year and, despite some of the understandable trepidation regarding Brexit, we've seen a lot of positivity across the whole industry. For us, there have been several significant project wins over the last 12 months as our clients look to expand and update their facilities. These latest appointments signify our commitment to ensuring we have the very best team as we continue to expand."

L-r: Phil Bowles, Robert Bussey, Andrew Stevenson, Liesel Butler and Barney Thornton

BPE has been helping manufacturers make their processes safer and more efficient since 1997. It offers a full range of process engineering services, including process modelling, process safety, project management and process development/scale-up support. It counts some of the UK's biggest blue-chip manufacturers among its clients. It is currently half way through its ambitious five-year growth strategy, which was kick-started with the opening of a new office in the North of England last year.



Sareena's story

by Sareena Sund

As the end of my second year at university was coming to an end, I had not secured an industrial placement for the following academic year. I had attended several interviews and assessment centres throughout the year but without success, hence I was close to giving up on the prospect of a placement, despite my desire to gain valuable industrial experience. However, whilst researching chemical distribution companies I discovered 2M.

I contacted the company who were willing to explore the option of recruiting a placement student, which I was more than thrilled about! After attending an interview and site visit, I was delighted to be offered a position within the Quality Control Laboratory at Banner Chemicals based in Middlesbrough starting in July 2017. Having never experienced such an environment before I was very much looking forward to starting my new role as laboratory technician and the challenges it would entail.

In the laboratory it was exciting and rewarding to witness how the different techniques and analytical equipment I had been taught about in lectures at university were implemented into a real-life working laboratory. Working within the quality control team helped develop a variety of personal and professional skills ranging from working effectively and efficiently in a fast-paced environment as well as interacting with my colleagues.

During the initial months of my placement I had the fantastic opportunity to visit another 2M Holdings company, Surfachem based in Huddersfield. This was a great chance to gain an insight into a completely different side of the chemical distribution sector and learn more about formulating and developing a variety of personal care products. It was eye opening to see the vast array of ingredients and formulations within the personal care industry as well as the scientific rigor taken to perfect a product.

Following this opportunity, I was delighted to be offered the chance to spend 2 days a week within the Technical Development Laboratory at Surfachem and carry out a research project based on 'formulating and developing a new sulfate-free shampoo'. Despite the world of formulating being very new to me, I quickly grasped concepts with the help of an excellent team and became familiar with the ingredients and potential benefits they could bring to a formulation. After testing over 100 different formulations to find a suitable shampoo formulation that exhibited desirable shampoo properties, one formulation proved successful and was able to enter the final stage of the development process. This allowed me to appreciate the extensive testing and development process that takes place in order to meet and satisfy customer requirements. This was not only a great achievement, but also provided me with the chance to further develop my problem-solving skills and undertake the same troubleshooting process similar to what a regular development chemist would carry out.

During my time at Surfachem, I also gained a valuable insight into other parts of the business in addition to the laboratory environment, ranging from attending sales meetings to visiting the warehouse and seeing how products are stored and delivered. It was wonderful to experience chemistry in an industrial setting where so many different departments work cohesively to produce a successful business. To be part of such a welcoming and friendly organisation also made it a lovely environment to work in!

Having learnt so much and worked with some incredibly talented individuals, I have left the company knowing I was valued and utilised to the best of my ability. Looking back at my time both at Banner Chemicals and Surfachem, I can say without doubt that my experiences have allowed me to develop my skills set which I will take with me to the final year of my master's degree and indeed beyond into my future career.

REACH after 2018 – ECHA proposes 100 substances for evaluation under CoRAP for 2019-2021

The draft Community Rolling Action Plan (CoRAP) update for the years 2019-2021 was published on 10 October 2018 (ECHA press release: ECHA/NR/18/53). In the original draft released on the ECHA website, 96 substances were selected for evaluation by the member states in 2019, 2020 and 2021. However a subsequent modification was made to the draft list on 24 October 2018 (ECHA press release ECHA/NR/18/60) with the addition of 4 substances. Therefore the CoRAP plan for 2019-2021 now contains 100 substances. Of these substances, 31 are currently planned for evaluation in 2019.

Although existing data on the substances were used as the basis of the prioritisation and inclusion of the substances on the CoRAP 2019-2021 list, authorities granted under REACH for substance evaluation empowers member states and ECHA to request new information to fill data gaps on these substances, thus improving the understanding about the risks these substances pose to humans and the environment. In fact the REACH Regulation calls for the compiling of a draft Community Rolling Action Plan to include "substances that could potentially pose a risk to human health or the environment. In developing the draft 2019-2021 list, ECHA and the Member states used the hazard selection and risk criteria to prioritise substances for substance evaluation (2011 CoRAP selection criteria):

The 2011 CoRAP hazard selection criteria include:

- Suspected Persistent, Bioaccumulative and Toxic substances (PBTs), Very Persistent and very Bioaccumulative substances (vPvB) and PBT-like substances.
- Known PBTs/vPvB substances
- Suspected endocrine disruptors (e.g. based on reproductive effects and/or on structural similarities)
- Suspected Carcinogenic, Mutagenenic and Reprotoxic substances (CMRs) (e.g. based on structural similarities)
- Known CMRs: category 1A, 1B and category 2 according to Regulation 1907/2006 (The CLP Regulation)
- Suspected sensitizers (e.g. based on structural similarities)
- Known sensitizers (skin and especially respiratory sensitizers)

The 2011 CoRAP exposure related criteria include:

- Wide dispersive use (number of sites of use, pattern and amount of releases/exposure, the number and type of reported uses and exposure scenarios from different registrants, the substance is incorporated into mixtures or articles used by the public, the potential size of the exposed population
- The number of using sites if emission due to industrial use
- Consumer use and exposure of sensitive subpopulations such as children
- Aggregated tonnage

The 2011 CoRAP risk related criteria include:

- The risk assessment in the chemical safety report shows that risk characterisation ratio is not well below to 1.
- Cumulative exposure from structurally related substances with critical hazardous properties

The 2019-2021 draft CoRAP substances were selected in many cases based on concerns related to PBT-properties, suspected endocrine disruption, or carcinogenic, mutagenic and reprotoxic properties in combination with wide dispersive use or consumer uses. At this stage some changes to the plan are still possible. The final updated plan will be adopted in March 2019. As such it is anticipated that member states will submit draft substance evaluations for the 2019 batch of CoRAP substances (currently 31 substances) one year after the publication of the CoRAP update by ECHA. After submission of the drafts by the member states, ECHA will forward them to registrants of the substances to provide them with an opportunity to comment. Any decisions to require development of more information will be made public as well as the final evaluations.

The final decision of the evaluation in principle may be that no further action is needs to be requested, or that could lead to a decision requesting further information from the registrant in order to clarify the concerned;

however evaluation may also lead to the introduction of new risk management measures. Title VI, Chapters 2 and 4 of in the REACH regulation indicates that substance evaluation is designed to ensure evaluation has a reliable and consistent basis, that requests for further information are consistent, legislative deadlines and the rights of registrants are respected, and that the responsibilities of the Member States Competent Authorities (MS-CA) and ECHA are clearly defined.
However, CoRAP (via substance evaluation) also reinforces the basic concept in REACH Article 5 "No data, no market". Under CoRAP, ECHA and MS-CA assumes that a substance with insufficient information is potentially a hazard or a risk to the environment or human health. A suspected property is considered by default under CoRAP 2011 criteria to be more important than a known property since this allows MS-CA and ECHA to request additional information to fill data gaps.

Registrants with substances in the 2019-2021 CoRAP list are advised to contact the evaluating Member State Authority to coordinate their actions. More especially for the 31 substances planned to be evaluated in 2019, it is important that the use and exposure scenarios as well as exposure estimations are up to date and clearly documented in the Chemical Safety Reports since the relevant dossier updates should be made before March 2019. Of the 31 substances proposed for evaluation in 2019 (See Table), Germany (DE) and Spain (ES) will act as evaluating member state for 5 each, France (FR) and Italy (IT) will evaluate 4 each, The Netherlands (NL) 3, Latvia (LV) 3, Belgium (BE) 2 and Poland (PL), Portugal (PT) and Hungary (HU) 1 each.

The list of 31 substances to be evaluated under CoRAP in 2019 is available from Chemicals Northwest on request. Adapted from ECHA. Adapted from Draft Community Rolling Action Plan (CoRAP) update for years 2019-2021 of 22 October 2018.

(https://echa.europa.eu/documents/10162/13628/corap_list_2019-2021_en.pdf/3be44b84-5d72-01fe-f8d7-3a5a9c27951e)

Author: Dr. Erick Nfon regulatory scientist, Smithers Viscient

The importance of engineering and skills in the chemicals sector

Fifty delegates booked on to the Autumn CNW Breakfast network meeting hosted by Thornton Science Park (TSP) on 11 October 2018. All were welcomed by TSP CEO Paul Vernon who outlined the importance of the chemical industry to the UK economy and some of the major issues it faces now and in the future. Paul warned of the challenges such as skills and energy and how the University of Chester is providing solutions.

Glacier Energy Services provides specialist services, products and engineered solutions for energy infrastructure that are delivered on-site and from its own workshops. These services include design, manufacture, repair and refurbishment of heat exchanger equipment. Paul McIntosh explained that the company also provides design and manufacture of precision pipe cutting equipment and comprehensive non-destructive testing and inspection services. Beyond this, Glacier can support companies with major turnkey solutions in respect of surface and subsea production equipment and non-destructive testing. Lots of expertise in heat exchangers engineering, energy infrastructure and welding provision.

Joe Howe, executive director and professor of the **Thornton Energy Research Institute** took a closer look at the issue of skills, delivering a more urgent message surrounding the availability of the right skills for the sector's future. He said; "there should be a strong cascading of science to schools if we want long term sustainability of the industry".

Furthermore Joe said; "we need to be positioned to enjoy the benefits of industry 4.0 and digitalisation as outlined in the Government's Industrial Strategy.

Enhancing competitiveness and productivity will always be a need for the future". More broadly, he asked "why isn't there a UK chemical industry sector deal?" Liaison with Government is already underway via the Chemistry Growth Partnership (CGP), but evolution towards such a deal is underway.

Joe also said that "the aim to decarbonise the chemical industry is not new, but let's not forget more local issues such as an ageing workforce, in being more sustainable". There is an urgency to address this skills challenge for our industry.

Cynara Livera represents the **Chemical Industry Consultants Association** (CICA), a group of 33 individual members with a wide range of diverse specialisations. Each focuses on a separate aspect of the industry with respect to regulatory compliance, advice and support.

This diversity makes for great networking and mutual support and information sharing. Members regularly collaborate on projects and share joint membership of various business organisations. The group is always looking for new members with new expertise.

Lorelly Wilson has just been made a professor at the University of Chester, but her main target in supporting the science skills agenda is primary school pupils, 'year 6' in particular. Working with almost 200 schools Lorelly is helping deliver the University's outreach aims explaining how the industry works. This is all through practical demonstrations of 'science in action'. Through dissolving polystyrene in nail polish remover to showing how gravity keeps a ping pong ball attached to an upturned bottle of water, Lorelly describes "science is magical, not magic".

Founded in 1962 in Ellesmere Port, **Laker-Vent Engineering** has grown considerably in the fields of modular fabrication, pre-assembled pipe racks and other site installations. Managing director Michael Ventre listed the wide range of expertise in project management, scheduling, cost planning and control. Bespoke fabrications based upon customers operational requirements and process design are part of a very dynamic business strategy, often through working within a customer's constructability team. The company also provides advice and best practice solutions to ensure designs can if easier, be built offsite, therefore saving the customer time, money and risk at site of safety incidents.

What about “no-deal”?

Brexit developments dominated the latest discussions at the CNW REACH group on 21 November 2018 held at Sci-Tech Daresbury. It is widely known that the Government has been planning for the “no – deal” scenario at the end of March 2019, when REACH authorisations and registrations become invalid. This will lead to the creation of a UK REACH scheme if we are to maintain the same standards and compliance as in EU REACH.

Anita Lloyd, environment, health & safety director at legal firm Squire Patton (UK) LLP explained that in this scenario UK importers who sell to the EU, will not be able to do so anymore. REACH works on a whole-supply chain basis and those chemical companies at the top have registrations and authorisations that benefit those downstream, throughout the EU. The Government is preparing by building and testing a new UK IT system as there will be no UK chemical regulations in place.

However, with a new UK-REACH system in operation there will be two regulatory regimes, two registration fees and lots more cost and administration. If REACH registrations or authorisations of UK companies become invalid on Brexit, serious ramifications and interruptions to the many billions of pounds of trade in chemicals between UK and EU are likely. EU users downstream of a UK registrant will become importers and UK companies will need to appoint ORs in the EU.

Producing a new IT platform and database will require data, so what happens to the existing REACH data of which ownership and access rights will be a big issue? Could the existing ECHA data be directly transferred to a future UK REACH? There is no precedent for this but ultimately the most useful approach would be the ‘grandfathering’ of UK business’ existing registrations and authorisations, subject to initial validation and later full submissions. It would solve many of the supply chain issues, even if just for a transitional period, allowing changes in registrations to be made.

Management of Change procedures at Merseyside & North Wales

Responsible Care

On 7 November 2018 the latest meeting of the Responsible Care cell group took place at the Innovation Centre, Sci-Tech Daresbury. The round table discussions featured sharing on the importance of supervision in control of contractors; process safety design of pressure relief systems; standard operating procedures being fit for purpose and a ‘focus on the little things’ safety initiative.

CIA’s Aila Bursnall facilitated a special session on Management of Change (MOC), the importance of proper formal management procedures, competent persons and suitable and sufficient risk assessment. Some relevant case studies, technical measures documents and guidance were referenced. Sources used were the HSE website COMAH Technical Guidance Plant Modifications, The American Institute of Chemical Engineers (AICHE), with links to Management of Change for Process Safety and the Energy Institute.

The Health & Safety Executive updated the group on new delivery guides being worked on for emergency planning and leadership alongside the strategic approach to COMAH Inspections. HSG 65 is being amended to have a greater focus on leadership.

The Environment Agency stressed all be mindful of both primary and horizontal BREF’s that may be applicable to your site. The BAT conclusions for the Large Combustion Plant BREF were published on 31 July 2017 and the Large Volume Organic Chemicals BREF on 21 November 2017. All installations that have an LCP and/or LVOC activity will need to comply with all relevant conclusions within their primary BREF timescale or apply for derogation and should have held discussions about the application of the BREFs on their operations and potential compliance issues. The IED permit review will include all published relevant BREF’s for the installation e.g. Common Waster Water guidance (CWW) so discharge to water could also be included.

For more details contact Aila: **BursnallA@cia.org.uk**

1ST & 2ND May 2019 Yorkshire Event Centre, Harrogate, Yorks

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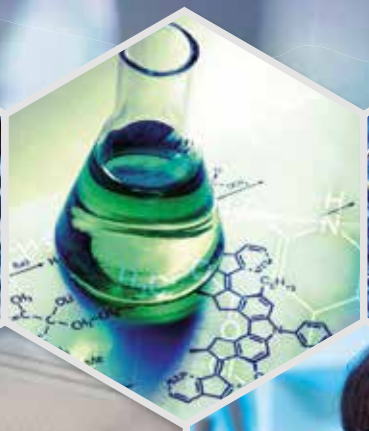


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Supporting Partners include:

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1ST & 2ND MAY 2019 REGISTER FREE AT WWW.CHEMICALUKEXPO.COM

UK chemical industries to converge in Harrogate for new expo, CHEMUK 2019

Industry professionals from all sides of the UK's chemicals sector are set to descend on the Yorkshire Event Centre, Harrogate, Yorkshire on May 1st & 2nd 2019, for the brand new, free to attend CHEMUK 2019 UK supply chain expo & speaker programme.

The CHEMUK 2019 event will bring together the UK's chemical & chemical product industries, providing an intensive 2-day supply chain sourcing, business networking, intelligence gathering, best-practice & strategy development experience.

2-Day Chemicals Industry Supply Chain Expo

CHEMUK 2019 will provide visitor groups with a diverse and impressive showcase of 150+ specialist exhibitors showcasing latest plant, equipment, materials & services supporting the chemicals industries, driving operational performance, efficiency, future-proofing, safety, compliance and more..

Exhibitor showcase set to embrace:

Reaction/Process Plant, Equipment & Engineering
Chemical sector skills & recruitment
Formulation Plant, Equipment & Engineering
Regulatory/Compliance solutions & mgmt.
Bulk Solids & Liquids handling solutions
Environmental, Emissions & Energy mgmt
Pumps, Valves & Flow Solutions
Business Services & Consultancy
Industrial Health & Safety/Security
Regional & Sector trade & technical bodies
Automation, Control & Instrumentation
Basic Petrochemicals & Polymers suppliers
Laboratory Equipment / Testing & Analytical services
Basic Inorganics suppliers
Contract/Toll/Private label manufacturing services
Fine & Speciality Chemicals suppliers
Chemical Logistics, Storage & Handling
Process Chemicals, Additives & Intermediates suppliers
Industry 4.0 (IIOT,Big Data, AI etc)
Green Chemistry solutions/suppliers .... and more

Image courtesy of Busch Vacuum Pumps and Systems (Stand H21)

Speaker Programme

The 2-day speaker programme will deliver some 20+ hours of free to attend expert intelligence, best practice and tech-insight 'snapshots', to inspire and assist next level investment & operational strategies for attending industry groups across the UK chemicals & chemical product sectors.

Keynote speakers will seek to address the BIG topics influencing & affecting Chemical industry businesses e.g. Chemical Industry 4.0, Green Chemistry, Brexit & Regulatory landscape, Supply Chain Management, Disruptive Technologies & Transformational strategy, Process Safety.. and more.

Harrogate Venue

Hosted at the recently completed Yorkshire Event Centre in Harrogate (Leeds City Region), CHEMUK 2019 is located to be equidistant between the crucially important North West, Humber & Teesside chemical cluster regions. In addition, providing easy access for the important Yorkshire-based chemical & bio industries plus good central UK positioning. With FREE ENTRY into all exhibits, features & presentations, plus on-site FREE PARKING, as well as easy access by Rail & Air, the venue provides an easy experience for all visitor groups.

Who should visit?

CHEMUK 2019 reaches out to ALL key chemicals/ chemical product & chemical using industries, targeting Chemical Process Engineers, Operational, HS&E, Control & Instrumentation, Test & Inspection, Manufacturing, Formulation, Logistics, Procurement & Supply Chain, R&D & Scientific professionals plus Chemical industry business teams.

Dates for the Diary

CHEMUK 2019 takes place on Wed 1st & Thur 2nd May, 2019
Venue: Yorkshire Event Centre, Harrogate, Yorkshire
Opening Times:
Day 1: 9.00am – 5.00pm:
Day 2: 9.00am – 4.00pm
FREE PARKING for all visitors. Register NOW for your **FREE entry badge** at **www.chemicalukexpo.com**

Enforcement Undertakings come of age with a settlement of almost £1 million

Many environmental offences may now be dealt with by civil sanctions as an alternative to traditional enforcement options such as prosecution. Such sanctions include the Enforcement Undertaking (EU); where an offender makes a voluntary offer to remedy the effects of their offending and its impact on third parties, and to make sure it cannot happen again. If a regulator such as the Environment Agency (EA) accepts the offer then it becomes a binding agreement and no prosecution will result as long as the offender complies with it.

EA recently agreed an EU of nearly £1 million for serious criminal offences of water pollution committed by Wessex Water over a 12 month period.

Originally, such undertakings were only available for a limited range of lower impact offences such as packaging waste. However the Wessex Water example shows that offences which would previously have been sure-fire candidates for prosecution may now be amenable to resolution in this way, even for serial offenders such as water companies. An EU may also provide speedier resolution and less reputational damage.

It is unclear whether this trend will continue as it is only recently that Thames Water was fined £20 million in order to make its directors and shareholders take notice of it's poor compliance record. However the EA is currently short of resource and so this enforcement approach has practical attractions for the regulator too. If the money paid is well spent then the environment can be improved directly and there is the possibility that adverse publicity will be ameliorated. But some may question whether the behaviours that led to the offending will change.

From a defendant perspective an EU represents a more palatable form of enforcement, and may now represent a viable and perhaps cost-advantageous outcome even for serious environmental offences. It should therefore be considered as a possible option in applicable cases where guilt is not in doubt.

For further information please contact:
paul.bratt@symmetrylaw.co.uk
victoria.joy@symmetrylaw.co.uk

Supplying to the Chemical Industry

Knowing your local supply chains is important, and suppliers of expertise, solutions and great products are right here in the northwest. CNW members have a strong association with and many years of experience supplying to the chemical industry. The companies listed in this directory cover a wide range of products and services. They have established customers in the sector, with proven track records. Many will be well known, long-standing firms and there will also be new and innovative businesses that you may not have heard about. Effective supply partnerships, delivering success for all! For more details, the websites for the listed companies and organisations can be found at:
https://www.cia.org.uk/chemicalsnorthwest/Membership/Our-Members/

Distribution, logistics & chemical handling

2M Holdings Ltd
Chemical distribution and related services of sample management, storage and blending. Provision of AdBlue, Samsol products, packed chlorine and TRIKLONE & PERKLONE chlorinated solvents. Markets served include: automotive, precision cleaning, coating, oilfield & refineries, flavours, fragrances, surfactants for personal care, household and industrial cleaning and pharmaceuticals.

Actikem Ltd
An ISO9001 certified business, specialising in a range of chemical processes and manufacturing services, including mixing, storage and re-packaging. We provide toll and custom manufacturing services for SMEs as well as blue-chip organisations, and supply customers with on-tap production facilities, offering them potential cost-savings and greater flexibility.

BakerCorp UK Ltd
Provision of rental products for transfer, storage and treatment of liquids. Specialising in liquid management solutions for demanding operations, with focus on the tank, pump and filtration product lines. From a single-product storage project to setting up an integrated multi-product solution. Initial chemical compatibility checks, 'job walks', CAD drawings and rigorous equipment maintenance schedules.

Brenntag UK & Ireland
Connects chemical manufacturers and chemical users in a value-adding partnership through tailor-made distribution solutions. Offers specific application technology, extensive technical support and value-added services (i.e. just-in-time delivery, product mixing, formulation, repackaging, inventory management and drum return handling). High safety standards and strives to make served industries sustainable.

Hosokawa Micron Ltd
Integrated powder processing technologies including: size reduction, air classification, mixing, drying, containment equipment such as glove boxes and downflow booths. Contract processing services for 1kg to multi-tonne lots. Remote monitoring solutions that include: condition monitoring, analytics for improving product quality and energy efficiency and on-line diagnostics for predictive maintenance and improved plant availability.

Innovative Packaging Solutions Ltd
A top tier COMAH operation offering many handling services: re-packaging of any class liquid chemicals from bulk isotankers, road tankers, IBCs and drums. Decanting, dosing and sampling. Packaging: HT pallets, strapping and shrink wrapping. Labelling of receipts and despatches. Storage services including: inside, outside or temperature controlled.

Kanon Liquid Handling Ltd
Design and manufacture of drum, IBC and container filling systems ranging from fully automated robotic systems to simple manual machines. Full range of marine, road and rail tanker loading/unloading and safe access equipment. Distributor for Mann-Tek couplings, with repair facility and a 'return to base' option.

Rain for Rent International UK
Temporary liquid handling solutions including newly designed storage tanks, filtration units and spill containment. Combining a storage tank with E-Contain Spillguards, Spillguard Hose Bridges and SolidGround Traction mats will provide a complete containment system protecting your workforce, project and the environment.

Warrant Group Ltd
Freight and logistics services and a founder member of EURTEAM, a dynamic, chemicals network specialising in international supply chain solutions for the chemical sector. CDI accredited and hold AEO status. Customer service staff hold hazard familiarisation certificates. Diverse chemical sector client portfolio, each with different complexities and a bespoke solutions requirement.

Education, training & skills

All About STEM
Lots of different projects to bring exciting Science, Technology, Engineering and Mathematics to schools across the region, linking them with business and industry expert volunteers inspiring the next generation of STEM specialists. Building and maintaining relationships with our schools, businesses, industry, colleges and universities so that we can strategically match-make opportunities with need.

Catalyst Science Discovery Centre
An independent charitable trust playing a pivotal role in promoting science across the Northwest. Catalyst works in conjunction with industry partners to excite young people about all STEM subjects and careers available within the science sector. Companies can also sponsor a local school to visit and attend industry days.

Centre for Industry Education Collaboration
CIEC supports companies in making credible and sustainable links with primary schools, in order to inspire the next generation of scientists and engineers. We train STEM professionals to improve their communication skills, and develop industry-focused activities for use directly by teachers or by ambassadors visiting schools.

Chemistry with Cabbage
We work with students of all ages, demonstrating through practical experiments, the relevance of chemistry in solving problems. Research shows that children make career choices very early on, so capturing their imagination early is important. Chemical companies are welcome to support our hands on work in primary schools.

EngineeringUK
Not-for-profit organisation promoting the contribution made by engineers to society. We partner business and industry, government and the wider science & engineering community, producing evidence of the state of engineering. Sharing of knowledge and inspiring young people to choose a career in engineering.

Manchester Metropolitan University
Vocational training and applied research. The Division of Chemistry and Environmental Sciences trains undergraduate and postgraduate students in chemical, environmental, pharmaceutical and polymer science and technologies. Continuous professional development, consultation services and contract research facilities.

SEERIH
The Science & Engineering Education Research and Innovation Hub positively influences the experience of young people in science and engineering. Expertise in curriculum and teacher development, applied research and creation of innovative projects related to primary science and associated STEM disciplines. Inspiring excellence in teaching and learning in science education.

The Outward Bound Trust
An educational charity that uses the outdoors to help develop young people. Experts in the development of early talent and specialising in providing experiential learning and development programmes for apprentices and graduates. Identification, development and change of people behaviours in line with organisational needs.

TTE Training Ltd
Engineering training and apprenticeships focused on whole person development and bridging the sector's skills gap. The learning environment will be one which is welcoming, safe and inspiring, appropriate to the subjects and responsive to the needs of the learner.

University of Chester
Faculty of Science & Engineering offers new degrees in chemical engineering, electronic & electrical engineering, mechanical engineering, natural sciences alongside established degrees in mathematics and computer science. Close links to local chemical companies with student placements and collaborative research projects.

Wirral Met College
Provision of education and training, supporting innovation and development. The College is pioneering SIP traineeship programmes with local employers, preparing young people for science apprenticeships. New STEM Centre opened in 2016.

Engineering products & services

Altrad Services
An international leader in the provision of critical industrial services principally to the energy, infrastructure and natural resources sectors. The multi-disciplinary service includes access systems, insulation, specialist coatings, passive fire protection, engineering services, refractory linings, environmental services, oil and gas storage tanks and heat exchanger replacement and refurbishment.

Know your supply chains

Chem Resist Group Ltd
Design, manufacture and installation of corrosion resistant process plant. A wide portfolio of thermoplastic process plant, an extensive range of pumps and ancillaries and complete pipework installations, upgrades and repairs. Aggressive and corrosive applications for pumps (1m3/hr to 1000m3/hr, heads to 100m) valves and level controls.

CRANE ChemPharma & Energy
A global manufacturing and sales organisation supplying a wide range process equipment and fittings, including DEPA air operated diaphragm pumps and ELRO peristaltic pumps.

DHD Cooling Limited
Design, installation and maintenance solutions for industrial cooling. Our service extends to cooling system inspection, testing, service, maintenance and new equipment capability. Regulatory and reliability assessments, thermal performance improvements, turnkey projects and carbon footprint reduction.

Dron & Dickson Ltd
The supply and maintenance of hazardous area electrical equipment. Working together with our clients, our Engineering Services Management and Wholesale divisions are able to offer bespoke solutions incorporating the very latest industry standard and safety legislation. From initial concept, incorporating the latest products from the leading manufacturers with tailored maintenance solutions.

Glacier Energy Services
Onsite Machining; design and manufacture of equipment for precision pipe cutting and onsite machining. Heat Exchanger design, manufacture, repair and refurbishment. Welding. NDT services performed by highly qualified technicians. Provision of turnkey solutions in respect of surface and subsea production equipment.
Great customer value, highest standard of service and best-in-class HSEQ performance.

HTS Engineering Group Ltd
Process safety and safety instrumented systems, delivered with a high level of engineering and expertise with cost efficiency. Four key engineering services that can be tailored individually or as one complete solution: process control & software engineering, engineering & design, site installation and inspection services.

ICAM Engineering Ltd
Enviable track record in producing high quality, safety critical products and services, which include; orbital welding, manual TIG & MIG welding, machining both CNC & manual, electro-polishing, installation/modification of gas & fluid handling systems, instrumentation cabinets & panel assembly and 3D engineering design.

Laker Vent Engineering Ltd
Supply, fabrication and installation of process and utility piping systems. Project management, detailing, procurement, on and off-site fabrication and installation of pipework and coded welding. Associated steelwork supporting and mechanical installation of plant and equipment. Testing and handover. Pipework and steelwork is fabricated to specific customer-needs and conforms to all appropriate ISO, BS EN and ASME standards and specifications.

Lokring Northern (UK)
Special mechanical fitting system that produces a permanent weld equivalent pipe connection, eliminating the need for hot work, NDT and associated health and safety issues. Lokring fittings are code qualified to ASME B31.1, B31.3 and other industry standards. A proven cost saver compared to traditional welding and fabrication methods.

Manntek AB
Supply of safety dry disconnect and safety breakaway couplings. Comprehensive range of specialist dry quick release couplings to suit 99% of known chemical applications. Bespoke solutions with a size range of ¾" to 8" nb. Dry disconnect couplings are made to NATO standard Stanag 3756.

Oranmore Environmental Services Ltd
Full turnkey solution for above and below ground infrastructure, ranging from structural surveys to full repair and maintenance of drainage systems, chambers, sumps, pipes, tanks and associated assets. Minimum downtime and disruption for our clients.

Perry Process Equipment Ltd
Buying and selling of high quality used processing plant and equipment. Savings of up to 70% on the cost of process equipment, full mechanical and electrical refurbishment and equipment immediately available form stock. Centrifuges, dryers, evaporators, filters, heat exchangers, mills, mixers, reactors, separators, tanks.

Swagelok Manchester
Fluid system solutions, products, training and services. Supply of over 7000 fluid system components including; fittings, hoses, tubing, regulators, equipment servicing and custom fabricated solutions. Provision of practical information, know-how, tools and speciality services needed to purchase, manage and apply them successfully.

Engineering project management & energy

Bouygues E&S Contracting Ltd
Specialist lifecycle solutions partner offering consultancy. Multi-disciplinary services include: design, architectural, civil & fit-out, construction, mechanical engineering, HVAC & building services, electrical engineering, commissioning, integrated system test and facility management.

Clarke Energy
Specialists in the engineering, installation and maintenance of reciprocating engine-based Combined Heat & Power (CHP) plants. Offering ranges from supply of an engine through to turnkey installation of a multi-engine power plant. Our facilities deliver fuel efficiency, dramatically lower energy costs and help reduce carbon emissions. Carbon dioxide can also be recovered.

Comeca
Energy distribution and management and associated services. Automation & control commands, cabling solutions, low & medium voltage switchboards, HVAC solutions, electronics and power electronics. We are a solid and innovative business partner, with strong knowledge of the major trends in the energy market such as energy efficiency, renewable energy sources and infrastructures for electric vehicles.

E.ON Energy Solutions
As experts in Combined Heat & Power (CHP) we take the time to understand your core business drivers to shape an economically optimised energy solution that supports your long-term strategy. We're at the forefront of energy markets, driving change in response to global mega-trends, including digitalisation, decentralisation of generation, the de-carbonisation of heat and power, and Industry 4.0

Fichtner Consulting Engineers Ltd
International engineering and project management. Provision of mechanical, electrical, process and chemical engineering design services. Strong focus on thermal combustion and full range of processes associated with power applications. Recent growth in renewable energy sources such as: solar, anaerobic digestion and onshore wind projects.

Otto Simon Ltd
Diverse engineering consultancy and project delivery organisation. Initial consultations, technical and commercial due diligence and front end design and definition. Feasibility studies through design, supply, erection, and commissioning services using in-house and licensed technology. Services for complete plants or upgrades. Procurement, construction management, start-up and operation & maintenance expertise.

PM PROjEN
A multi-disciplined engineering, design and project management business working across a range of market sectors for a diverse mix of clients from SMEs to multinational blue-chip companies. Part of PM Group, a 2,200 strong, employee owned company operating across Europe, Asia and the USA.

WorleyParsons Resources & Energy
A professional services company delivering, concept, prefeasibility and feasibility studies, FEED and Detail Engineering, Procurement and Construction. We also offer a wide range of advisory services. We support the chemicals, hydrocarbons, infrastructure and minerals & metals sectors over their full lifecycle, providing end to end services.

Engineering, IT & process consultants

ABB Consulting
Technical and engineering services to help companies in the global process industries achieve operational excellence. Expertise in inspection, integrity management, operations improvement, process safety, project services, site and asset regeneration, technical engineering, software and training and competency. Pragmatic solutions based on technical excellence and industry expertise.

BPE Design and Support Ltd
Progressive and innovative process engineering consultancy. Extensive process development and scale-up experience and process modelling and simulation is a core expertise. Early stage concept and feasibility studies as well as subsequent design, commissioning and qualification stages. Independent HAZOP chairing, ATEX/DSEAR assessments and SIL/LOPA studies.

Gexcon UK Ltd
Safety and risk management and advanced dispersion, explosion and fire modelling. Unique expertise and shared knowledge on how to prevent explosion accidents. Carrying out accident investigations and dedicated facilities for physical testing. Ventilation and dispersion modelling also available. Hazardous area classification and quantitative and qualitative risk analysis and assessment.

HFL Consulting Ltd
A unique blend of leadership, management, consulting, engineering and training services is offered to the chemicals industry. A forerunner in sustainable process safety management combined with proven business improvement

capabilities enables delivery of practical solutions to promote safety and efficiency in design, operation and maintenance of complex hazardous facilities.

Peak42 Ltd
Process control, industrial automation systems and manufacturing analytics. A unique combination of automation projects, consultancy, and performance improvement services delivered by experienced teams. FEED, process control projects, legacy asset replacements, control room and operational technology, modern manufacturing analytics solutions.

Reliable Manufacturing
Reliability-based change management consultancy. A pragmatic approach delivers improved asset availability, reduced operating costs, improved HSE performance and increased employee motivation and satisfaction. Support with implementation of operations and maintenance best practices which facilitate organisational cultural change. A unique range of effective workshops, tools and masterclasses, help get the messages over.

Siemens Digital Factory & Process Industries and Drives
Productivity and efficiency requirements continuously increase in the field of process automation. A comprehensive range of process automation and Drives products as well as an award-wining range of training and support services.

Terrington Data Management
Provision of mobile computing and software systems that enable users to implement effective maintenance and Ex inspection strategies. Software helps users demonstrate compliance with increasing legislation such as DSEAR/ATEX 137. Use of rugged PDAs, android devices and RFID in collection of management of safety critical data, provides an auditable asset history.

Environment, health & safety risk management

AB Risk
Human factors and process safety risk consultancy for process industries. Expertise includes safety critical task analysis, staffing assessments, alarm management, control room design, human factors engineering in capital projects, safety reports. Engineer with extensive human factors experience taking a systems view, assessing complex situations and developing practical and effective solutions.

BakerRisk Europe Ltd
Dedicated to help predict, prevent and mitigate hazards and explosions, fires and toxic releases. Specialising in process safety and risk management, we help clients understand their risks and offer cost-effective risk management solutions. Success is delivered through proven knowledge and experience, innovative research and unique engineering capabilities.

Chemical and Industrial Consultants Association
An association of independent consultants with extensive experience, many having worked in the chemical industry, across various fields. Provision of technical and business advice on almost every aspect of chemical manufacture, development, marketing and management.

HSD Safety Ltd
Valued experience in providing accurate analysis of hazards, identification and assessment of controls and pragmatic advice for further improvements. Services include: hazard identification (PHA, FTA, FEMA, HAZOP, LOPA/SIL, QRA), fire risk assessments, COMAH/Seveso support, bespoke training and legal representation.

RAS Ltd
Expertise that covers the full range of risk assessment and management services across; safety risk, business risk and environmental risk. Carry out Quantitative risk Assessments and Predictive & consequence modelling, through 'softer' risks affecting an organisation's reputation.

RPS Group
Provision of specialist consultancy to help those with responsibility for health and safety achieve compliance. With particular expertise in the chemicals sector, we provide support from plant development through to operation. Core services include: ATEX/DSEAR, asbestos, BowTie analysis, CDM, COMAH support, fire safety engineering, functional safety, hazard identification, Legionella, occupation health and risk assessment/analysis.

Facilities, finance and other business services

ChemQuest Ltd
Sourcing and procurement solutions for research and development. Expertise in biochemical, chemical, nanotechnology, cell cultures, equipment, consumables and sundries. Streamlining and simplification of importing and purchasing processes.

Deloitte UK
Provision of the full range of financial and business services including: auditing & assurance, mergers & acquisitions, global business tax and strategic capital and human consulting. Expert risk advice is available in the areas of finance, operations, cyber security, regulatory and reputation.

Department for International Trade – Northwest
Operational support for British exports as well as facilitating inward and outward investment activity. Support is given to first-time exporters or established exporters requiring more help with accessing more difficult markets or putting strategic alliances in place. Access to expert advice, trade services, training and events.

Falck Fire Services UK
A leading, global and dedicated emergency services provider and fire-fighting specialist to high risk industries. Tailored outsourcing contracts and a high quality integrated fire protection system. Incident fire training courses for emergency response teams, including practical scenarios. Consulting services specialising in fire and explosion hazard management.

Grant Thornton UK LLP
One of the world's leading organisations of independent advisory, tax and audit firms. We help dynamic organisations unlock their potential for growth by providing meaningful, forward looking advice. Provision of assurance, tax and advisory services. A dedicated Innovation practice that has an enviable track record of working with successful and dynamic companies to realise their ambitions for growth.

Halton Borough Council
World renowned research facilities such as Sci-Tech Daresbury and The Heath alongside many companies at the cutting edge of science, technology and advanced manufacturing. We oversee capacity in terms of land, buildings, people and business support creating a world class location.

Pen Underwriting incorporating OAMPS
Specialist Insurance services to high hazard manufacturing and haulage industries. Motor fleets, property, liability and transit policies. We help clients minimise risk through proactive risk management and a range of training and response services to assist companies in planning for and dealing with incidents and emergencies.

Sci-Tech Daresbury
We are a national science and innovation campus, and enterprise zone providing a range of office, laboratory and workshop accommodation for technology companies (from a desk to large laboratory and office units). Companies have access to a range of facilities covering material analysis, virtual design & simulation, and rapid prototyping.

STFC Innovations Technology Access Centre
A unique, fully equipped space for innovation, research and development. Providing flexible access to laboratory space, "hot labs" and scientific equipment. Ideally suited to start-up companies, smaller and medium size enterprises and R&D team from established companies.

Thornton Science Park
Enterprise Zone status offers cost effective corporate headquarters including research & development and manufacturing capabilities. Office space available plus fully equipped laboratory or workshop space. Innovation in energy, environment, automation and advanced materials. Business support through access to academic experts and student resource for short term projects or placements.

TW Languages Ltd
Provision of a professional and reliable multilingual translation service delivering high quality translations. We specialise in business, technical and scientific translations into 250+ language combinations. We provide certified translations for legal purposes. We are full members of the ATC & EUATC and ISO 17100 Translation Services certified.

Laboratory products, testing and services

BioReliance
A leading global contract services company in the area of product safety. We specialise in genetic toxicology screening and GLP assays. Whether requiring pre-clinical toxicology for hazard assessment for REACH registrations or other regulatory studies; BioReliance has all the expertise needed to design and execute your genetic toxicology.

Chilworth Technology Ltd
Process safety testing services aimed at helping companies avoid major incidents such as fire, explosion or loss of containment. Combining process safety engineering and management expertise with the use of test data allows us to help clients achieve the most effective and practical approaches to safe and efficient processes.

Kindlow Safety Services
Provision of process safety testing and consultancy. Understanding of needs to control hazards such as dust explosions, thermal decomposition and runaway chemical reactions. Fully equipped laboratory and experienced team help achieve your safe operating conditions. Other services include: HAZOP, aerosol safety, REACH testing and process safety training.

Labtex Ltd
Suppliers of leading laboratory products and process scale-up equipment. The list includes: HUBER liquid temperature control systems, DIEHM glass reactors to 100 l, PREMEX and AMAR high pressure autoclaves, POPE wiped film or short path evaporation and distillation, Nutsche filter dryers and many more.

Smithers Viscient
Environmental testing and regulatory services, carrying out environmental, consumer safety contract research and regulatory services. Plant metabolism, aquatic ecotoxicology, avian toxicology, environmental fate, honeybee and pollinator testing, endochrine disruptor testing, residue, analytical and product chemistry.

XCellR8 Ltd
A world leader in animal-free testing. Our GLP accredited laboratory provides ground-breaking in vitro safety tests for the chemical and personal care industries. We are passionate about delivering testing strategies that are both scientifically advanced and ethically sound. Our award-winning work is recognised at a regulatory level by the OECD and ECHA.

Legal & patents

Appleyard Lees LLP
Patent and trademark attorneys. Aim to obtain the best possible patent protection for clients. Experience of product clearance against competitor patents and in due diligence for mergers and acquisitions. Advice on licensing issues and collaboration agreements relating to IP.

Bawden and Associates
A legal firm providing professional services across all IP matters. Drafting and prosecution of patent applications, handling opposition and appeals in the EPO and in litigation in UK and international courts. Business led and strategic approach to generate assets of real commercial value.

DLA Piper UK LLP
A global law firm located in more than 40 countries throughout the Americas, Europe, the Middle East, Africa and Asia Pacific, positioning us to help clients with their legal needs wherever these choose to do business.

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Marks & Clerk LLP
Intellectual property services, advising start-ups, SMEs and multi-nationals with large global IP portfolios. Comprehensive range of IP services covering patents, trade marks, designs and copyright. Obtaining protection worldwide, portfolio management, strategic and commercial advice, licensing, enforcement, due diligence, valuations and litigation.

RW Legal Ltd
Provision of pragmatic legal advice to companies in the chemical sector. Particular expertise in drafting and negotiating commercial contracts. Managing legal risk through early involvement to save time and resources in the long run. Competitive rates and flexible fees without sacrificing quality.

Squire Patton Boggs (UK) LLP
Global legal company providing legal, regulatory and advocacy assistance to the chemical and performance material industries. Expertise that emphasises areas that mean the most to industry such as environmental, mergers and acquisitions, commercial finance, construction, litigation, IP, public policy and international expansion.

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Specialist law practice structured to provide "partner" level experts at "junior" level prices, with a focus on the 'high consequence' end of the spectrum. Legal services include: environmental, safety, regulatory, contracts, tax, construction, green incentives, litigation.

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WP Thompson
Intellectual property attorneys providing high quality advice to start-ups, SMEs or FTSE 100 companies. Team of experienced IP attorneys specializing in chemistry and life sciences, with first degrees and PhDs in these fields. Securing the most appropriate, cost effective and commercially valuable protection for your intellectual investment and innovation.

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Baytouch Ltd
Internet-accessed subscription based services that support regulatory compliance in the global chemical industry. Solutions include: ProductTraq – substance volume tracking and supply chain management, PSMonitor – workplace safety management software for high hazard facilities, ReachSuite – SIEF management and other REACH complance features. Innovative software-as-a-service solutions.

Dr Knoell Consult Ltd
An independent service provider for the chemical and related industries. Globally the Knoell group has over 450 employees covering all aspects of regulatory compliance for industrial chemicals, agrochemicals and biocides: e.g., strategic planning, dossier preparation, exposure assessment, SDS preparation, and from REACH to K-REACH!

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Intertek Regulatory Services
Health, environmental and regulatory services for implementation of chemicals management. Worldwide registration of chemicals, food contact compliance and notification, global chemicals compliance, design/optimisation of toxicological and eco-toxicological studies, hazardous substance management, EU cosmetic and biocidal products compliance, classification & labelling, SDS consulting.

SIAM (Soluciones Informaticas Ambientales)
Information technology and software solutions. Includes the software for the generation of SDSs, labels and transport documents in relation to European legislation. Assisting companies in compliance with regards REACH, CLP, GHS, etc.

Stewardship Solutions Ltd
Provision of chemicals regulatory services to organisations across many industry sectors and throughout the world. REACH and CLP compliance is a primary focus, and REACH registrations programmes are a core strength. The company has achieved significant savings in the costs of REACH compliance on behalf of many of its SME clients. Stewardship Solutions is a REACHReady-approved service provider.

The ACTA Group
Assisting companies with complex compliance issues under multiple regulatory schemes, including N American, EU, S American, Asian and Pacific rim regulatory programmes. Expertise in product approvals, product review and REACH compliance. Provision of REACH registration dossier submission, lead and joint registrations.

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Provision of international workforce solutions to the energy, process and infrastructure industries. Placing candidates into their ideal role; rehiring a contractor from one project to the next; mobilising people around the world quicker; searching and selecting a senior executive to fill a key position; or implementing an agile workforce strategy.

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