

A unique industry, with unique companies and unique news

# elements



*In this issue:*

## Inspiring stories...

Exporting expertise  
Business of Science  
Sustainability at Solvay



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## Membership 2017-2018

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 a service to the sector, why not join us today? See over for details or if you want to find out more, contact:

**Alex Abeitis** - Member services and events manager  
alex.abraitis@chemicalsnorthwest.org.uk or visit:

[www.chemicalsnorthwest.org.uk/membership/membership\\_benefits/](http://www.chemicalsnorthwest.org.uk/membership/membership_benefits/)

#### 2016-2017 Rates

Micro corporate membership	(1 - 10 employees)	£410+VAT
Standard corporate membership	(11-100 employees)	£713+VAT
Large corporate membership	(100+ employees)	£908+VAT

# Welcome

The annual awards programme has come and gone, with a number of good news stories celebrated across our membership and the sector. The winners are listed in this issue so let's agree well done to the winners and many thanks to all entrants. A special thanks to all of our sponsors, without whom we'd not have been able to stage such an event.

You will of course have noticed our 'new look' elements. Many will already be aware of recent difficulties in the production of this issue but we are now pleased to be back on track working with our new partners at 2co Limited. We apologise for any inconvenience over the past few weeks and we do appreciate any feedback as we look forward to a bright future for **elements**.

CNW has been pleased to support the Department for International Trade with recent exporting initiatives in the region. With a clear chemical focus, the national chemicals unit underwent a full week's programme of advising overseas officers in DIT across the north of England. CNW hosted two special officer workshops at Daresbury encompassing "one -to-one" sessions. Some very good feedback from company delegates and an improved understanding of the industry sector in the region and its needs in successful exporting.

Now the snap election is over we are assessing how the land lies. This is no more so than in terms of Brexit and as negotiations with the EU have started. We are expecting the CNW Brexit group to be very occupied with many aspects of business to be addressed during the next two years. Watch this space for an announcement of forthcoming topics for the Brexit group. Prior to the general election, CIA took the opportunity to launch its manifesto outlining the importance of the sector to the UK economy.

There is also the final countdown to the end of REACH implementation and the CNW REACH group will be keeping track of the final steps in compliance and looking to arrangements afterwards.

Finally, CNW is upgrading our information capabilities with a brand new CRM (customer relationship management) system linking to a brand new website – all with a view to improving our communications and member service. As most of you will be aware this process can be quite involved and practical difficulties may arise, so we ask people to bear with us as we hope for minimal disruption or inconvenience.

**John Roche**  
Chemicals Northwest



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# CNW sector news...

## Supply chains working group of the Chemistry Growth Partnership



The group continues to better understand the use of chemicals and chemistry in all our downstream supply sectors, with one current focus being the automotive industry. The latest meeting was held at the Advanced Manufacturing Research Centre in Sheffield on 25 May 2017 with participation by Chemicals Northwest. An update was given by the National Composite Materials Centre including significant developments in materials used in light-weighting, particularly carbon fibre.

The UK Automotive Battery Challenge is an initiative launched by the automotive industry in relation to the battery supply chains for electric cars. The working group agreement that battery technology was an appropriate sub sector within its automotive focus for additional research to identify supply chain opportunities.

Regional and national mapping of the current UK chemical producing capability is well underway and is supported by a new UK directory of manufacturers initiated by the DIT.

## CIA industrial manifesto

The CIA has very recently launched its list of expectations and calls to align not only with the general election on 8 June 2107, but as an important on going reference to the following government. "A new industrial partnership to deliver growth for everyone" outlines the association's commitment to working with the government and politicians of all parties as well as other stakeholders in order to succeed. The document lays out many key statistics relating to the industry's importance and the contribution it makes to the UK economy.



It starts with a clear policy for manufacturing and delivering a framework that gives confidence to invest in the UK. There are additional calls for support of science and innovation, climate change measures and energy markets. CIA is keen to see successful delivery of an industrial strategy through working with industry across all regions. It is also important that the chemical industry's voice is heard by government during the Brexit period, with special attention given to trade, skills and the regulatory environment.

**CIA** | Chemical Industries Association

## Designing the trophies at Wirral Met College



This is the fifth year that Chemicals Northwest has invited students from the BA Fine Art course at Wirral Met College to design the trophies for the CNW awards. Each year the challenge adopts a different character for our students. We have always started from the assumption that by commissioning student designs, Chemicals Northwest is looking for innovation, creativity and a unique product rather than an 'off the shelf design'.

For our students working on a real project provides the professional experience that is a key element in their training. This year a group of five students have split the task between them. Dan Lloyd, Sam Lloyd and Samantha Bristow have developed the visual designs on the trophies and Sue Banks and Hannah Kelly have worked on finishing the final trophy objects.

*The students involved in this year's trophy designs are Level Five Sculpture option students: The group has been supported by tutor Stephen Hitchin with technical support from Tanya Dennis.*

# Crown Plaza Winners!

Annual CNW Awards recognised outstanding organisations and individuals

This year Chemical Northwest staged its annual awards dinner in Liverpool as 250 guests dined at the Crown Plaza Hotel and celebrated business success across our sector. Chemicals Northwest chair, Stephen Elliott welcomed everyone to the dinner and in his speech he introduced our host as well as referring to the Chemical Industries Association's work around Brexit.

Dianne Oxberry is the face and voice of Northwest weather when she became BBC Northwest's first on-screen weather presenter. Previously, she was a regular voice to listeners of Steve Wright's afternoon show on BBC Radio Two, having begun her broadcasting career on Radio 1 with Steve Wright and Simon Mayo.

Steve went on to discuss Brexit....."Since the 23rd June 2016, we have worked in both Houses of Parliament, to set out the wishes of the companies of all regions across our sector and most importantly to take their feedback".

"Our agreed priorities for the best possible outcome from the Brexit negotiations focus on tariff-free access to the single market, regulatory continuity and consistency and access to appropriately skilled people".

"And as we strike out alone as a country, never has there been a more urgent time to design and deliver an industrial strategy for the UK. That's an industrial strategy with foundation industries such as chemicals and pharmaceuticals at its heart – delivering long-term growth and high quality jobs throughout the country. Now is our best opportunity to show manufacturing is not just about cars and planes".

And on to the main business of the night! The ceremony proceeded with the winners announced as follows:



Health & Safety Award

Innovation Award



**Engineering Supplier Award**

**Marks & Clerk LLP** sponsored the **Innovation award** which was awarded to **Conductorliner Ltd**. This was for the development and commercialisation of an underground pipework repair system, delivering safer containment of chemicals and protection from static explosions.

*"It's great to know that innovation has been recognised as it's only innovation that allows a country to stay ahead". Lydia McGrath, co-owner.*

**Engineering supplier to the chemical industry award, sponsored by Chemicals Northwest** was won by **Siemens Process Industries & Drives**. The award was for the company's "COMOS" integrated software solution that helps plant design engineers get the best out of all their production data.

*"Fantastic to win this award as we worked hard. It's been a good journey that we want to share with the industry" Neil Hallett*

*There was a special commendation for Peak42 for the delivery of improved process control through innovative software development.*



**Operational Excellence Award**

**Operational excellence award sponsored by Siemens Process Digital Factory & Process Industries and Drives** was won by...

**Vertellus Specialities**. The Widnes site's structured team projects have led to many improvements in its productivity, employee engagement and health and safety performance.

*"It's amazing - we have achieved so much this year". Carl Baker, site director.*



**SME manufacturer of the year**

**Byotrol Ltd** was the winner of the **SME manufacturer of the year**, sponsored by Oranmore Environment Services. The company manufactures a range of antimicrobial products for use in food preparation, healthcare and personal care.

*"We are very honoured to win the award as we are a small company. It means a lot to us!" Dr Huw Evans, research & development director*

**FMC Chemicals Ltd** sponsored the **Health & Safety award** which went to **BPE Design and Support**.

For the design and development of a tool kit to help safety professionals assess and reduce dust explosions risks. Awarded to John McGeehan...

*"We are very honoured to win the award as we are a small company. It means a lot to us!"*

There was a **special commendation** made to **Spiro Control Ltd** for its new programmable automation controller embedded with proprietary model predictive control (MPC) software.



**Spiro Control Ltd Special Commendation**

**The Young talent award sponsored by The Skills Academy** was won by **Danyelle Haines of Glaxo SmithKline**.

*Danyelle says "I am so proud to be the first girl from GSK to win an award it's amazing. I want to motivate more girls to get into industry. I couldn't think of a better company to work for."*



**Young Talent Award**

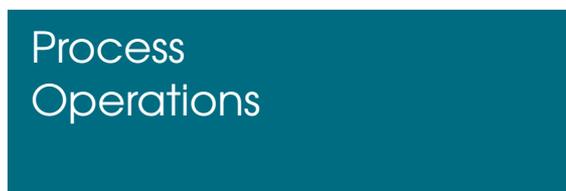
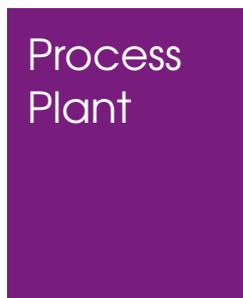
# Time to think about your CPD?

IChemE is a market leader in training for chemical and process engineers and related professionals. Here are some of the courses we offer.

See all the courses available in 2017:  
[www.icheme.org/training-catalogue](http://www.icheme.org/training-catalogue)

Personal Development and Leadership

Commercial and Project Management



## Process Operations

Chemical Engineering for Other Engineers  
[www.icheme.org/other-engineers](http://www.icheme.org/other-engineers)

Chemical Engineering for Scientists  
[www.icheme.org/scientists](http://www.icheme.org/scientists)

Practical Distillation Technology  
[www.icheme.org/distillation](http://www.icheme.org/distillation)

## Safety

Emergency Planning Principles  
[www.icheme.org/emergency-planning](http://www.icheme.org/emergency-planning)

Fundamentals of Nuclear Safety  
[www.icheme.org/nuclear-safety](http://www.icheme.org/nuclear-safety)

Fundamentals of Process Safety  
[www.icheme.org/process-safety-uk](http://www.icheme.org/process-safety-uk)

Gas Explosion Hazards on LNG Facilities  
[www.icheme.org/gas-explosions-Ing](http://www.icheme.org/gas-explosions-Ing)

HAZOP Leadership & Management  
[www.icheme.org/hazop-leadership-uk](http://www.icheme.org/hazop-leadership-uk)

HAZOP Study for Team Leaders & Team Members  
[www.icheme.org/hazop-team-uk](http://www.icheme.org/hazop-team-uk)

Human Factors in Health & Safety  
[www.icheme.org/human-factors](http://www.icheme.org/human-factors)

Inherent Safety in Design and Operation Development  
[www.icheme.org/inherent-safety-uk](http://www.icheme.org/inherent-safety-uk)

Layer of Protection Analysis (LOPA)  
[www.icheme.org/lopa-uk](http://www.icheme.org/lopa-uk)

Process Risk Assessment  
[www.icheme.org/risk-assessment-uk](http://www.icheme.org/risk-assessment-uk)

Process Safety Performance Indicators and PSM Auditing  
[www.icheme.org/safety-performance](http://www.icheme.org/safety-performance)

## Commercial and Project Management

Engineering Project Management  
[www.icheme.org/project-management](http://www.icheme.org/project-management)

## Personal Development and Leadership

Managing Cross-Cultural and Virtual Teams  
[www.icheme.org/cross-cultural](http://www.icheme.org/cross-cultural)

New to Management  
[www.icheme.org/management](http://www.icheme.org/management)

Mentoring for Chemical Engineers  
[www.icheme.org/mentor-training](http://www.icheme.org/mentor-training)



Charity of the year

Charity of the year sponsored by Valtris Speciality Chemicals Ltd was awarded to 'Chemistry with Cabbage'.

The Supply chains award sponsored by Chemical Industries Association was awarded to ACTA recognition of the

Group... in specialised range of legal and technical services relating to chemical products regulations around the world.



Sustainability Award

"We are very surprised and it's fantastic! So pleased and excited to be acknowledged", Michael Thomas, managing director.



Supply Chains Award

Chemicals Northwest is pleased to have hosted another special event and we look forward to welcoming everyone next year.

"It's nice to have our efforts acknowledged given the complexity of our work!" ACTA's professional services focus on the intricacies REACH legislation. Louise Boardall - Regulatory Associate, Amy Jackson - Regulatory Specialist

There was a special commendation in this category for Actikem Ltd, providers of bespoke chemical handling services.



Actikem Ltd Special Commendation



Legal Partner to the chemical industry Award

Legal partner to the chemical industry was awarded to Bond Dickinson LLP recognising its strategic approach in providing a range specialised services to the chemicals sector.

## Inspirational science

### Business leaders recognised ahead of conference

The UK's top business leaders have been recognised for their outstanding contribution to science and innovation. Professor Adrian Hayday FRS, of the Francis Crick Institute and King's College London, and Juergen Maier, CEO of Siemens UK were both awarded the prestigious Business of Science Leadership Award, presented ahead of the second Business of Science Conference 2017.

Judges commended the strong business leadership of the winners, praising their 'incredible contribution as inspirational leaders' and the work they have done to actively engage and promote science at the highest level. Acclaimed academic Adrian Hayday was commended for his extensive dedication to research and Juergen was recognised for his work championing manufacturing and engineering skills.

On the evening, Professor Dame Nancy Rothwell was also presented with a special recognition award for outstanding commitments to the science industry, in particular her efforts in attracting the EuroScience Open Forum (ESOF) to Manchester in 2016.

The theme of inspiring the next generation and driving the commercialisation of great science continued throughout the day-long conference the following day, which saw more than 200 delegates descend on the Museum of Science and Industry in Manchester.

Amongst the speakers, Sherry Coutu CBE, ScaleUp Institute and Founders4School highlighted the ability of science-based businesses to scale up faster than companies from other sectors, including digital, while warning that the fall-off in interest in STEM subjects among youngsters aged between 10 and 18 is a threat to the UK's competitiveness. Other key themes included; development of great science, commercialisation of great science and leadership skills within science.

Other speakers included Sir Richard Leese, leader of Manchester City Council, Richard Carter, managing director UK and Ireland of BASF and Dr George Baxter, CEO of ERI Ltd at the University of Edinburgh. Breakout sessions were held throughout the day with themes including 'science and the vibrant economy', 'unlocking the science assets of the North' and 'encouraging innovation through engineering'.

Steve Bennett, managing director of Science North Limited and founder and organiser of the Business of Science event series, said: "From the inspirational business leaders who have been recognised for their outstanding contribution to science on a national level to the expert speakers who shared their insights at the conference, it's incredible to see the dedication out there to science. "We need to continue to celebrate great science, encourage commercialisation and innovation and entice our younger generation into the industry in order for the UK to compete globally in the sector. A huge thank you to all of the Business of Science sponsors who helped to make the conference, dinner and leadership award possible.



# Eight minutes...

More than enough time to die!

Reducing serious injury and death in industry has been a challenge driven by the Health & Safety Executive (HSE) for decades, but to further reduce these levels we need to bridge the gap between an incident occurring and the ambulance arriving, which is typically eight minutes and often longer.

The ATACC Group is a unique organisation, with a 20 year history in training the world's leading trauma and emergency care providers in courses approved by the Royal College of Surgeons. That extensive experience has now been adapted to suit moderate to high risk industry, setting new standards of safety and injury management.

Following an incident in Cheshire, this knowledge and training facilitated the safe care and rescue of an injured casualty, from inside the confined space of a pressure vessel at height, which highlighted the importance of such

skills. Since then, with the support of the ATACC Group, that site has established a highly capable rescue and casualty care team.

In 2013 the HSE changed the rules and the onus is now on companies to assess their own first aid needs, based on an internal risk assessment. ATACC Group can help an advise with such risk assessments, with senior emergency service instructors backed by medical experts in the field of rescue and casualty care.

The unique, immediate emergency care training programme, rescue training and the associated governance have been adopted by Industry, Cheshire and Hampshire Fire & Rescue and North West Police Forces. The seamless programme allows sites staff to bridge the gap between the injury and the arrival of the emergency services with simple but proven first aid methods.

Taught in a fresh and innovative way, this standard is ideal for moderate to high risk industries such as chemical plants or constructions sites.

*Author: Dr Mark Forrest*

## 2M Holdings Ltd expands & builds presence in Germany

acquiring dry ice producer CE-O2 Trockeneis GmbH

2M Holdings Ltd (2M) is delighted to announce it has acquired CE-O2 Trockeneis GmbH (CE-O2), a privately held, long standing producer and supplier of dry ice to customers in the food, catering and life science industries.

“When we acquire a business our objective is to buy a good business and help it to grow and become excellent. An added benefit is when we can use it as a stepping stone to add product lines which support our suppliers and new customers” said Mottie Kessler, 2M chairman & ceo. With its prime location in Düsseldorf airport and its excellent reputation, CE-O2 is a perfect fit to support 2M's growth strategy. “Having established CE-O2 in 1999 and growing the business, we decided it would be best to find it a new owner who would support its further growth, while

maintaining workforce and reputation. We feel that 2M is the ideal new home for the business we established and for its employees” added Mr Wagener, key shareholder and managing director of CE-O2.

Dry-ice is used in a variety of industries and applications:

- Biological research → keeps samples fresh
- Medical procedures → enables the transportation of organs for transplant
- Food processing → freeze drying, cold grinding and keeping food fresh for many hours
- Cleaning → dry ice blasting
- Rubber processing
- Pharmaceutical manufacturing

Mr Reiner Niethammer, who has many years' experience in the industrial gases industry, will become managing director and the selling shareholders will continue to support CE-O2's growth under 2M's new ownership.



# DIT one-to-one...

## Working closely with the Department for International Trade

On 9 March 2017 Chemicals Northwest hosted an afternoon on one-to-one meetings with DIT staff from the UK and overseas. Companies were able to book 20 minute appointments with each desk for information and guidance on: practical approaches to market research, how DIT NW could assist in growing your business overseas, national activity by DIT Chemicals Sector Group in London and help from the chemicals trade officers from DIT Düsseldorf and Barcelona on market entry or resolving current issues.

time was used to visit the desks they hadn't pre-booked which also revealed interesting information.

### Delivering Sector Knowledge

Two months later on 11 May 2017 Chemicals Northwest again hosted a delegation of DIT overseas officers during their visit to the UK as part of the DIT Chemicals "Deliver through Sector Knowledge" tour. The DSK scheme equips the overseas "front-line" teams (from both the investment and trade side) with the knowledge, awareness and confidence to deliver the UK message to overseas investors and buyers.

Basing themselves in Manchester, the week started with an update on the UK chemicals manufacturing sector both from a trade and investment perspective. The national industrial strategy was covered by BEIS followed by presentations from the North West Local Enterprise Partnerships (LEPs).

Site visits to Tata Chemicals Europe (TCE) at Middlewich and Inovyn at Runcorn gave 'on the ground' insight into existing key UK manufacturing capabilities. Communications manager for TCE, Richard Redman, said: "We were very proud to host the Department for International Trade. The visit was a very enjoyable and useful experience, and I think both parties learned a lot from each other. We are looking forward to working together in the future, and further developing our exports and international trade relationships."



Left to right: Charles Jacobson, Tricia Francis Ayca Kilicli, Alex Abraitis, Ivan Lima, Mark Oakes

### Meet the DIT trade officer

This is an amazing way in which an aspiring exporting company in the region can meet with an expert in an overseas market to find out more about the make-up of each economy, practical advice on trading within that country and pointers to potential opportunities. It is a great service that the UK government provides and feedback from the participants was hugely positive.

Feedback from attending companies was very positive with the sessions described as encouraging and providing real opportunities to grow business. Spare





The visit to Sci-Tech Daresbury gave the Chemicals Industries Association and Chemicals Northwest an opportunity to discuss their membership base and the help they give to chemical companies. This enabled the DIT officers to discuss sector issues and learn in more detail the capabilities of the region. Paul Stowers, acting regional director North West for DIT also gave an update on support for Northern Powerhouse activity.

After a site tour of Sci-Tech Daresbury led by its business support manager Paul Treloar, the opportunity was, once again, available for local companies to meet with the overseas officers from Austria, Australia & New Zealand, Germany, India, Italy, Japan, Spain, Switzerland and the USA to discuss trade and investment issues. The final day for the officers was dedicated to reviewing the week, sharing their experience of showcasing the UK chemicals sector in their respective countries and using the information gathered throughout the week to improve their “pitch”.



**Companies wishing to learn more about DIT NW services, chemicals activity organised on a national basis and how to connect with the overseas teams should contact Tricia Francis, International Trade Associate on [tricia.francis@tradenw.org](mailto:tricia.francis@tradenw.org) or 07966 560644.**



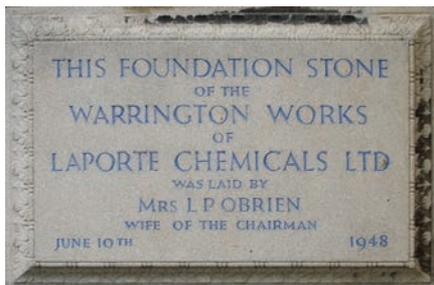
Department for  
International Trade

# A sustainable future

based on a sound history

Company founder Ernest Solvay invented the Solvay process for manufacture of soda ash in 1863. Solvay's history has evolved from a family business and continues to adopt a philanthropic approach to workforce. He was at the forefront of the global science community, participating in various congresses alongside great physicists such as Marie Curie and Albert Einstein. Growth has been through innovation and new markets. Today the Solvay group operates in 58 countries and employs around 27,000 people.

The Warrington factory opened in 1948 and is situated on the banks of the Manchester Ship Canal in Lower Walton. It became wholly owned by Solvay in 1992. Manufacture of its main product hydrogen peroxide, plays a strategic role within the global Peroxides Strategic Business Unit. Ninety percent of sales from Warrington are to the UK market.



In order to ensure continuation of corporate growth into the future, The 'Solvay Way' strategy was launched in 2013. It visualises the group's corporate social responsibility approach, translating its ambitions into clear actions and responsibilities. Underpinning the policy is a thorough management system that demonstrates and reports progress against actions and goals. The five over-arching objectives of the Solvay Way will guide us through this review of implementation at Warrington.

Hydrogen peroxide is classified as hazardous but is also an extremely versatile material with chief industrial application areas including: pulp and paper, chemicals, aquaculture, mining, effluent management, food and pharmaceuticals. The company is keen to highlight that its products contribute to the quality of life by purifying water, keeping clothes clean and enabling more energy efficient home heating and lighting. Thus 'products' feature highly in their sustainable



Ernest Solvay - front row, third from the left  
Marie Curie - front row, second from the right  
Albert Einstein - back row, second from the right...  
at the Conseil De Physique Solvay 1911

development attributes. Supplying to thousands of industries, Solvay Interox continually looks at ways to further reduce its impact on the environment, asking chemistry to do more with less. Adherence to good product stewardship principles means close attention is paid to customer and transport safety, environment and security.

Described as a 'breakthrough for the aquaculture and salmon farming industry', the company has recently developed and launched a product called; PARAMOVE®. The hydrogen peroxide component, quickly removes possible parasitic diseases such as sea lice from the fish, leaving only oxygen and water in the environment. Good for food production and good for the environment.



As an upper tier COMAH (Control of Major Accident Hazards regulations) facility, due to the processing activities it carries out, management is fully aware of the responsibilities this brings in running a sustainable business, as well as being a good neighbour.

Occupational safety and process safety are the most important aspects of running the Warrington business. The company is a keen proponent of the Responsible Care principles striving for continual improvement in environment, health and safety (EHS) performance. Examples of going beyond compliance include; plant-based positive safety discussions and the eight 'life saving rules' which clearly help staff and contractors work safely.

As the number of lost time accidents at Warrington is reducing, progress toward the group's 2025 target is happening. Martin Griffiths, quality, health, safety and environment manager says, "we have a fair safety culture and our employees have a pride in working for Solvay at Warrington".



*Students at the Solvay-Priestley College science conference*

Employee well-being is an important component in developing the site culture. Solvay Interlox wants to offer employees a safe and secure working environment that encourages professional development, and maintain a regular dialogue with them in an atmosphere of trust. Three-yearly employee climate surveys are carried out with the overall commitment index on the way to reaching the 2025 target of 80%.

Educational advancement in science subjects is at the forefront of Solvay Interlox's community liaison programme. The company supports several local school projects through employee time as well as donations. Examples include: sponsorship of the Priestley College sixth form science conference, staging a one week summer school with work experience for fifteen year old students and supporting the Sir Thomas Boteler High School careers fayre. Martin adds, "promoting science as a future career opportunity is one way that we are helping address the future industry skills agenda in the region". The group's 2025 target is to double the number of employees involved in societal actions.

Manufacturing excellence is core to current business improvement drives. Started in January 2015, new 'special focus' teams have been set up to concentrate on important business elements such as; energy efficiency, housekeeping and 'loss of containment' surveys. Success has already been delivered by the energy team through optimising resources. Furthermore a 'clean plant' initiative designed to minimise process waste is also underway. Site director Craig Barraclough said, "we aim to make sustainability 'real' to people within their daily jobs. Generating new ideas and working smarter will help improve productivity". The 2025 environment target is to reduce the group's greenhouse gas intensity by 40%.

Solvay Interlox experiences low staff turnover, but this doesn't stop management from planning for skills in the future. Jean Allen, human resources manager, is pleased to hear about modern university courses aligning workplace disciplines, such as safety and business, with the academic component of science syllabuses.

***"You don't have to be a chemist to work in the chemical industry, there are many other skills required and it should be about being part of a team".***

*All the signs are here of a business that is going in the right direction!*



*Left to right: Martin Griffiths, John Roche, Craig Barraclough*

# Insuring against cyber attacks

and free technical audits for Chemicals Northwest members

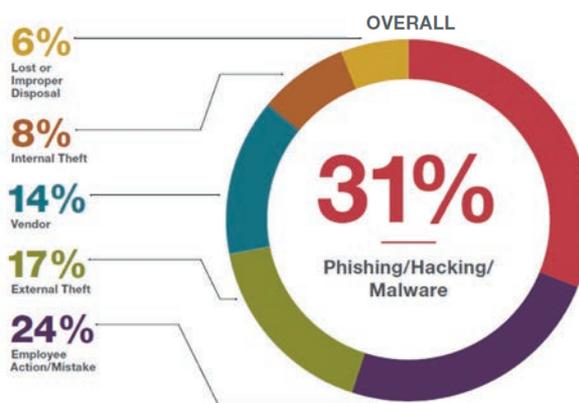
A growing array of security and privacy threats, individually or in combination, pose significant financial, reputational and physical harm to businesses, organizations and the communities they serve. It is critical for organizations of all sizes to understand these various exposures and learn how to detect and address them.

Cyber liability insurance and risk specialist Adam Cottini (A J Gallagher) notes that cyber-attacks can be financially, competitively, politically or ideologically motivated. They can even be the work of thrill-seekers with no specific agenda. These attacks can come from outside or within the organization. Regardless of their origins or the motivations behind them, cyber-attacks can have serious, potentially devastating consequences.

Steps that organizations can take immediately to ensure that they are better prepared when a breach occurs include:

- bringing together representatives from all functional areas with responsibilities for managing cyber risk, identifying and setting high-level security priorities, understanding that reducing this risk involves more than an organization's information technology team
- cultivating an internal culture of security awareness, educating and training employees to report suspicious activity or potential/actual breaches
- developing an Incident Response Plan detailing the organization's process for addressing a potential or known breach
- interviewing multiple qualified breach response attorneys in advance of a breach, and selecting more than one, in the event that a conflict arises.

According to a recent U.S. government report, there have been, on average, 4,000 daily ransomware attacks in 2016, which is a 300% increase over the 1,000 daily ransomware attacks reported in 2015. Cyber-criminals collected \$209 million in the first three months of 2016 by extorting businesses and institutions to unlock computer servers.



Source: BakerHostetler Data Security Incident Response Report 2016

Cyber insurance covers the liabilities and losses arising out of the collection of Personally Identifiable Information/ Confidential Corporate Information or the damage to networks, systems and databases. Policies generally include significant assistance with the incident, which can be essential when faced with reputational damage or regulatory enforcement. Generally cyber risks fall into first party and third party exposures:

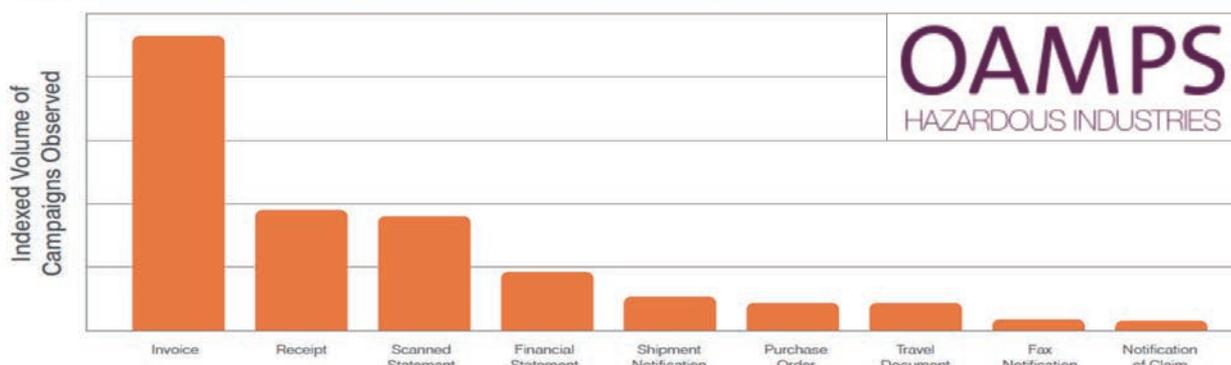
**First party:** your own costs/concerns, business interruption, extortion from malicious 3rd parties and breach response costs.

**Third party:** litigation from third parties, defence costs and damages, regulatory costs and media liability.

Given the number of coverage variables, we recommend that organizations seek the advice of an insurance broker with expertise in cyber insurance to avoid encountering any unanticipated coverage gaps if a breach occurs.

OAMPS Hazardous Industries is also offering an exclusive technical audit for all Chemical Northwest members, they will cover all aspects of insurance from Liability's to Fleet insurance and this will be free of charge to all members. OAMPS Hazardous Industries part of the PEN Underwriting Ltd will be happy to discuss your requirement in more detail. **For more information please contact Carl Abbott on 07557 971651 or by email at carl.abbott@oamps.co.uk.**

## THREAT VECTOR TACTICS: MOST USED EMAIL LURES



Source: Proofpoint, The Human Factor 2016, A Proofpoint Research Project (2016)

# GDPR and the process industry – what do I need to know?

On 25 May 2018, the General Data Protection Regulation (the GDPR) will come into force. The GDPR imposes much more prescriptive obligations on organisations in terms of how personal information is used. While May 2018 might seem like a long way off, the nature of the obligations under GDPR mean that organisations in the process industry should be considering the steps they need to take to comply now, particularly in light of the significant new penalty regime.

## What does this mean for the process industry?

The GDPR will apply to all personal information and will affect any organisation that has employees or deals with individuals at customers or suppliers.

Organisations in the process industry are unlikely to use significant quantities of personal information beyond that of their employees and individual contacts at other organisations (e.g. contact details of customers and suppliers). The way personal information is used in the process industry is unlikely to be intrusive. So, although the process industry will need to address the GDPR's requirements, the risks associated with use of personal information are likely to be lower than other sectors (such as the financial services sector where organisations employ data analytics to maximise opportunities).

## Key issues for the process industry

**Employee data:** You will need to ensure your use of employee data complies with GDPR (e.g. do you have a privacy notice telling employees how their data is used?).

**Contracts:** GDPR requires certain provisions to be included in all contracts where one party processes personal information for another (e.g. a cloud based storage provider). Existing contracts should be amended and new contracts entered into should be drafted to comply.

**Cross-border transfers:** If you are part of an international group, you will probably transfer personal information outside the EEA (e.g. the sharing of employee data for

management purposes). The GDPR requires that certain protections are put in place for such transfers.

**Record keeping:** The GDPR requires organisations to “demonstrate” they comply. You will need to update your policies/procedures and keep records of your processing activity.

## Does it matter?

The potential fines for non-compliance will increase massively from the current maximum of £500,000 to an eye-watering maximum of €20million or 4% of global turnover (whichever is higher) depending on the breach. Data breaches tend to be widely reported and any negative publicity associated with GDPR non-compliance could cause reputational damage.

It can take time to implement a GDPR compliance project and we would recommend adopting a well thought out compliance strategy which is implemented in a controlled and measured way over the next twelve months, rather than trying to rush things through before 25 May 2018.



Authors: Caroline Churchill, partner and Sarah Daun, associate at Bond Dickinson LLP

# News treble from BPE!

BPE Design & Support (BPE) has a hat trick of successes this summer. Hot on the heels of winning the Health & Safety award at the Chemicals Northwest Awards its chairman, Ian Shott, is to be recognised with one of the Royal Academy of Engineering's most prestigious prizes. In addition, the company's Northwest office has proven so successful since its launch last year that it has expanded the team, with the appointment of Fiona Smith.

Fiona is a chartered chemical engineer and a member of IChemE. She has more than 13 years' experience in the industry, having held senior roles with Mexichem Fluor and Grimley Smith Associates.

Fiona, who will be based at BPE's Daresbury office, said: "I'm very much looking forward to joining the BPE team. It's gained a strong reputation within the industry for its consultants having unrivalled knowledge and I'm delighted

to be working alongside them. Its clients are doing some exciting work and it's going to be rewarding helping them to make their processes even more efficient."

Fiona's appointment comes as BPE's chairman, Ian Shott CBE FEng, is set to be presented with the Royal Academy of Engineering's President's Medal. The accolade is to be awarded in recognition of his many contributions to the work of the Academy, which have culminated in the creation of the Enterprise Hub – a community for entrepreneurial engineers that provides mentoring, funding and support to some of the nation's most promising innovators.



On receiving the President's Medal Ian said: "I get a real kick out of seeing high impact successes being created and realised. Working together with an impressive team of colleagues, we have been on a major journey to set up the Enterprise Hub. "It is an honour to be a Fellow and it has been a privilege to be involved in a number of the Academy's activities, and I am very grateful for this award that recognises the importance of making the UK a leading nation for engineering innovation."

Mike Brown, BPE's managing director, added: "We're incredibly proud of Ian. His connections are second to none and this award very rightfully recognises how he has gone the extra mile to help push the industry forward. We're sure our clients will join us in congratulating him on this prestigious accolade."

Both pieces of good news follow BPE's win at the Chemicals Northwest Awards. Its new approach to dust explosion risk saw it pick up the Health and Safety award. Jon McGeehan, who heads up BPE's Northwest office and picked up the award, said: "We are absolutely thrilled to have picked up not one but two awards for this project and it's testament to the hard work put in by the team. Their deep knowledge of the scientific principles behind dust explosions, combined with their drive to find new ways to solve problems has helped to form a completely new approach to assessing and reducing risk."

**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. Specialising in chemical and life sciences sectors, BPE counts some of the UK's biggest blue-chip manufacturers among its clients.**



# Supply Chain Competitiveness

No matter how good your company is, your success depends on your supply chain – companies don't compete with each other; supply chains do. If true this has implications for how a business is run and for the focus of continuous improvement. But first, why might this be true?

Consider a chemical company – Chem X Ltd. They have undergone a business excellence program. The operations have been 'Leaned' – the plant overall equipment effectiveness (OEE) is now 95%, product changeover and plant decontamination times are down by 75%, campaign durations have been cut reducing inventory and improving lead times. Yet business remains tough with ever increasing cost pressures. The raw material suppliers still campaign their production runs to Chem X, and now that Chem X take small deliveries every week instead of the previously large monthly deliveries, the inventory that previously sat on-site now sits at the supplier, who surreptitiously charges Chem X for it.

While OEE has improved, volumes have remained the same, so now the plant is planned to sit idle where previously time would have been consumed by a lower OEE. The customers also continue to take deliveries monthly at best, so Chem X must still build up stock for the monthly delivery. The hard work to implement changeover reductions and reduce campaign sizes has failed to deliver all the benefits hoped for. The production plan remains unstable, as customer demand is variable, moving from urgent orders to periods of no demand as customers consume the previously bought excess stock – the infamous demand amplification or bullwhip effect.

So Chem X has become a beacon of efficiency in its supply chain, but because the rest of the supply chain has remained static, the benefits have been less than the potential – the cost savings that Chem X have made to their conversion costs are minimal when compared to the final cost to the end consumer of the supply chain. The whole supply chain remains uncompetitive compared to alternative supplies of the same or similar products. Therefore, the performance of the whole of the supply chain matters more than attaining a world class performance for one member of the supply chain – supply chains compete against other supply chains.

## So, how else might this story have developed?

Early on during Chem X's improvement journey they talked to their suppliers and customers about mapping the extended process into each other's factories. They discovered that each were holding inventory as a protection against supply chain disruption, but when viewed holistically it became obvious that the inventory was duplicated at each site for no total risk reduction. By working together, they could reduce the inventory across the three of them by further a third. As Chem X's OEE improved and changeover times were

reduced the three companies realised that the equations had changed; they could further reduce inventory for the same level of business risk. The improvements in OEE were noticed by the other two companies, and they too started to address OEE, driving down costs.

By looking at campaign timings the three companies could synchronise production activities so that when materials were processed they were quickly consumed by the next company in the chain, again reducing supply chain inventory.

When final customer demand was examined they realised that it was quite even, although each company in turn had been experiencing customer demand amplification and even exacerbating that demand amplification, causing logistical and production planning issues. As changeover times reduced they realised that they could run smaller product runs for the same total changeover cost (both in opportunity or capacity loss, and in materials), and by working together were able to improve the responsiveness of the three companies to any changes in demand from the end consumer, and were able to implement a form of Pull and Single Piece Flow production across the companies which reduced delays and lead times for deliveries, and simultaneously allowed yet further reductions in inventory. Through the application of Pull they discovered that demand amplification reduced, stabilising demand along the supply chain.

The end result of this work was that deliveries to the end consumer improved, the total costs within the supply chain dramatically reduced, and as a whole they were able to compete head on against cheap imports, not only in terms of quality and delivery, but also in terms of outright cost.

Working with one's supply chains is nothing new – the automotive industry have been doing this for decades. They can do this as the power is concentrated in them at the end of the supply chain, allowing them to impose cooperation into their supply chain.

The process industries are different – the power frequently lies upstream with the oil refineries who have little direct benefit from tackling, or capacity to deal with, the multitude of supply chains that lead away from them and fragment to an infinity of final products. Consequently, there has been



little supply chain improvement work in the industry. This is a challenge to the UK process industries, but it also represents an opportunity to strengthen ourselves against foreign competition.

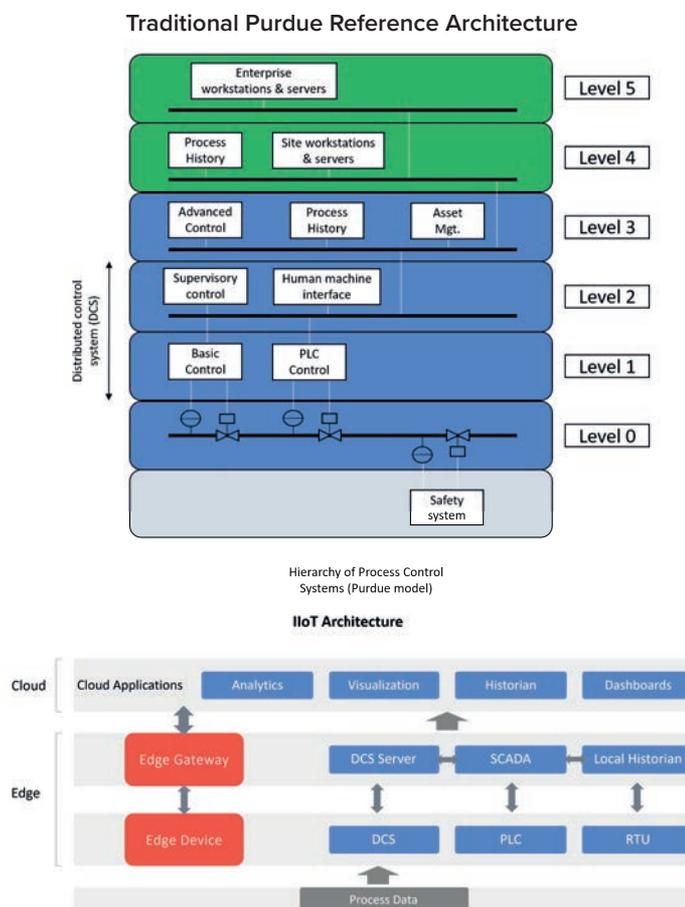
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# Living on the edge -

the role of the edge device in evolving industrial control architectures.

Industrial organisations are generating data faster and in greater volume than ever before. As a result plant information infrastructures must evolve, what we are seeing is industry gravitating towards an architecture that consists of a multitude of edge devices that operate in concert with cloud services.

This differs from the previously established structure of a plant network which conforms to the Purdue model; assigning control functions to a series of network layers. Evolving standards like Industry 4.0 and the Open Process Automation initiative ([opengroup.org/open-process-automation](http://opengroup.org/open-process-automation)) reconcile this model into just two layers; edge and cloud.



It is worth at this point offering our definition of 'the edge' and 'edge devices'. The edge we define as the physical location that allows computing closer to the source of data. Edge devices are industrial hardware able to securely collect, filter, and relay data close to industrial processes. They can also be capable of controlling connected assets like a PLC, but with the key differences that they are augmented with ethernet connectivity, built-in cybersecurity, and the processing power needed to handle big data analysis.

The essential characteristics of this new architecture are the smaller modularity of the edge devices and the flatter networks. A major benefit we see coming from this is it facilitates deployments that are 'plug & play' in nature, secure, scalable, reliable, continuously available, easily serviceable, easily programmable and have high agility. The framework is also not confined to any one industry; it is applicable across many different vertical markets including process manufacturing, transportation, smart cities, smart buildings, etc. Though the exact setup may vary for different verticals, the essence is consistent; the resources and services of computation, communication, control, and storage are distributed across available edge devices, and clouds to achieve the desired function while meeting all application requirements<sup>1</sup>.

All the more exciting is how this new architecture is emerging as being standards-based, open, and interoperable. As a consequence, it will no longer be the case that a single vendor can dominate the supply of all elements of a solution. High supplier diversity provides the fertile ground needed for high-quality solutions and fast innovation, all delivered at lower costs driven down by healthy competition.

## Properties of the new architecture

Edge devices are conceptually no different to existing control devices like PLC's and DCS controllers in that they are designed to consume data from sensors in the field and to process that data in some meaningful way. However, there are several important differences; the primary difference being the use of open standards and interoperable solutions. The applications for edge devices are broader than conventional Level 1 control devices, and these new use cases require scalable, secure solutions.

## Security

Security has to be a fundamental consideration for any deployment; it is reported that manufacturers have a 32% chance of experiencing a cyber attack in any given year<sup>2</sup>. Security comes from the proper design, operation and maintenance of secure architectures and infrastructures which provide up to date protection. Performing data processing and analytics on edge devices is intrinsically more secure than transporting data to the cloud to perform these operations. Edge devices can be hardened using endpoint security measures, and data access can be secured by unidirectional networks using data diodes.

## Scalability

The architecture lends its self to solutions that are usable in modest sized deployments but can then grow and scale to accommodate the largest with relative ease. Because edge devices can run independently just as easily as working as a part of a cooperative network, it means a flexible 'plug and play' design can be achieved. Storage and analytics services should also be able to scale with the infrastructure. The scalability then allows for a pay-as-you-grow model.

## Openness

Proprietary, single vendor solutions have been the norm in the DCS market, and a move to open solutions will lower costs and promote innovation. Openness will be an essential pillar of the evolving architecture. Open standards will be built on existing standards which may be adapted and extended to suit the evolving needs. We can also expect to see some crossover of open source solutions that are commonly employed in the IT domain. Interoperability of equipment and solutions is a further consequence of open, agreed standards.

## Some existing Open Automation Standards

IEC 61131-3	IEC 61131-3 is currently the only global standard for industrial control programming and defines the basic programming elements and rules for the most commonly used process automation programming languages. The standard includes Sequential Function Chart (SFC) language, used to structure the internal organisation of a program, and four interoperable programming languages: Instruction List (IL), Ladder Diagram (LD), Function Block Diagram (FBD) and Structured Text (ST).
PLCopen XML	Defines an open interface for information transfer between different kinds of automation tools, such as configuration environments, network tools, debug tools, simulators, documentation tools, etc.
OPC UA	OPC Unified Architecture (OPC UA) is an open source communication protocol for interoperability. OPC-UA is fully integrated with IEC 61131-3 through the PLC open OPC UA Standard. It includes data models and function blocks for data integration between applications and between applications and Information Systems. UA Security consists of authentication and authorization, encryption and data integrity via signatures.
Fieldbus	Fieldbus is the name of a family of industrial computer network protocols used for real-time distributed control, standardised as IEC 61158. There are currently a wide variety of competing Fieldbus standards including Profibus, FOUNDATION Fieldbus, Modbus, etc.
MQTT	MQTT is an ISO standard communication protocol that is commonly used for IoT connectivity. It is designed as an extremely lightweight publish-subscribe messaging protocol. The publish-subscribe messaging pattern requires a message broker. The broker is responsible for distributing messages to interested clients based on the topic of a message.

## Programmability

Edge devices are typically designed for a continuous cyclic operation which means that the program is repeatedly executed as long as the controlled system is running, this scan time may be a few milliseconds. Programs are designed to run without intervention, so they need to be robust and fault tolerant. Industrial control languages like those defined by IEC 61131-3 are designed for these applications; they are also high-level languages designed for ease of use. The broad adoption of this standard means that there are already many experienced developers and a range of available integrated development environments. However, these standards will need to evolve to meet the needs of the new applications.

## Reliability, availability, and serviceability

A reliable deployment will continue to deliver designed functionality under normal as well as adverse operating

conditions. Reliability includes maintaining system uptime, safeguarding the availability of data and ensuring the integrity of the connected plant. This means that edge devices and gateways need enhanced hardware, software and network designs to improve performance. Redundant architectures can be employed to provide enhanced availability.



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*'If you are interested in finding out more, we would love to talk with you'*

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SEERIH is a small organisation within the University of Manchester, in the Faculty of Science & Engineering ([www.fascinate.manchester.ac.uk](http://www.fascinate.manchester.ac.uk)). It has a wide portfolio of partners and collaborators that work to enliven and inspire professional learning. Leading on city-wide teacher and

school development projects, such as The Great Science Share (part of the European City of Science 2016); its scope reaches from Key Stage 1 to 3, addressing the necessary transitions for effective learning in STEM.

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1. Engage in-service primary, secondary and HE teachers with research-informed professional development opportunities to enrich mainstream science & engineering teaching, learning and assessment.
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3. Inspire and propagate discussion and debate about excellence in teaching and learning in science education across the STEM education sector through developing effective partnerships and associations with national and international stakeholders.



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## The ATACC Group

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Since 1998 we have developed and delivered one of the most unique and most advanced trauma courses available worldwide, which is fully accredited and approved by the Royal College of Surgeons, London. This course has expanded and grown into complete fully integrate trauma programme which extends seamlessly from modern first aid through to advanced level care and is delivered within the private and public sector.

All our training courses are accredited and approved by the world renowned ATACC faculty. We have a dedicated governance team that ensure consistently high quality is maintained. All our courses are mapped against the Pre-hospital Emergency Medicine (PHEM) guidelines and meet the

recommendations for Emergency Services Personnel.

Over the last 20 years we have established a truly international Faculty with over 100 leading instructors, working in at least 10 different countries. Alongside our history, the Faculty has given ATACC the necessary standing to write and validate our own courses. This in addition to offering credible expert clinical governance to other front line agencies and emergency services. This can provide considerable savings and quality improvement when compared to traditional generic approving bodies.

We offer recognised and accredited Medical & Rescue Training courses supported by our robust clinical governance solutions. By providing bespoke training and clinical governance solutions our partners can build and develop a workforce that is highly trained and confident in the provision of medical and rescue training. We also create and develop trusted partnerships with organisations to meet and exceed their goals and visions not just their legal requirements.

***The ATACC Group innovate, educate and oversee.***



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*"We cannot solve our problems with the same level of thinking that created them." Albert Einstein*

Understanding and facilitating the effective management of risk is our core business. Our expertise covers the full range of risk assessment and management services across:



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# Making the Most of Hazard Identification

A thorough hazard identification process is the foundation of good risk management, without which, risk may be missed, misunderstood and mis-managed. But is hazard identification becoming too boring?

There are a number of established hazard identification techniques used in industry, including checklists, HAZOP and FMEA to name a few. Operators at high hazard sites can therefore select the most appropriate process according to the lifecycle stage, the project intent and site complexity. However, as these techniques become well practised it is possible that they become routine with the same people involved using the same process over and over again.

It can be tempting to restrict creativity in HAZID. In most aspects of plant operation, such as manufacturing and quality management, we tend to strive for consistency. While consistency in most processes is beneficial, it is important to consider the potential pitfalls of this in HAZID. It could lead to the application of the wrong technique for the circumstance, and with less rigour and creativity, as the familiarity of participants means they enter the process with preconceived ideas.

There is a lot of guidance on how to select and implement the correct HAZID technique, but it should also be considered that these methods can be tweaked or supplemented, as long as the fundamental philosophy remains the same. It is important that in preparing for a hazard identification exercise, guidewords are carefully considered and selected to reflect the conditions on the plant. Generic prompts that will have to be deliberated over on the day should be avoided. Guidewords should encourage rather restrict the creativity of the study team.

Drawings and diagrams are useful tools and should always be used to gain a clear understanding of the plant, but it may be beneficial to supplement this with a walk-around and talk through of the plant itself. Drawings can fail to convey important information that a walk-around would identify. This is particularly useful when involving external participants in the exercise who might have limited knowledge of the plant and also a different perspective.

Considering past incidents, both on the establishment and elsewhere, can also stimulate an exercise. The COMAH 2015 Regulations require sites to keep a record of incidents and lessons learnt at establishments with similar processes and substances in order to inform risk management. The data can help to identify hazards previously taken for granted by bringing them to light and emphasising the potential consequences of failing to manage them.

As HAZID techniques become routine, a customary team from within the organisation may naturally develop and over time this might become the go-to group for all exercises. Is it wise to use the same methods and same team, time and time again? While it is important for efficiency that the team is familiar with the process and indeed each other, there is a danger of complacency and over-familiarisation resulting in missed opportunities to pick up hazards.

While it might seem more efficient to use a team of in-house personnel, it is often beneficial to involve an independent participant or chair whose unfamiliarity with the process can provide a fresh perspective and stimulate creative thinking. Remember the objective is to think the unthinkable, and uncover hazards so they can be controlled. In HAZID, no question is ever a stupid one.

Operators shouldn't be afraid to start from a blank piece of paper; our experience at RAS is that this is often quicker and more productive than deliberating over the reasons for the team's historic assumptions.

While following set methodologies for hazard identification is important, it can be valuable to take a step back and consider if they will enable you to make the most of the exercise. Remember the ultimate purpose of the HAZID exercise, don't let it become something you just have to do. By considering the process used, people involved and the best timing for a study, it is possible to transform a routine HAZID exercise into a rewarding, productive and worthwhile experience. The key is creativity. Why not try new visual approaches such as bowties or barrier assessments?

Have fun!

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# Modernising OPRA

For some years, the Environment Agency (EA) has used its Operator Risk Appraisal (OPRA) system to score sites operating under an environmental permit according to their environmental risk. The OPRA score is derived each year from the EA's assessment of a site's complexity, emissions and inputs, location, operator performance and compliance record. Each site is banded according to its OPRA assessment, and the banding influences the amount of regulatory resource that will be devoted to the site.

**Fees** - Importantly, it also determines the annual subsistence fee and any other fees that may be payable, for example for variation applications. Permit subsistence fees for large chemicals sites are substantial nowadays, and OPRA provides a strong incentive to devote resources to improving management systems and compliance.

**Changes** - Now, the EA is proposing to move to a new assessment scheme which places more emphasis on performance rather than compliance. The existing OPRA compliance bands of A-F will be replaced by four descriptive bands: Exemplary, Expected, Improvement Needed and Significant Improvement Needed. Operator behaviours such as responsiveness and attitude will be assessed to judge the likelihood of an adverse incident as well as the hazards arising from the type and scale of the regulated activity and the site's environmental sensitivity. Sites which achieve compliance and no more will fall into the Expected band. Exemplary sites, those that go above and beyond mere compliance, could enjoy a form of regulated self-assurance, light-touch regulation and lower subsistence fees than at present. Sites in the lower two bands can expect more attention from the EA and higher fees.

The EA ran a 4-week informal consultation on these proposals, ending in May. It will use the responses to develop a formal consultation which it plans to launch in July. Operators subject to OPRA scoring would be well advised to look out for that consultation paper and study it to find out what impact the proposals are likely to have.

**Comment** - Operators will also be keen to ensure that new categorisations are properly evidence based and it may therefore be worth some investment of time and resource to ensure that all appropriate material is available so as to ensure that the right regulatory conclusions to be drawn.

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## Degree and Higher Apprenticeships - Manchester Met

Manchester Metropolitan University is a leading university for degree apprenticeships, developing industry relevant programmes in collaboration with regional and national employers. Manchester Met has always focused on creating work-ready graduates through close links to business and industry. We have utilised this expertise to take an industry-leading role in degree apprenticeship development and delivery; creating programmes with employers and for employers.

We design our programmes in collaboration with employers to integrate with their employees' job roles. This allows many of their projects to be tailored to businesses specific requirements, focusing on live business situations and addressing real-world challenges. This new approach allows businesses to benefit from the development of their employees bringing new skills, enthusiasm, motivation, resilience and a problem-solving approach to their work.

### **Manchester Met apprenticeships**

**Chemical Science:** This higher and degree apprenticeship has been designed to meet current and future skills needs for the chemical industry. Highly vocational in nature, the course integrates technical and work-based skills with academic knowledge including relevant aspects of business awareness.

**Chartered Manager:** This degree apprenticeship, developed in collaboration with the Chartered Management Institute (CMI), delivers a professional management and leadership education. The programme prepares apprentices to take on positions of responsibility for people, projects and operations.

**Digital & Technology Solutions:** This degree apprenticeship brings honours level education into the workplace to address the digital skills gap and is a route to careers including IT consultant, software engineer and data analyst. From January 2018, there will also be a Digital Marketer Degree Apprenticeship.

New funding means most businesses will only pay a small amount towards tuition fees and some nothing at all. This makes apprenticeships an increasingly attractive, and cost effective, mechanism for companies to develop their employee skills for success now and in the future.

**Author: Dr Rachel James, business development manager, School of Research, Enterprise and Innovation, Faculty of Science & Engineering, Manchester Metropolitan University.**



**Manchester  
Metropolitan  
University**

# Sci-Tech Daresbury named leading UK science park

Sci-Tech Daresbury has been hailed as the science campus making the most significant contribution to innovation in the UK.

The recognition came at the prestigious UK Science Park Association (UKSPA) member awards, held recently in York when Sci-Tech Daresbury picked up the award for “setting the pace” in innovation and for supporting the growth of knowledge-based firms.

Sci-Tech Daresbury was also shortlisted for ‘Best Project’ award for last year’s phenomenally successful Open Week, which attracted more than 7,500 members of the public.

The UKSPA awards recognise and celebrate the achievements of the science park and innovation movement in the UK. UKSPA was created by the sector for the sector and has seen its membership grow to more than 150 member locations.

John Downes, group managing director of Langtree and chairman of the Sci-Tech Daresbury joint venture company, said that the award reflects the continuing success of the campus’s business strategy.

He said: “The last 12 months have been very strong for the campus, with new developments in the Enterprise Zone and a record number of new companies joining our business community. This award underlines our reputation as a place where business can innovate and flourish and we are delighted to have won it.

“Since 2005, 95 per cent of Sci-Tech Daresbury companies have achieved three-year business survival rates which compares to a UK average of between 50 and 60 per cent for this sector.

“Campus companies also achieved average sales growth rates of 30 per cent per year over the past five years with 41 per cent of these exports. This is all supported by a 10-year collaboration with the Department for International Trade.

“It is figures like these that helped us to attract 34 companies to the campus in 2016 and that also give us the confidence to increase investment. We have recently

completed and opened the £20m Techspace One and Two buildings, which are already attracting major interest.”

Sci-Tech Daresbury is a private-public joint-venture partnership between developer Langtree, the Science and Technology Facilities Council (STFC) and Halton Borough Council.

STFC provides a range of facilities and support including rapid prototyping facilities, laboratories, analytical equipment, and computing/visualisation facilities. It is also involved in running incubator programmes at Sci-Tech Daresbury to connect companies with the likes of CERN and the UK Space Agency. Half of campus companies work with STFC, in addition more than two thirds work with a UK university, an achievement among the best of science parks in the UK. Collaborations with STFC and universities deliver £16.7m of sales value to campus companies.

Mr Downes added: “Collaboration, co-development and business support make a big impact on all the companies and organisations who locate here. The campus is deliberately designed and operated to encourage catalyse opportunities between SME businesses, corporates, academic institutions and public sector bodies. For many this community and culture are the key reasons to be based at Sci-Tech Daresbury.

“Sci-Tech Daresbury is also playing a strategic national role in areas like data-centric computing and is a critical asset in supporting the growth plans of the three Local Enterprise Partnerships on its Enterprise Zone board. Still, we believe there is much more to be done and we will be rolling out further exciting plans, collaborations and developments in the future.”

**For further information please contact Jonathan Caswell [caswell@thisisinfluential.com](mailto:caswell@thisisinfluential.com) or Niamh Conway [conway@thisisinfluential.com](mailto:conway@thisisinfluential.com) / 0151 239 5000**



*Left to right: John Leake, Wesley Rourke, Paul Treloar, Andy Goulden and presenter, David Parker*



# Jayne Edwards – new director of Catalyst

“I was delighted to be appointed as Director of Catalyst – as I expected it’s been a very exciting start, but what I wasn’t expecting was the breadth of activity plus the dedication and devotion of the staff at Catalyst – they really are a remarkable bunch!” Jayne Edwards joined Catalyst in January 2017 and it is clear that she is passionate about helping people of all ages to achieve their potential.

Graduating from the University of Nottingham she has taught and managed delivery in senior schools and further education across the UK, as well as a number of other business roles. Settling in Cheshire and combining her passion for education and management, Jayne joined Cogent, the Sector Skills Council for the Science Industries, in 2008. Here she led the delivery of a number high profile, skills initiatives around employer training and leveraging funding, including the start-up of a new apprenticeship company. They also included a successful project to encourage more women into STEM careers.

The small number of staff (14 part-time and 1 full time member of staff) at Catalyst are remarkably flexible and do an amazing job keeping all of the aspects of the Discovery Centre and Museum going. “Everyone I have met has talked with such enthusiasm about Catalyst. I feel privileged to be part of the dedicated and passionate team and be involved in the inspiration of a

new generation of scientists as well as the preservation of the historical heritage of industry in the area. I’m confident that together we can all forge a bright future for Catalyst”.

## Catalyst celebrates its 30th birthday!

On the 28 September 2017 employers, partners, patrons, volunteers and children will celebrate at a showcase event where invited guests will tour the original Gossage’s Soap building (home of Catalyst), a variety of activities including a workshop being delivered to local Cubs, the new Heritage Room, trial the Panoramic Halton interactive tablets from the observatory and see a local artist at work on his paintings of the Mersey Gateway. It now costs around £1000 per day to run Catalyst; if you have a special date coming up why not mark that date by sponsoring Catalyst for a day? We can help you publicise your philanthropy and how you are supporting Catalyst. **“Preserve the Past and Inspire the Future”.**

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UK-wide and international basis. We operate as ‘sector-specialists’, focusing our interest and work in certain areas, primarily in the wider Chemicals sector and related Chemical-using industries, also in Healthcare and Consumer.

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To get in touch, call Anita Caldwell, Principal Consultant – Chemicals sector specialist on

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**- Assistant Director at a Big 4 consultancy**

*“Anita is a highly professional individual who has been honest and direct with me but most importantly has excellent communication skills and ethics. She is a benchmark for a Principal Consultant and a credit to RMG”*

**- Engineering Manager at a Top COMAH Chemicals company**



# CONDUCTORLINER

is now an award winner!



Oranmore Environmental Services (OES) has developed a new product that makes underground environments at chemical plants safer. CONDUCTORLINER is a truly innovative answer to the potential build up of static electricity around repaired earthenware pipes, winning this year's Chemicals Northwest Innovation award.

Based in Wakefield the company was established in 2010 and now provides specialist structural rehabilitation services in 'below ground' applications across many industrial sites, principally drains and ducting spaces. Amongst other capabilities, OES is also a leading expert in specialist coatings for protection of various substrates, ground stabilisation and "no dig" repairs. The company prides itself on high quality standards, delivering 'value for money' with minimum client downtime and excellent customer service. Furthermore customers have reported substantial savings and enhanced plant safety.

The company is a solutions provider to a range of sectors, including the chemical, food, water, construction and pharmaceutical industries, its 'world first' product, CONDUCTORLINER is already getting noticed!

Underground explosions at sites where flammable liquids are processed do happen from time to time, usually as a result of spark in the presence of a release of vapours due to failure of

or leakage from buried pipework or ducting. Such explosions can be extremely dangerous, especially when the build up of vapours cannot be identified or operations staff may not be aware of them.

There are several causes of pipe or joints failure: thermal shock, chemical corrosion, change of duty, root ingress or incorrect laying at the beginning. Inspections of underground pipework used for flammable liquids may not always be included in a site's maintenance schedule. The issue may likely be given a lesser priority in comparison to aboveground process safety measures.

Up until now, temporary repairs have been made with materials comprising fibre glass and polyester patches and liners which are not dissipative. Thus as 'insulators', they hold onto and promote the build-up of static, causing a potentially explosive atmosphere and creating a very real threat to personal and process safety, not to mention risks to the environment and the commercial impacts on the business. This principle is a key part of the international standard for guarding against explosion risks; BS 60079-32 and of course relates to the Dangerous Substances & Explosive Atmospheres Regulations 2002 (DSEAR). CONDUCTORLINER provides the solution.

There is no static or spark threat in any pipes repaired using CONDUCTORLINER; "innovation at its best!" The internationally trademarked product features copper meshing and, in some instances, powdered copper in the resin, giving it its unique qualities. Copper carries and dissipates static charge, thus preventing its build up and removing the risk of explosion.



The company says the integrity of the repair is sound and is expected to last many decades. OES can also work with sites to complete wider refurbishment of the overall underground system as appropriate. OES offers a wide range of structural solutions with emphasis on work follow-up with the customer after a repair is made in order to confirm integrity. In addition, the service extends to helping raise client's awareness of the hazards of damaged underground pipework, helping them plan for upgrades and on-going maintenance, as well as their compliance and legal obligations.

One of the world's leading chemical producers, Syngenta were searching for the right solution to improving a solvent-carrying underground pipe, when project engineer, John McDonald contacted OES. Subsequently inventor of CONDUCTORLINER Tom McGrath, managing director of OES was asked whether or not the product conformed to the BS 60079-32 standard for electro-static hazards in potentially explosive atmospheres and the 2002 Dangerous Substances & Explosive Atmospheres Regulations (DSEAR)? "It was like a eureka moment," said Tom "because we knew that CONDUCTORLINER was the first such product of its type in the world that properly conforms to all key chemical industry standards."

The result of the two men's meeting was a major order to install 220 metres of CONDUCTORLINER patches and liners at their Grangemouth site. Tom added; "It took about three weeks to complete the job, but I can confidently say that the client now has one of the safest underground structures in the world, thanks to CONDUCTORLINER."

John added his weight to Tom's comments. "It was only when we began talking to Tom that we truly began to understand the ground-breaking nature of CONDUCTORLINER and its conductive/anti-static properties. Many suppliers 'believed' their products were anti-static by nature but this later proved not to be the case. CONDUCTORLINER is a real first and we are delighted to have it in use at our site." Syngenta is now discussing other contracts with OES.

This innovative shift not only represents a world first, but a major, international opportunity for OES. Interest in CONDUCTORLINER has been coming in from across the globe. OES co-director, Lydia McGrath, added: "traditionally the UK may be a nation of inventors, but we are also slow to adopt innovation. Clearly, we are getting huge breakthroughs in the UK, however, we are being inundated with enquires from the US and continental Europe where news of CONDUCTORLINER has clearly landed. The company says that it is ground-breaking in every sense of the word, representing a huge milestone in the improvement of industrial safety. Its creation changes, forever, the face of international underground infrastructure repair.

Tom realised his eureka moment whilst watching a TV documentary about aircraft design. As soon as he realised that copper was being used in aeroplanes to protect passengers in the event of a lightning strike, he translated his split-second discovery to the industrial sector and began experimenting with traditional pipe liners, introducing copper mesh and powdered copper to fixing resins in CIPP (Cure In Place Pipe)

environments. "It really was trial and error," he said, but very quickly, we knew we were onto something and it wasn't long before test laboratories began to give us 10 out of 10 when it came to the dissipation of static in pipe repair environments."

Tom believes CONDUCTORLINER won the award because "it is unique, a world-first, and is the epitome of British innovation. Every business hopes for a brand that will take it to the next level, be it BMW or Mars. CONDUCTORLINER is OES's breakthrough product and the sweet smell of success is rapidly permeating our Wakefield offices!"



The company realised the importance of protecting the invention in the market and turned to intellectual property law firm and fellow Chemicals Northwest member, Appleyard Lees for help. Tom is pleased with how Appleyard Lees guided him through the initial stages of obtaining worldwide patent protection for his invention, starting with a UK patent application and moving on to an international patent application which gives provisional protection in all the key markets for this invention. Further strategic decisions on where to pursue the patent to grant will need to be taken in the coming years. James Myatt, Associate at Appleyard Lees, says: "Tom contacted us after a chance meeting with one of my colleagues on a flight to Munich and we were happy to help him with his first step into the world of IP. Tom's ambition and expertise in his field really impressed me and his invention is providing a huge improvement in safety for his customers and should enable his business to grow rapidly. Securing patent protection in key markets is an important part of this which Tom is wisely investing in."

Commercialisation of CONDUCTORLINER has created an amazing step change in the business. Making new marketing plans, including a new exporting strategy, and potential licensing opportunities, at the same time as handling new enquiries from around the world, right now, is proving to be an exciting challenge for the company.



THE WORLD'S FIRST ANTI-STATIC REPAIR SYSTEM

## A breakfast serving of science-based facilities, equipment and skills

The most recent Chemicals Northwest breakfast networking meeting was sponsored by **STFC (Science & Technical Facilities Council)** and held at Daresbury Laboratory on 18 May 2017. Representing STFC, Delyth Lloyd outlined the Council's range of science incubation services dedicated to supporting the growth of 'high tech', early stage companies. The organisation actively collaborates with research and development teams within the chemicals and technological sectors in order to develop existing and future innovations.

Switching on to STEM is the new strategy launched by the **Centre for Industry Education Collaboration (CIEC)**. Just how the organisation can help companies reaches out to primary school children in their locality, was explained by Joy Parvin, CIEC director who is based at the Chemistry department at York University. Joy also made a fresh call for more chemical companies in the region to participate.

The skills theme was added to when Dr Rachel James of **Manchester Metropolitan University** gave an overview of the exciting opportunities offered by degree level apprenticeships. The courses are predominantly based on distance learning, but more importantly are employer led, combining academic study with real world business issues. New syllabuses cover health & safety, functional business skills and environmental sustainability.



Projects and assessments are tailored to the student's job role. Government funding is currently available, avoiding graduate debt which can for some students be a major concern. The university is keen to hear from Northwest chemical and life science companies willing to offer industrial placements.

New Chemicals Northwest member, **Metrohm UK** will already be known to many readers particularly if you have spent some of your career working in laboratories. The Daresbury based analytical instrument manufacturer specialises in ion and chemical analysis and offers a wide range of testing activity: conductivity, pH, water content and auto-titration to name a few. James Downes described how their equipment is already established as a mainstream requirement in analysing the amount of; surfactants in shampoo, nicotine in tobacco and salt in bread.

**Remember, CNW breakfast meetings are free to attend for everybody. Why not come along and meet new contacts who have similar interests in what is going on in the chemical industry. We at Chemicals Northwest would be delighted to meet you!**

## Enforcement on safety data sheets

On the 8 March 2017 the Chemicals Northwest REACH user group met to discuss safety data sheets and exposure scenarios. There is concern regarding the quality of safety data sheets and the exposure scenarios therein, leading some to question user compliance with the safety information.

The latest EU enforcement project "REF V" aims to help the authorities to inspect how information on hazardous chemicals is communicated in the supply chain and ultimately how it is being used in the workplace. Inspections started in January of this year and will continue for the full year. They will highlight if workers handling chemicals, especially 'substances of very high concern' are receiving the right information via safety data sheets.



A report on the results of the inspections will be available in Q4 of 2018.

Chemical safety reports and exposure scenarios are a cornerstone of the REACH process and a new roadmap recognises that the mechanisms introduced need to be effective in readiness for the final REACH registration deadline in 2018.

# The negotiations have started!



The Chemicals Northwest Brexit user group held its latest meeting on 22 June 2017 at Sci-Tech Daresbury. After the key steps of exiting the EU: the referendum and article 50, we now enter the commencement of negotiations with the first round taking part during June. Thereafter the Great Repeal Bill which transfers the same EU laws into UK law, revoking the 1972 European Communities Act, will start its path through parliament.

The latest political discussions centre on 'transitional arrangements', that is, not leaving the customs union immediately and managing immigration. Working groups of senior experts are to be set up, meeting monthly and focussing on citizens' rights, the financial settlement and other separation issues.

One major bank reports from a recent study that UK investor's confidence hits highest level since the referendum. Whilst some believe high business confidence

is only as a result of recent and current exchange rates, we should all be as ready as we can for future impacts. Furthermore people believe that the media only is seeing confidence as high.

Recruitment companies list issues such as the longevity of contractor jobs in Europe and the business impacts on regular clients. There remains a struggle to see 'the positives' of Brexit in this area. Companies are also worried that recruitment for top jobs with the right skills will be a problem, particularly if potential candidates from EU countries choose not to apply.

REACH service providers and producers note the closing of the European Medicines Agency which will have to move from London and many are wondering what would be an alternative to ECHA (perhaps a new UK agency) look like? Furthermore with 1330 UK registrations under REACH and 30% of them made through 'Only Representatives' of a non-EU manufacturer (who will ultimately have to be located in a EU country to comply with REACH), there are serious concerns on how chemicals regulations will pan out after Brexit.



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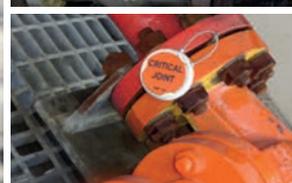
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Responsible Care

# Successful contractor relationships and drug & alcohol policies at chemical sites

The Mid-Cheshire and Manchester Responsible Care Cell met at Sci-Tec, Daresbury on 23 May 2017. The normal round table reviews of on-going issues and best practice shares yielded some interesting and topical discussions. As a result of the previous day's events in Manchester, security was a prominent theme, with many sites being vigilant in light of a heightened priority status. A few sites noted improved camera capability and CCTV enhancements as well as new work to manage drone incursions and the importance of reporting and investigating unusual activity of concern.

Behavioural Safety is a common initiative across most Northwest chemical manufacturers. Some sites promote local 'lifesaving rules' for all employees and contractors, supported by focused human factors risk assessments.

Meanwhile the usual round-table discussions at the Merseyside & North Wales group which met on 12 July 2017 at Sci-Tech Daresbury, including management of change, safety report reviews and process safety risk assessment reviews. In addition issues such as: behavioural safety programmes, workplace transport safety and knowledge retention during succession (especially those sites with an ageing workforce), continue to challenge safety planning.

The group chose a couple of 'hot topics' for a special focus session on drug and alcohol testing programmes. There are various levels of implementation with some sites having policies in place but with no testing requirement. Some have testing with support on request and some employ a full and random testing regime that has buy-in from the whole workforce. The consensus was that all programmes were in place to primarily protect employees (and others), and fundamentally for health, safety and well-being considerations.

In relation to the Industrial Emissions Directive and the Best Practice Reference documents (BREFs), Natural Resource Wales gave an update on the Large Volume Organic Chemicals (LVOC) BREF; with final approval expected later this year. In implementation of the directive, most site Environment Permitting Regulation reviews will centre on the primary activity BREF, followed by consideration of any secondary BREFs. Work

has now started between industry and the regulator on developing the Waste Gas Treatment (WGC).

On review at the person level, a number of small incidents had causes such as; lack of attention, poor visibility, or not sharing the merits of hazard awareness promotion.

Our regulator is keen to assess how sites go about contractor management, based on 'HSG 159' guidance: "Five practical steps for safe working". The group looked at the components of each of the 5 steps, namely; contractor selection, planning, working on site, keeping a check and reviewing the work. It was a good time to share experiences of controls that worked well and those 'top tips' for improved controls. The consensus was that using a systematic approach, looking at best practice and the legal requirements, and finally questioning how well you were actually doing at each step, was integral to an effective system.



*For more information please contact Aila Bursnall at: [BursnallA@cia.org.uk](mailto:BursnallA@cia.org.uk)*

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# The future's bright!

For many years the Chemical Industries Association (CIA) has held an annual competition to find someone working in industry to represent the young person's perspective. The winner of this award then heads up the CIA's Future Forum for a year, which is a network of young professionals from any discipline who work in the chemical and pharmaceutical sectors.

The Future Forum aims to be a voice for people starting their career within these industries, helping the CIA and its member companies to understand what the industry needs for the future, and to think about key decisions. Brexit and the government's industrial strategy have been hot topics recently! The forum also acts as a networking tool to allow members to meet other industry professionals to share experiences, guidance and views on current issues.

The Future Forum releases 'Forum Connect' - a monthly newsletter for its email subscribers, which includes content on current governmental and industrial news. The Forum also attends relevant events (such as the Business of Science Conference in Manchester) and sets up networking events for early careerists. Other key achievements have been to integrate and work with Chemicals Northwest Young Achiever winner Jessica Sales of SI Group-UK Ltd via the Future Forum's committee.



*Left to right: Priyan Mistry (Johnson Matthey), Lee Griffith (BASF), Luke Symns (CIA), Marina Fuentes (ReachReady), Stefano Ceci (Johnson Matthey) and Jessica Sales (SI Group)*

Every year a Young Ambassador to the CIA (from industry) is nominated, with this year's being Stefano Ceci, a chemical engineer working for Johnson Matthey, a speciality chemicals company. Over 90% of Johnson Matthey products have a beneficial impact on the environment, natural resources or human health. Stefano joined Johnson Matthey's IChemE Accredited Graduate Programme and won the CIA's Young Ambassador position by demonstrating leadership skills, passion and industry knowledge through activities with the IChemE and time spent as a STEM ambassador.

If you would like to sign up to the Future Forum as an early careerist in the chemical industry, simply send a blank email with "Join" in the subject line to [FutureForum@cia.org.uk](mailto:FutureForum@cia.org.uk). There are also Facebook, Twitter and LinkedIn pages for the network.



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