



INSIGHT



Tank storage provides an essential interface between sea, road, rail and pipeline logistics.

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THE EUROPEAN TANK STORAGE SECTOR AND DYNAMIC CHANGES WITHIN THE GLOBAL CONTEXT

The quarterly magazine from the Tank Storage Association

Also in this issue, we explore the value of digital technology in a training environment and the many innovations and initiatives that are taking place in the bulk storage and energy infrastructure sector.



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Peter Davidson Executive Director, TSA

Welcome to the spring issue of Insight. The intensification of systematic competition and signs of fragmentation of the global economic and trade order, climate change and the Covid-19 pandemic among others, have highlighted vulnerabilities of the UK's essential supply chains. Against this backdrop, the UK government has recently published its first critical imports and supply chain strategy, which aims to build resilient supply chains and safeguard critical imports. In this issue of Insight, we explore what's next for the European tank storage sector amid dynamic changes within the global context and reflect on COP28 where discussions have once again amplified the importance of the role of the private sector in helping meet the 1.5°C target. I hope you enjoy this new edition of the magazine and don't forget to follow us on social media for all our latest news.

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ADDRESSING THE GROWING THREAT OF PFAS (OR 'FOREVER CHEMICALS') IN THE UK

In recent years, the pervasive use of per- and polyfluoroalkyl substances (PFAS) has emerged as a significant environmental and public health concern.

Bill Atkinson, Chief Scientific Advisor,
Adler and Allan



In recent years, the pervasive use of per- and polyfluoroalkyl substances (PFAS)

has emerged as a significant environmental and public health concern.

The World Health Organisation has just reclassified one such compound – PFOA – that was widely used in non-stick pan coatings and firefighting foams – as a known carcinogen. As Chief Scientific Advisor and head of the company's pollutant advisory group, it's my role to be aware of these emerging issues and to advise and assist our clients in meeting the challenges that these issues may pose to them. This ranges from an increased understanding of the complexities surrounding PFAS and the risks that they pose, to taking proactive steps to combat this growing threat.

Understanding PFAS: a persistent menace

PFAS are a group of many thousands of man-made organofluoride compounds consisting of multiple fluorine atoms attached to a carbon

chain (which is attracted to oil) and with a 'head' that is attracted to water. It is this combination of attraction (and repulsion) to both oil and water, as well as their chemical stability, that makes PFAS compounds ideal for their many applications. They do not metabolise or break down into much simpler compounds very easily, and under typical soil conditions, it can take over 1,000 years for some PFAS to degrade. It is hence why they are known as 'forever chemicals'.

It is because they do not break down in the environment naturally that leads to PFAS contaminating soils and drinking water as they migrate through both. It has been recently reported that PFAS has been detected in 17 of England's 18 water companies. The persistent build-up of PFAS in the environment then leads to PFAS entering the local wildlife and aquatic life, which then moves up the food chain (a process called bioaccumulation) and can potentially lead to human contamination through consumption of contaminated food.

Why phase-out is not making the problem go away

As more data has emerged on their persistence and toxicity, some 'longer chain' PFAS compounds like perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) have been subject to global regulations restricting or banning their use.

They have been typically substituted

with shorter-chain alternatives, but this has given rise to new concerns.

Short-chain PFAS may have lower performance, leading to increased quantities being used and emitted. Their widespread use intensifies environmental and human exposure, possibly perpetuating the issues posed by their long-chain counterparts. In addition, the longer-term toxicity of the vast majority of these newer alternatives is still largely unknown. They may also be more difficult to remove using existing technologies.

One of the most significant challenges posed by PFAS is their persistence in the environment. Even with a halt in their release, PFAS will persist for generations, necessitating ongoing efforts to address contamination and its far-reaching effects. The socioeconomic costs of PFAS contamination, including irreversible damage to natural resources, are considerable and difficult to quantify (one NGO even estimates the societal cost as high as €16 trillion per year).

Regulatory frameworks and future initiatives

The concerns about PFAS are leading to several increasing restrictions or proposed changes.

The European Chemicals Agency (ECHA) published its EU REACH restrictions for PFAS in February 2023. This proposal aims to place limits on more than 10,000 per- and



Adler and Alla won the Innovation of the Year category at the prestigious UK & Ireland Spill Association Annual Awards 2023. In a remarkable case study, Adler and Allan demonstrated its exceptional capabilities, ingenuity, and unwavering commitment to safeguarding the environment and critical infrastructure.



polyfluoroalkyl substances. In the US, the EPA have been developing their definition of PFAS and, in October 2023, they released a final rule that eliminated an exemption that allowed facilities to avoid reporting information on PFAS when those chemicals were used in small concentrations.

In 2022, the UK Drinking Water Inspectorate (DWI) published an updated information letter and guidance for PFAS compounds in drinking water, requiring water companies in England and Wales to monitor for a wider range of PFAS and update their risk assessments accordingly. The DWI guidance follows a tiered approach with a guideline value of 0.1 micrograms per litre, which is equivalent to 0.1 parts per billion. However, dedicated legislation - or even guidance - on soil quality is lacking.

Our commitment and innovations

We are at the forefront of tackling PFAS-related challenges, working with our clients to implement solutions that are innovative in terms of how existing technology like the use of granular activated carbon (GAC), reverse osmosis, and ionic exchange is applied, or takes in newer and more innovative processes like flocculation.

One such recent and ongoing project won the Innovation of the Year category at the prestigious UK & Ireland Spill Association Annual Awards 2023. In a remarkable case study, Adler and Allan demonstrated its exceptional capabilities, ingenuity, and unwavering commitment to safeguarding the environment and

critical infrastructure. The project began with an electrical fault that led to the release of over 14 million litres of PFAS-containing firefighting foam and water at a major energy infrastructure site. The emergency presented a daunting challenge due to the presence of PFAS (Per- and Polyfluoroalkyl Substances). Given the potential ecological and financial consequences of a massive environmental incident, Adler and Allan stepped in and within hours of the incident, trained incident responders and a range of ground and marine recovery equipment were deployed to contain the spill and prevent further contamination.

An innovative solution to PFAS disposal

Adler and Allan developed a pioneering end to end solution to rapidly contain, treat, and process the escaped pollutants. This innovative approach effectively reduced PFAS levels to below the stringent lower limits set out by the Environment Agency, making the cleaned water safe for discharge and averting a significant amount of asset downtime.

This case study underscores Adler and Allan's commitment to protecting the environment and nationally critical infrastructure. In addition to its market-leading emergency response capabilities, the company called upon its considerable knowledge and expertise in hazardous chemical management and consultancy to deliver a complete turnkey solution, from emergency response to ongoing asset care, ensuring the minimisation of environmental, financial, and reputational costs.

Data-driven cleanup

Adler and Allan's consultancy division conducted comprehensive data analysis to track the exact route of contamination across the site, enabling precise targeting of affected areas. Adler and Allan remains committed to pushing the boundaries of what is possible in pollution management, control and response, setting a new industry standard in the process.

A call to collaborate and innovate

The PFAS issue reinforces our commitment to effective environmental stewardship. Collaboration between industries, governments, and research communities is imperative. Together, we can drive innovation, develop sustainable practices, and address the multifaceted challenges posed by PFAS. The journey to a PFAS-free future starts with increased awareness of the problem. This hopefully leads to collective action. We are committed to creating better environmental outcomes for our clients and society in general. This includes tackling the PFAS issue, so that together, we can safeguard our environment, protect public health, and build a more resilient and sustainable future for all.

To learn more about Adler and Allan's award-winning case study and commitment to environmental excellence, please visit www.adlerandallan.co.uk.

Author

Bill Atkinson, Chief Scientific Advisor, Adler and Allan

UK Government announces plan to introduce carbon border adjustment mechanism

On 18th December 2023, in its response to the consultation on policy measures to address the risks of carbon leakage, the UK government announced its plan to introduce a UK carbon border adjustment mechanism by 2027.

The consultation, titled "Addressing carbon leakage risk to support decarbonisation", ran from 30th March 2023 to 22nd June 2023, and received over 160 responses. It sought views on a carbon border adjustment mechanism (CBAM), mandatory product standards (MPS) and other policy measures to help grow the market for low carbon products. It further sought views on emissions reporting which could support future carbon leakage and decarbonisation policies. A summary of responses received during the consultation has been published.

While most details will be decided following a further government consultation in 2024, the announcement envisages for the UK CBAM to apply to imports of iron and steel, aluminium, cement, fertiliser, hydrogen, ceramics and glass "by 2027." However, it is not clear as yet whether there will be a transitional period similar to the EU CBAM. Goods imported into the UK from countries with a lower or no carbon price will have to pay a "comparable price" to equivalent goods produced in the UK. The CBAM's charges will depend on

both the amount of carbon emitted from the imported good's production, as well as the "gap between the carbon price applied in the country of origin - if any - and the carbon price faced by UK producers." The UK CBAM will apply to Scope 1 (emissions relating to the direct activities owned or controlled by an organisation), Scope 2 (emissions relating to an organisation's consumption of purchased electricity) and selected precursor emissions embodied in importer products.

The design and delivery of the UK CBAM, including the precise list of products in scope, will be subject to further consultation this year.

Alongside a CBAM, the government has also announced its intention to work with industry to establish "voluntary product standards that businesses could choose to adopt to help promote their low carbon products to customers; and to develop a framework which measures the carbon content of goods, that could support other decarbonisation policies in future." To that end, a technical consultation on voluntary product standards and embodied emissions reporting will be carried out in 2024.



THE EUROPEAN TANK STORAGE SECTOR AND DYNAMIC CHANGES WITHIN THE GLOBAL CONTEXT

Growing global strategic competition has been reflected in a wider move toward protectionism and increased state support for strategic sectors.

Peter Davidson, Executive Director,
Tank Storage Association



The bulk storage and energy infrastructure sector plays a vital role in providing services that are critical to UK, European and global consumers. The sector supports an essential interface between sea, road, rail and pipeline logistics for a diverse range of products that are essential to our daily lives, including transport and heating fuels, chemicals, animal feed and foodstuffs. Terminals also provide greater resilience within the supply chain by ensuring flexibility to meet demand, particularly in periods where domestic supplies of stored products cannot be guaranteed. Around twenty-two of the terminals operated by our members in the UK are designated by the Government as Critical National Infrastructure due to their importance in providing energy to industrial, transport and defence markets. Storage capacity also includes strategic reserves held for emergencies and supply disruptions. Most recently, the "energy trilemma" of security, affordability and sustainability has come into sharper focus owing to recent shifts across energy markets - driven largely as a

consequence of Russia's war in Ukraine - and in the wider geopolitical landscape.

These shifts have also resulted in greater volatility and fragmentation and in some nations taking steps aimed at minimising dependencies on 'non-aligned blocs'. And it is against this backdrop, that a study by The Hague Centre for Strategic Studies (HCSS)¹ undertaken as part of a series of papers analysing the role of European tank storage in the global energy system, examines changing geopolitical landscapes and the evolving role of terminals. In this study, titled "European tank storage and changing geopolitical landscapes"² and published in summer 2023, the HCSS delves deeper into the impact of the war in Ukraine on European energy security and decarbonisation, with a specific focus on the bulk storage and energy infrastructure sector.

The HCSS report highlights the fact that while international trade remains essential for the supply security of a range of strategic industrial and energy products, it is taking place under increasingly challenging conditions. And growing global strategic competition, accelerated by the Covid-19 pandemic and the Russian invasion of Ukraine in early 2022, has been reflected in a wider move toward protectionism and increased state support for strategic sectors. Indeed, the report notes that China, the US, Japan and the EU

have all introduced plans to increase self-sufficiency, for example, in digital technologies, such as chips and artificial intelligence, energy - critical minerals and green tech - as well as space and defence. Most recently, the US Inflation Reduction Act (IRA)³ signed into law on 16 August 2022, commits, among other measures, \$370 billion⁴ to improve energy security and promote innovative technologies through a mix of tax incentives, loan guarantees and grants,⁵ while in the EU the Critical Raw Materials Act (CRMA) and Net Zero Industry Act (NZIA), widely seen as a response to IRA 2022, are aimed at accelerating the move toward a competitive green economy.

There are other examples too. Japan's Green Transformation Promotion Act, known as 'GX', aims to mobilise over 150 trillion yen (well over \$1 trillion) through cooperation between the public and private sectors over the next 10 years to ensure a stable supply of energy, strengthen industrial competitiveness and promote decarbonisation efforts.⁶ Australia has also established the A\$15 billion National Reconstruction Fund to support supply chains and bolster the development of strategically important industries. The report, in its analysis, is clear as regards the impact of renewed great power competition and the race for technological leadership on Europe's supply security concerns and carbon neutrality plans. It also points out that, currently, Europe more generally,

remains dependent on imports, for example, of oil and natural gas from the US, Norway, and OPEC+, with storage companies active in energy logistics playing a critical role in energy security and resilience.

Against this backdrop, the study is also clear that, with regard to the short term, Europe will need resilient infrastructure and supply chains, as well as strategic reserves of oil and natural gas to mitigate price shocks and supply shortages. In the long term, the report concludes, similar interventions may be necessary to secure supplies of future energy carriers. Indeed, with Europe increasingly dependent on longer and more volatile supply chains - that may be impacted, for example, by geopolitical developments, weather events or logistics bottlenecks - readily available domestic storage capacity will continue to be critical in mitigating potential market shocks. This also highlights the need for sufficient available storage capacity and strategic stocks across a range of current and future energy carriers and industrial inputs. For example, the report notes that, currently, European oil comes from a variety of different sources including the US and Saudi Arabia, and must cross large distances to arrive in European ports. Similarly, with regard to natural gas, this is primarily sourced as LNG and the competition with other markets is expected to remain dominant going forward, particularly in the absence of long-term contracts.

In the UK, more specifically, latest data by the Department for Energy Security and Net Zero (DESNZ) shows that in 2022,⁷ the US overtook Norway as the UK's largest crude import source and accounted for over a third of all crude oil imports during that year. With regard to petroleum products, these were sourced from a large mix of countries, across that year, including India, Kuwait, Saudi Arabia, the US and Belgium. In 2022, according to DESNZ,⁸ LNG imports to the UK reached a record high of 25.6 bcm, rising 74 per cent on the previous year. They accounted for 45 per cent of natural gas imports, and 35 per cent of demand, with the US accounting for half of total imports. Most crucially, UK LNG infrastructure was utilised to allow the UK to act as a land-bridge to increase natural gas imports to mainland Europe as it pivoted away from Russian gas.⁹

At the same time, the HCSS report points out to the possibility of industrial actors moving their operations away from Europe in the event of energy prices remaining high over the coming years and a lack of mitigating responses, thus eroding competitiveness, and reducing investment attractiveness. This would result in increased import dependency on the bulk liquid storage sector. With much uncertainty going forward and against a complex background, it is clear that the bulk storage and energy infrastructure sector will continue to be pivotal in mitigating risks by providing resilient

infrastructure and supply chains and by holding sufficient buffers of critical products to mitigate price shocks and shortages both for current products and for future energy carriers and industrial outputs. Indeed, on the journey towards carbon neutrality, European infrastructure will go through significant changes and will require significant investment and planning to ensure the import, production, storage and transport of new energy carriers.

Looking to the future, energy carriers used across sectors and industries will vary and more types of fuels and carriers will likely need to be stored in strategic reserves. For example, stockholding obligations may extend to synthetic aviation fuels for the aviation sector, green ammonia or methanol for shipping, or critical minerals. Adaptations as regards infrastructure for new fuels and energy carriers, and the transportation of these, will also have to form part of considerations.

The complex journey ahead will therefore undoubtedly require a framework that engenders investor confidence and partnership with the bulk storage and energy infrastructure sector to help reach the solutions that will mitigate risks amidst geopolitical shifts, but also deliver on future opportunities.

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Author

Peter Davidson is TSA's Executive Director and is responsible for all

aspects of advocacy and lobbying on behalf of the sector, and for promoting process safety leadership, helping members achieve excellence in this area and work toward becoming high reliability organisations. Peter works in close collaboration with the UK Government and Regulators and is a leading member of a number of cross-industry committees, Process Safety groups and the Federation of European Tank Storage Associations.

About the Tank Storage Association

The Tank Storage Association (TSA) represents the interests of over 70 member companies engaged in the storage of bulk liquids and the provision of products and services to the sector. Collectively, its members operate 309 terminals and distribution hubs in the UK and have over 11 million cubic metres of storage capacity in the United Kingdom (UK) and Republic of Ireland (ROI). TSA's members provide and support an essential interface between sea, road, rail and pipeline logistics for many different substances including transport and heating fuels, chemicals, animal feed and foodstuffs.

About the Hague Centre for Strategic Studies

The Hague Centre for Strategic Studies (HCSS) is a knowledge institute that conducts independent research. HCSS's goal is to offer fact-based analysis of the challenges that our societies face in order to inform public discourse, public and private strategic decision making and contribute to international and national security in accordance with liberal democratic values.

UK critical imports and supply chain strategy

The UK government has recently published its first critical imports and supply chain strategy, which aims to build resilient supply chains and safeguard critical imports. The strategy is the first of its kind and builds on the 2023 integrated review refresh, published in March 2023, the advanced manufacturing plan and the recent semiconductors, batteries and critical minerals strategies. The 'Critical Imports and Supply Chains Strategy' sets out how government will work with business and international partners across five priorities:

1. Making the UK government a centre of excellence for supply chain analysis and risk assessment.
2. Removing critical import barriers to support the UK's business-friendly environment.
3. Building the UK's response to global supply chain shocks.
4. Ensuring the UK can adapt to long-term trends.
5. Expanding collaboration between government, business and academia.

The strategy notes that dynamic changes within the global context, the intensification of systematic competition and signs of fragmentation of the global economic and trade order, climate change and the Covid-19 pandemic among others, have highlighted vulnerabilities of the UK's essential supply chains. It therefore focuses on the reliable

access to the critical imports and goods needed now and in the future. The strategy defines critical imports as 'those goods imported into the UK which are critical to the UK security and prosperity', further noting that '[t]his primarily refers to goods which are essential for the operation of the UK's designated Critical National Infrastructure (CNI) sectors and / or to the success of the government's five growth sectors'. CNI currently encompasses the chemicals, civil nuclear, communications, defence, emergency services, energy, finance, food, government, health, space, transport and water sectors. The five growth sectors, as set out by the Chancellor in January 2023, are creative industries, digital technology, green industries, life sciences and advanced manufacturing. A new Critical Imports Council is expected to be set up in the next few months to bring together businesses in critical and growth sectors and government to identify risks to critical imports and develop an action plan. In addition to the Critical Imports Council, new structures within government will be set up to manage and assess delivery of the strategy and a progress update, setting out the steps that have been taken to manage the delivery of the strategy and plans for further work, will be published in due course.

The UK Critical Imports and Supply Chain Strategy can be found on the UK government's website.

MANAGING PROCESS SAFETY THROUGH A PROJECT LIFE CYCLE IN HIGH HAZARD INDUSTRY

Risk assessment is both a legal requirement and an essential tool for ensuring that your risks are properly understood and managed.



Safe | Smart | Sustainable



Decarbonisation is a subject at the forefront of everyone's mind and the goal of decarbonisation in high hazard industry is a pivotal one. The pressure is on for organisations to decarbonise their infrastructure, assets, and business models but this does not come without its challenges; whether that be cost, a lack of clear regulation and policy, logistical challenges, stakeholder resistance, or the pressures to meet targets. But what about the need to integrate process safety management as early as possible in the project life cycle of emerging technologies? Whilst there is no difference between the need for early identification and mitigation of safety risk in this growing sector to that of more traditional industry, with growing levels of public awareness, the stakes might be just that bit higher.

Let's take hydrogen. It's a hot topic. Hydrogen is an ideal source of clean energy but it's a very small molecule, making it prone to find ways out of equipment, and it has a wide flammability range in air, a low ignition

energy, and can be explosive even when unconfined, making it harder to manage, factors that must be considered when designing hydrogen systems. If we fail to acknowledge these and other safety considerations at the design stage, the potential for large safety consequences and, indeed publicity, could be catastrophic and delay if not derail the progress to achieving the goal of high hazard industry decarbonisation.

The preliminary stages of the project life cycle are where most of your preparation should be done - you should be looking for ways to achieve inherent safety. Returning to hydrogen and its inherently unsafe properties as an example, where substitution for a safer material isn't possible, you need to look for inherently safer options elsewhere. Can you reduce stored volumes, reduce pressures, or minimise process steps?

Next, look at separation distances between equipment, layout and configuration of plant units, and distances between occupied areas. Checklists exist that can help with these considerations; for example, the IChemE Safety Centre guidance 'Applying process safety during a concept select phase of a project' or the Energy Institute's guidance on 'Applying inherent safety in design: Reducing process safety hazards whilst optimising CAPEX and OPEX.' Whilst the importance of inherent safety is clearly recognised, our experience is that it is not often given

the attention it deserves. All projects have pressures, whether it be from the multitude of teams involved in the concept vs detailed design phases, to a lack of documented processes, and this often means that safety is not given enough focus and is rarely documented. Using a stage-gated project system which includes confirmation that appropriate studies have been conducted to inform the project's feasibility decisions is, therefore, crucial to ensuring that safety has remained one of the main priorities. It also makes good business sense. Looking to minimise risk at the initial stages of a project will de-risk the project overall. Without considering process safety at this point, there is the potential for the design to progress only to be found that when the risks are finally assessed they are found to be unacceptable.

As the detail of the design develops, so too will the detail of the risks. Whether you are a COMAH establishment or not, a risk assessment is both a legal requirement and an essential tool for ensuring that your risks are properly understood and managed. The starting point in any risk assessment is hazard identification and techniques will differ depending on the project. The essential reference for anyone considering a risk assessment in a process industry is Lees' 'Loss Prevention in the Process Industries,' and it does an excellent job of summarising the numerous techniques available to us. Another valuable reference is hySafe's HIAD

database which provides research into past incidents and enables us to learn from past mistakes. Remember, it's essential to keep in mind the reasons why you are conducting a risk assessment.

Risk assessment can take many forms and is made of many parts so it's important to understand the toolbox that is available to you and to pick the right tool for your situation. Once again, we return to the example of hydrogen. With projects appearing in populated areas, the stakes are higher and a larger amount of quantification is likely to be required. Consequence modelling is one such approach that will assist with this, and with the extensive levels of research into the outcomes of hydrogen releases currently underway, especially as we move to handling and storing it in large volumes, the Fire and Blast Information Group (FABIG) are an essential reference.

About RAS Safety Consultants

Established in 1993, RAS is an independent company of Risk Management Consultants which has grown from a handful of specialists in the North West to a continually evolving team working with leading companies in the energy, pharmaceuticals, and specialist chemical sectors across the world.

For more information, please visit www.ras.ltd.uk



ADVANCING PETROCHEMICAL SAFETY AND EFFICIENCY: DANTEC COMPOSITE HOSES AND THE DEVELOPMENT OF PTFE COATED HOSE FITTINGS

Dantec, a world leader and pioneering force in composite hose solutions, has now made advancements in PTFE coated hose fittings.



In the dynamic and challenging landscape of the petrochemical industry, the quest for innovative solutions to enhance safety, durability, and efficiency has never been more critical. Dantec, a world leader and pioneering force in composite hose solutions, has now made advancements in PTFE coated hose fittings and is reshaping the way industries address challenges in applications where traditional metal fittings are not suitable.

Dantec composite hoses: a foundation of reliability

Dantec composite hoses have earned a distinguished reputation for being a reliable and robust solution in the petrochemical industry. The unique construction of these hoses involves layers of diverse materials strategically combined to create a resilient and versatile product. Let's delve into the key attributes that make Dantec composite hoses an integral component in the petrochemical sector.

- 1. Chemical resistance and corrosion protection:** One of the standout features of Dantec composite hoses is their exceptional chemical resistance. In petrochemical processes where a myriad of corrosive substances is encountered, these hoses act as a formidable barrier, preventing the permeation of hazardous materials. The multi-layered composition ensures longevity and protects against corrosion, making them an ideal choice for transporting aggressive chemicals.
- 2. Flexibility and versatility:** Dantec composite hoses are engineered to be highly flexible, facilitating easy installation even in complex layouts. This flexibility, coupled with their versatility, allows these hoses to be deployed across a spectrum of applications within the petrochemical industry. From bulk transfer operations to vapour recovery, Dantec hoses provide a comprehensive solution, adapting to the diverse needs of petrochemical processes.
- 3. Safety assurance:** Safety is paramount in the petrochemical industry, and Dantec composite hoses are manufactured to EN 13765:2018 and are designed with an unwavering commitment to this principle. The multi-layered construction minimizes the risk of leaks, spills, and accidents, contributing significantly to a safer working environment for personnel. This safety assurance

also protects valuable assets, preventing potential damage and downtime.

The evolution of PTFE coated hose fittings: enhancing petrochemical applications

Building upon the robust foundation laid by Dantec composite hoses, the petrochemical industry has witnessed a recent breakthrough with the development of PTFE coated hose fittings. These fittings, when integrated with composite hoses, offer a synergy of advantages that address challenges in applications where traditional metal fittings may not be the optimal choice.

1. Enhanced chemical compatibility:

PTFE coated hose fittings introduce an elevated level of chemical compatibility to the hose assembly. Petrochemical operations often involve the transfer of various corrosive substances, and the superior chemical resistance of PTFE ensures the longevity and reliability of the entire assembly. This advancement extends the range of chemicals that can be safely conveyed, providing a versatile solution to meet diverse industry needs.

2. Temperature stability and electrical insulation:

PTFE's remarkable temperature stability aligns seamlessly with the demands of the petrochemical industry, where elevated temperatures are commonplace. When used as a coating for hose fittings, PTFE

ensures the assembly's durability and functionality under harsh conditions.

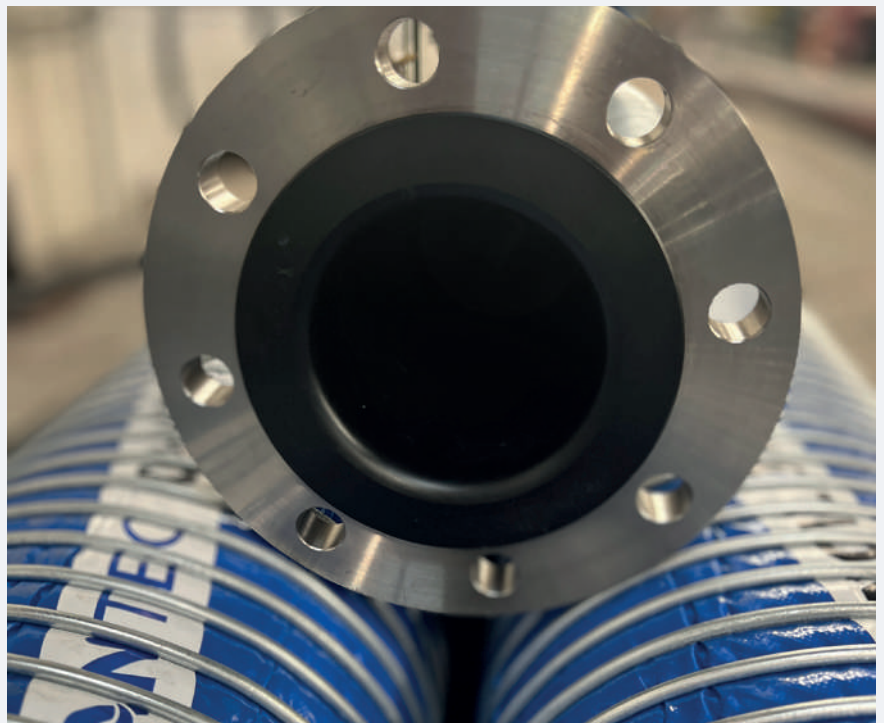
3. Non-stick surface and easy maintenance:

The non-stick nature of PTFE is a game-changer in applications where product purity is paramount. The coating on hose fittings prevents the adherence of substances, reducing the risk of contamination and ensuring the integrity of the conveyed products. Furthermore, the non-stick surface facilitates easier maintenance and cleaning, contributing to the overall efficiency of petrochemical operations.

Dantec composite hoses, combined with the recent advancements in

PTFE coated hose fittings, represent a formidable leap forward in enhancing safety, reliability, and efficiency in the petrochemical industry. The integration of these technologies addresses the unique challenges posed by corrosive substances, elevated temperatures, and the need for product purity. As the petrochemical sector continues to evolve, the development by Dantec of PTFE coated fittings is poised to play a pivotal role in shaping a safer, more resilient, and efficient future for the industry. The combined benefits of Dantec composite hoses and PTFE coated fittings underline their significance in addressing the evolving needs of petrochemical processes.

For further details, see Dantec.com



PETROLEUM DRIVER PASSPORT SCHEME CELEBRATES ITS 10TH ANNIVERSARY

2024 marks the 10th anniversary of the Petroleum Driver Passport (PDP) scheme, an industry initiative backed by government.



Downstream Fuel Distribution Forum



This year marks the 10th anniversary of the Petroleum Driver Passport (PDP)

scheme, an industry initiative backed by government designed to ensure that all tanker drivers in the UK are trained and assessed to a consistent standard in loading, transporting and offloading petroleum fuel products from road tankers.

The PDP scheme was developed by the Downstream Fuel Distribution Forum (DFDF) - formerly known as the Downstream Oil Distribution Forum - a partnership of employers, industry bodies and trade unions. The DFDF was first established in 2012 to provide an on-going platform for the discussion and resolution of issues relating to health and safety as well as training in the downstream oil industry. Its current membership ranges from hauliers, to trade associations, government departments - namely the Department for Transport and the Department for Energy Security and Net Zero - and trade unions. As part of its early collaborative work, in 2014, the DFDF launched the PDP scheme to improve safety standards

and training in the petroleum product distribution area of the road haulage sector. The scheme established a common standard for the training of all petroleum tanker drivers, which importantly, was backed by a system of approval and enforcement. Since its inception, the PDP has been managed by Scottish Qualifications Authority (SQA) in conjunction with the PDP Management Group, a sub-group of the DFDF. UK terminals began using the PDP as a requirement of entry from 1st January 2015 and continue to act as the primary point of enforcement. The PDP scheme is not only a guarantee of consistent, externally verified training but also an important example of effective collaboration between employers, unions, trade associations, regulatory bodies, sector skills councils and Government, working in partnership toward a common aim.

The PDP is a driver card demonstrating to terminal operators, hauliers, customers and the wider public that petroleum tanker drivers have been trained to the same consistently high and externally verified standard in all aspects of tanker driving from pre-vehicle checks to loading, driving and discharging. At the heart of this voluntary scheme is an industry training standard which specifies all the required knowledge and practical skills for a petroleum tanker driver. The driver card is renewed on a five-year cycle, in line with a driver's ADR (Agreement concerning the International Carriage of Dangerous

Goods by Road) licence, and has an annual practical assessment and an annual classroom training requirement to maintain validity and ensure that standards are upheld throughout the cycle. The DFDF also successfully negotiated with the Joint Approvals Unit for Periodic Training (JAUPT) – now part of the Driver and Vehicle Standards Agency (DVSA) and called the DVSA Training Accreditation team – that the annual training requirement could count towards Driver Certificate of Professional Competence (CPC) hours. Therefore, the annual PDP training provides highly relevant CPC training and no additional training burden on employers. Indeed, when developing the training standard and syllabus, the DFDF aimed to ensure that these were not only fit for purpose and of good quality but also that they did not overlap with existing measures already established. In addition, the scheme is supported by a comprehensive suite of documentation, including the industry training standard, the PDP syllabus and a scheme manual, as well as a website containing all relevant information and a host of useful resources for drivers, employers and trainers. The DFDF reviews all documentation annually as part of its commitment to maintaining and improving the scheme.

Ten years on from its introduction, the scheme has gone from strength to strength and today over 11,000 tanker drivers in the UK hold a PDP card. The success of the PDP is testament

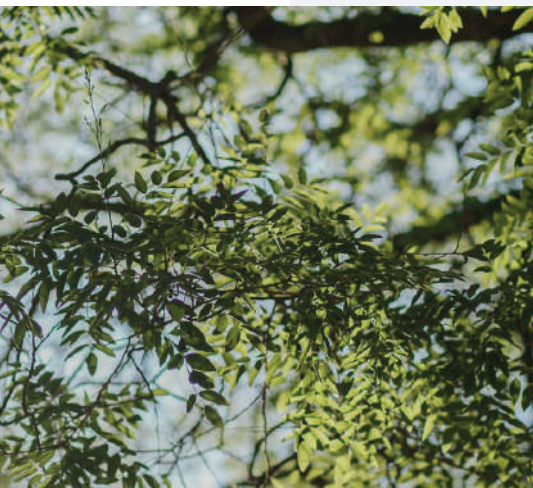
to the commitment and dedication of all DFDF members whose core focus continues to be centred around the promotion of high levels of safety and competency across the fuel distribution sector. To mark this important milestone, the DFDF is inviting everyone, from card holders to members, partners and founders to take part in the scheme's digital celebration throughout 2024 using the hashtag #PDP10. It has also created a dedicated 10th Anniversary page on the Petroleum Driver Passport's website (www.pdpassport.com) containing a number of downloadable resources. This site also features a video containing statements from members, partners, and a range of stakeholders to reflect on progress to date and the road ahead needed to address the training and competency needs of the industry well into the future.

As it looks ahead to the next ten years and beyond, the DFDF looks forward to continuing to work collaboratively on issues relating to health and safety and training in the downstream fuel distribution sector and will continue to engage in important discussions in relation to future training, safety and competency needs for net zero. Marking this milestone provides an important opportunity to recognise the growth of the scheme and positive achievements over the last ten years while also strengthening and extending multi-stakeholder dialogue and co-operation as the sector continues to evolve.



COP28 – HOW AMBITIOUS SHOULD THE PRIVATE SECTOR BE?

The discussions at COP28 have once again amplified the importance of the role of the private sector in helping meet the 1.5°C target.



The tumultuous two weeks of COP28 negotiations have come to an end with countries agreeing on a deal to transition away from fossil fuels. Fossil fuels were the main topic of conversation at the conference, as the host country, the United Arab Emirates, is an oil-rich nation. Following on from COP27, there was an expectation from many participants and the public that COP28 would make a more pronounced commitment to combat climate change and meet the 1.5°C target set at 2015's COP21 in Paris.

But what changes has COP28 really made?

We expect to see a finalised version of the COP28 deal highlighting the actions and targets necessary to tackle the climate emergency. The initial outcomes of the COP28 include:

- 1. Transition away from fossil fuels:** After several countries refused¹ to sign the initial drafts of the agreement due to its weak, non-committal nature - stating the initial draft needed to send

a clearer message on the future use of fossil fuels - on Wednesday 13th December, countries agreed on a deal to transition away from fossil fuels in “a just, orderly and equitable manner, accelerating action in this critical decade, so as to achieve net zero by 2050 in keeping with the science”.² Multiple countries have already criticised the deal for its language on ‘transitioning away from fossil fuels’³ rather than including strong and direct language to stress the importance of action to reduce emissions.

2. Countries had varying levels of support for the deal:

COP28 saw nearly 200 countries⁴ agreeing to the deal; however, some were more on board than others. Over 100 of the 200 countries⁵ present in Dubai asked for the first draft to be modified to include mention of fossil fuels phase-out. Large oil-rich economies were supportive of the more flexible relaxed language and proposed actions included in the deal, whilst small island states that are severely impacted by climate change were disappointed and claimed they “weren't in the room”⁶ while the decision was made to approve the final text loopholes that “leave the door open for false solutions like carbon capture and storage and nuclear”.

- 3. Science refresh:** The scientific backdrop to COP28 was hard-hitting. The United Nations Framework Convention on

Climate Change expressed severe concern 2023 is set to be the warmest year on record,⁷ and accelerated action is necessary to meet targets. To achieve a 1.5°C goal,⁸ the parties were reminded it would need a 43% cut of global emissions by 2030 and 60% by 2035 relative to 2019 levels. Enabling this would require a major increase in targets and policies when countries submit new commitments in 2024.

- 4. Loss and damage fund:** As an update to last year's agreement, the loss and damage fund was operationalised on the first day of COP28, garnering \$700 million in pledges.⁹ UAE and Germany pledged \$100 million each towards the fund. However, the UK and US only committed \$75 million and \$17.5 million, respectively, falling short of expectations. The sum of \$700 million represents only 0.2% of the irreversible losses that developing nations are grappling with, due to the impacts of a changing climate.
- 5. Nature-based climate action:** 18 countries endorsed the Joint Statement on Climate, Nature and People¹⁰ to accelerate the Kunming-Montreal Global Biodiversity Framework¹¹ (GBF) adopted at COP15 (read our article on the GBF)¹² therefore, emphasising the goal of conserving 30% of the Earth's land and sea by 2030. In addition, the Mangrove Breakthrough

goal¹³ of protecting and restoring 15 million hectares of mangroves globally gained traction as 21 countries officially endorsed it.

But what does this mean for business in the near future?

The discussions at COP28 have once again amplified the importance of the role of the private sector in helping meet the 1.5°C target. There is a need for businesses to understand their impact on the climate and how climate impacts business. It is now considered the bare minimum to adapt and mitigate the changes ahead.

Commitment to reducing emissions

Businesses should focus on setting near-term and long-term emission reduction goals that align with the latest climate science¹⁵ and global emission targets. Stakeholders and investors are becoming increasingly aware of the challenges business may face regarding emissions and climate, therefore, setting ambitious targets is a first step in showcasing commitment to the global 1.5°C target. Disclosing a climate action plan or transition plan that shows the actions management will take to reach the target provides the opportunity for a business to demonstrate its credibility and communicate successful implementation – when achieved – to its customers and shareholders.

Regulation

Climate has become a regular agenda item in boardrooms due to

the ongoing shift in voluntary and mandatory climate reporting. Below are two key reporting frameworks that have been developed and issued in 2023 that are expected to become mandated for private companies in the near future.

1. Transition plans

The Transition Plan Taskforce (TPT)¹⁶ finalised its gold standard for private sector climate transition plans in October 2023. As companies set public commitments to reach net zero, climate action plans are crucial for stakeholders to assess their credibility. In line with the Taskforce for Climate-Related Disclosure (TCFD) recommendations, climate transition plans are expected to become mandatory, with the UK Financial Conduct Authority (FCA) announcing it is consulting on expectations for listed companies.

2. ISSB

The new International Sustainability Standards Board (ISSB)¹⁷ framework had support from the TCFD, Climate Disclosure Standards Board (CDSB) and the Value Reporting Foundation (which consolidated the Integrated Reporting Framework and SASB Standards before itself falling under the ISSB) on its release in June 2023. The ISSB is not currently mandated, but there is speculation that businesses will be legally required to adopt the framework as it brings multiple reporting standards (IFRS S1 and IFRS S2) into one framework. Currently, TCFD is mandated by the

FCA¹⁸ and the UK Government¹⁹ for large UK companies.

Where next?

As with any negotiation, not every attendee got what they wanted, but most will have left Dubai with some sense of partial achievement. Where the UN goes from here (as it now sets its sights on COP29, scheduled to be hosted next November in Azerbaijan) is perhaps best summed up by its climate chief Simon Stiell who claimed "genuine strides forward"²⁰ were made, but the initiatives announced are "a climate action lifeline, not a finish line". He stated that, "while we didn't fully turn the page on fossil fuel, this is clearly the beginning of the end", expressing that "this agreement is an ambitious floor, not a ceiling. So, the crucial years ahead must keep ramping up ambition and climate action". And companies' own visions, commitments and activities should be seen in that same context or, to paraphrase the poet Robert Browning, what they can reach for needs to exceed what they can merely grasp at.

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2024 Tank Storage Conference & Exhibition

The Tank Storage Association's Conference & Exhibition will return to the Coventry Building Society Arena on Thursday 19 September 2024. The UK's flagship event for the bulk storage and energy infrastructure sector continues to provide one of the best opportunities for anyone interested in effective and safe bulk liquid storage operations to come together to share knowledge and network.

The conference programme will once again feature top keynote speakers from government, regulators and industry, as well as subject experts offering delegates thought-provoking discussions and thorough analyses on a range of key industry issues.

Delegates will get the chance to delve deeper into up-to-the-minute topics relevant to the bulk storage and energy infrastructure sector, including the energy transition, net zero priorities, demand trends and supply infrastructure, and much more.

Peter Davidson, Executive Director of the Tank Storage Association, said: "This year's event allows us to consider latest innovations and developments in the bulk storage and energy infrastructure industry, while also highlighting our focus on the future of the sector in the journey to climate neutrality. The tank storage industry is an essential part of the UK's energy infrastructure, providing resilient,

innovative and flexible solutions to the energy, industrial, transport and defence sectors. Our industry is also firmly focused on seizing the growth opportunity that net zero presents as it looks to the import, production, storage and transport of new energy carriers including renewable energies, hydrogen or synthetic fuels among others. The Conference & Exhibition will once again provide us with an opportunity to hear from a panel of renowned experts about the challenges and opportunities for our sector against a complex and evolving landscape."

Registration will open shortly for delegates. Exhibitors can book a stand by visiting the Tank Storage Association's website at www.tankstorage.org.uk/conference-exhibition.

For those looking to elevate their presence further, sponsorships packages are also available.

The Tank Storage Association looks forward to welcoming members, exhibitors and delegates on 19 September 2024. To stay connected until then, please schedule a call with our conference organisers on 01462 488232 or write to tsa@tankstorage.org.uk.

UM GROUP LAUNCHES GLOBAL WELLBEING CAMPAIGN

The Great Molasses Challenge will see colleagues across UM Group join forces to raise tens of thousands of pounds for the charity Farm Africa.



UM Group, which includes bulk liquid storage specialist UM Terminals, has launched a major fundraising campaign as part of its global wellbeing initiative for 2024.

The Great Molasses Challenge will see colleagues across the Group join forces to raise tens of thousands of pounds for the charity Farm Africa.

The unique challenge aims to cover the distance of the first ever UM molasses shipment in 1912 – a total of 4820 miles (7712 km) from the Dominican Republic to Hull. Between April 24th and June 9th colleagues can do their bit by running, walking, swimming or cycling. With around 200 employees, this works out at an average of 24.10 miles each.

The intention is to finish the challenge in Hull on June 9th when a number of colleagues will be taking part in the Hull 10K.

Colleagues have already signed up to take part in various other activities including the London and Edinburgh

Marathons, Liverpool and Bristol half-marathons, Battersea Park 5K and 10K. There will also be lunchtime walks in London and other locations around the Group.

While the fundraising campaign will raise as much money as possible for Farm Africa, it also forms part of the Group's wider wellbeing initiative which seeks to promote the importance of physical and mental wellbeing. This initiative will run across the Group throughout 2024.

To coordinate activities, a Great Molasses Challenge committee has been established comprising Geraldine Carroll, Mark Few, Simon Markham, Nigel Jones and Louisa Brown. There will also be champions across the Group to further promote awareness and encourage as many colleagues as possible to get involved.

Farm Africa is working to reduce poverty by helping farmers in eastern Africa to grow more, sell more and sell for more. Thanks to the work of the charity and its supporters, rural families are growing their incomes while also protecting their local environment for future generations.

Simon Markham, UM Group's Head of Molasses (GB), said: "We are really excited about the Great Molasses Challenge and the role it can play not only in helping to raise vital funds for Farm Africa, but also for promoting the importance of physical and mental



wellbeing within the UM Group. We have deliberately made it easy for everyone to get involved whether you are able to find time for a short walk at lunchtime or whether you want to sign up for a marathon. It could be as simple as taking your dog for a stroll, a light jog or a forest walk. Every mile helps us get a step closer to our target. Alongside the Great Molasses Challenge, UM Group will be running a series of smaller activities and events as part of our global wellbeing initiative, details of which will be made available during the year. We want the initiative to demonstrate the value of physical wellbeing and, in the case of mental wellbeing, to show that it's important to talk to each other and to know that it's fine to ask for help or support when you need it most."

Phil McEvoy, UM Terminals' Managing Director, said: "The team at UM Terminals is looking forward to playing a full part in making this initiative a huge success. Colleagues from across our seven UK terminals will be taking part in many of the fundraising activities. We will also be extremely active in raising awareness of the importance of a robust and engaging approach towards physical and mental wellbeing in the workplace."

Among those from UM Terminals taking part in events are Phil, who is running the London Marathon and Liverpool Half Marathon, Jake Ellis, Maintenance Manager, who is taking part in the Liverpool Half Marathon and Hull 10K, and Karl Pass, National

Operations Manager, who is also running the Hull 10K along with other members of the operations team.

UM Terminals offers customers a range of bulk liquid storage solutions out of its strategically located terminals in Liverpool, Hull and Portbury. The company maintains a broad portfolio of around 40 products that it stores including vegetable oils, industrial, food and feed, chemical, fertiliser, fuels, biofuels and base oils. Value-added services include biofuel feedstock pre-treatment, blending, water dilution, product packing, HMRC bonded warehouse and COMAH compliance. UM

Terminals entered 2024 off the back of a sustained period of growth in the previous 12 months with several notable successes including the ongoing expansion of its operations in the biofuels sector.

The company prides itself on the ability to meet customer requests, often technically challenging, providing robust and sustainable solutions that enable customers to achieve their objectives. During 2023, UM Terminals continued to invest in building a highly skilled in-house team across engineering, project management, customer service and integrity management.

[Simon Markham, UM Group's Head of Molasses \(GB\)](#)



THE VALUE OF DIGITAL TECHNOLOGY IN A TRAINING ENVIRONMENT

Virtual training helps ensure that learners are well-equipped to handle real world emergencies and can, therefore, make informed decisions in high-pressure situations.



John Reynolds, Managing Director,
Reynolds Training Services



In the fast-paced and high-hazard world of bulk liquid and gas storage, training is a critical aspect of operational success. At Reynolds Training Services, we understand the importance of equipping professionals with the skills, knowledge and experience they need to navigate these potentially hazardous work environments safely.

In order to train effectively and to reflect the working environments our learners will be finding themselves in - we know that we need to accommodate the latest digital technology which is transforming our sector and must, therefore, transform the way we train.

ISGOTT goes digital

One key example is in the implementation of 'The International Safety Guide for Oil Tankers and Terminals' - or ISGOTT. The safety of operations within ports, terminals and onboard vessels depends on the effective application of the ISGOTT standards and particularly on the use of the structured

document referred to as the 'Ship Shore Safety Checklist' - or SSSCL.

The launch of ISGOTT v6 provides a wider focus on human factors and the potential risks they pose. There is an emphasis on the wider communication process, which has led to a need to adapt in the way tanker crews and terminal personnel engage and collaborate. The traditional paper-based system has now evolved to a digital app pioneered by Smartflow. This digital solution helps to ensure the relevant sections of the SSSCL are completed and coordinated between both parties clearly and in a timely manner, but also provides a digital record that is easily accessible by all the relevant parties. At Reynolds Training, we've had the privilege of partnering with Smartflow as their revolutionary digital solution evolves, so we know that this shift to a digital platform doesn't in any way diminish the effectiveness of the Checklist, in fact, it enhances it.

Effects of digital technology on learning styles

Digital technology has already revolutionised the way students at school engage with learning materials, it would be the acme of foolishness if we didn't continue that into adult training. Doing so also allows us to accommodate a range of individual learning styles. Whether it's through visually engaging graphics, interactive

'hands on' simulations or gamified learning platforms, digital tools help to maximise engagement and knowledge retention.

Importantly, the incorporation of gamification elements such as quizzes, challenges and leader boards uses the mechanisms learners recognise from their freetime gaming to help make learning more familiar and more enjoyable, but also reinforces key concepts in a memorable way.

Benefits of safety training in virtual reality

Virtual Reality (VR) has emerged as a game-changer (pun intended)

in training, offering unparalleled opportunities for realistic and immersive learning experiences. VR simulations allow learners to step into virtual replicas of hazardous environments, where they can conduct risk and hazard recognition exercises as well as practise emergency procedures in a safe and controlled setting.

This is exactly why we have been investing heavily in developing Virtual Reynolds - a revolutionary immersive learning environment where learners from anywhere in the world can set foot in our state-of-the-art tank farm (the NCPM - National Centre for Process &

Manufacturing), without having to leave their own site. This immersive 3D environment will enable learners to develop critical decision-making skills and confidence in handling complex operations. Moreover, VR bridges the gap between theoretical knowledge and practical application, ensuring that learners are well-prepared to tackle challenges in the actual work environment.

Bringing the virtual and actual together

Learners can gain valuable prior knowledge and familiarity with high hazard environments through virtual simulations, before they are ever



expected to navigate potentially hazardous real-world scenarios.

For example, when a learner turns a valve in VR, we could open the valve up to show them exactly what is happening inside it. That's not something that can be replicated on site, but it greatly enhances the learner's understanding of what they're doing when they are actually on site!

Virtual "hands-on" activities like this provide learners with practical experience and exposure to potential hazards in a safe and controllable way, helping prepare them for the challenges they may encounter in their actual day-to-day work. Virtual training helps ensure that learners are well-equipped to handle real world emergencies and can, therefore, make informed decisions in high-pressure situations.

Cost benefits of virtual training

Aside from its educational benefits, VR training also offers significant cost savings. Building a custom virtual training environment will be a quicker and more affordable proposition than constructing a physical facility. Furthermore, virtual training can eliminate at least some of the expenses related to travel, accommodation, subsistence and logistics because learners can participate in our training programs from anywhere in the world without leaving their own site. This can save both money and time whilst also maximising the physical time spent on plant training, as learners will have already gained core underpinning knowledge as they (virtually) practise some skills.

Enhancing not replacing real-world skills

Here at Reynolds Training, we are at the very beginning of this journey into VR training, but we know that it will quickly develop into an essential part of our blended learning offering. It's important to make clear that we aren't suggesting VR learning will replace real world hands-on experience. There is no substitute for getting your hands 'dirty' in a real bulk storage facility.

So, while virtual training - and the other digital tools we use - offer numerous benefits, it is essential to recognise that these complement hands-on training with time-served experienced trainers, they certainly don't replace it!

Digital technology provides learners with additional resources and opportunities for practice. But it is only by combining virtual training with real-world experience that we can ensure our workforce is equipped with the knowledge, skills, experience and competence necessary to perform their duties safely and effectively.

Conclusion

Digital technology is revolutionising the high hazard sector, so it is only right that it also revolutionises the way we train people for that sector. From personalised learning styles to realistic VR simulations, digital tools can enhance engagement, improve learning outcomes and, ultimately, contribute to overall safety and efficiency in the workplace. And for us at Reynolds Training Services, that's the point of the game!

If you'd like to know more about our

pioneering work taking training into the virtual world, just pop over to stand M24 at StocExpo 2024 for a demo, or visit our website: <https://reynoldstraining.com/virtual-reynolds>.

Author

John Reynolds, Managing Director, Reynolds Training Services

About Reynolds Training Services

Reynolds Training Services creates and delivers health & safety training and process training, as well as competency management, to build future-focused career pathways for the high hazard industries, covering everything from plant, through logistics, to tank storage. Our courses are underpinned by internationally recognised awarding bodies including NEBOSH, IOSH and GQA.

As a registered Apprenticeship Training Provider, we founded the UK's first Bulk Liquid Storage Apprenticeship. We also provide bespoke training to meet the needs of our sector today and into the future of energy transition. Always keen to drive forward digital transformation in our sector, we are pioneering the use of 3D VR technology in our training delivery.

Introducing Paul Symons, Managing Director of Teamwork Security and Training Services Ltd.

Paul started at Teamwork Security and Training Services Ltd. in February 2023 after a successful career in various security roles.

Paul's career started in the British Army at the tender age of 16, Paul served with 29 Commando Regiment and passed out of Army training a day before his 17th birthday and went on to undertake the Commando course. He served in Northern Ireland, Bosnia, Sierra Leone, Afghanistan and Iraq. A very kinetic time which Paul felt privileged to have experienced.

From leaving the military Paul has worked in various security positions, from an offshore security consultant, where he provided security to platforms, ships and port facilities in some of the worlds hotspots, to Head of Training for a renowned security risk management company.

For nearly a decade, Paul was in a busy role of Head of Training & Development at Securewest International. This is where Paul found his passion for ISPS and became the company ISPS Expert. Undertaking Ship & Port Facility Security Assessments globally, writing Ship & Port Security Plans, engaging with flag states on behalf of client (which could be challenging), and was responsible for the development and day to day running of all of all the companies ISPS courses. Further to this, Paul was also ensuring the 170+ maritime staff (at the highest level) were compliant to the ISPS code when deployed on

Shipping sailing through troubled waters.

Prior to starting at Teamwork Security and Training Services Ltd. Paul took a short break out of the security arena and worked for the Ambulance Service, as he is medically trained, and was a security manager at Babcock in Plymouth, concerned with the security of HM Submarines when in dock. Phrases like 'Continuous at sea deterrent, nuclear reactor and dosimetry' were a normal part of the working day.

Since joining Teamwork Security and Training Services Ltd., the business has doubled in size, both in staff and client base. The business has also diversified and is now not only providing high quality ISPS consultancy, training, and support, but now has several 'boots on the ground' security contracts with Government clients at various Port facilities.

Speaking with Paul about the diversification to provide physical security he commented: "We've decided to only recruit military or police veterans for this role, and seeing as all the feedback, performance and reports are nothing but 100% positive, I feel this is the correct decision to push this project forward. Another thing we now do is make the management team 'work from home'. This not only allows a great working culture for the team but also enables us to keep costs to a minimum, thus allowing the savings

to be passed onto our client base giving us a competitive edge and commercial advantage."

When Paul was asked what his favourite part of the role is, he commented: "It's the satisfaction of seeing our clients, some of which were under pressure to become compliant, sail through ISPS audits and inspections because of our teams' efforts. I feel privileged to have been asked to not only join Teamwork, but to take over the helm from Chris Amos, who, over the past 20 years has done an incredible job creating a sterling reputation for the company, if I can do half as good as he has, I know the company will go from strength to strength."

Find out more about Teamwork Security and Training Services Ltd. at www.teamwork-security.co.uk

[Paul Symons, Managing Director, Teamwork Security and Training Services Ltd.](#)



ENHANCING SUSTAINABILITY IN INDUSTRIAL OPERATIONS AND MAINTENANCE BY REDUCING HAZARDOUS EMISSIONS

ETS Group and its companies ENDEGS and SIS offer innovative and sustainable greentech solutions.

David Wendel, Managing Director ENDEGS GmbH, Managing Director & CCO ETS Group GmbH



The awareness for environmental protection and sustainability is constantly growing in the industry. Over the last years, many actions have been taken to implement alternative and more environmentally-friendly processes and technologies in the workstreams. A major factor for global warming are greenhouse gas (GHG) emissions that harm both the environment and human health and that are created during many industrial processes.

Thus, it is important for industrial facilities to reduce the hazardous gases, gas mixtures and vapors that are emitted during their operations or during downtimes, revisions and turnarounds. By mitigating the release of hazardous emissions, industry can contribute to reducing the global carbon footprint. Industrial decarbonisation is therefore a useful tool for reaching the ambitious, yet highly necessary, climate goals such as climate-neutrality by 2050 and net-zero emissions. While many good actions have already been taken, more still needs to be done.

Innovative Environmental Technology Services

As part of the ETS Group, ENDEGS and SIS offer a broad portfolio of services for the reduction of industrial emissions. As experienced experts that have been operating for over 17 years now in the fields of degassing, emissions reduction and environmental technologies, the companies of the ETS Group offer a broad range of innovative solutions for industries such as oil and gas, chemical and petrochemical, marine, shipping and logistics as well as food and fertilizer.

Applying the innovative ETS Group technologies for mobile emissions reduction contributes to decarbonisation and helps industrial facilities to significantly mitigate hazardous emissions. The services of ENDEGS and SIS are environmentally-friendly, sustainable and specialise in the effective elimination of hydrocarbons, VOC (volatile organic compounds) and HAP (hazardous air pollutants) emissions from venting and flaring. The innovative ETS emissions reduction services include mobile degassing, mobile vaporizers with nitrogen tanks, mobile ATEX Zone 0 blowers and the ATEX Zone 0 robot as a rental service.

Mobile degassing and backup services

The mobile vapor combustion units of ENDEGS and SIS are ideally suited for the degassing of all components that are applied in industrial facilities

such as tanks, containers, pipelines, vacuum trucks, vessels, ships and much more. ETS mobile incinerators can also be used for the temporary replacement of stationary emissions reduction systems like vapor recovery units (VRU) during downtimes due to maintenance or repair. This way, daily operations can continue as usual during the downtime, as facilities without a functioning are not allowed to operated, saving customers time and money.

The ETS fleet consists of around 50 mobile vapor combustor units in four different combustion capacities – 3, 4, 5, 10 and 20 MW. The units with lower combustion powers can be applied for short-term projects and emergencies, whereas the high combustion capacity units are suited for longer deployments and projects that involve more complex products requiring higher combustion powers. ETS mobile incinerators are capable of destroying all kinds of gases, gas mixtures and vapors from the explosion groups IIA, IIB and IIC with an efficiency of more than 99.99 % and no open flame. The ETS Group brand company ENDEGS did in fact enable mobile emission treatment for the very first time world-wide in 2007 by developing the world's first portable and autonomously operated mobile vapor combustion unit.

Mobile nitrogen services for liquified substances

As mobile degassing and emissions reduction have become a standard

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nowadays, the challenge now is to further adapt the existing technologies. To contribute to environmental protection and more sustainability in the industry, many new technologies and processes are introduced that are more sustainable. For example, the importance of LNG, green ammonia or hydrogen is constantly rising. As liquified gases under pressure, these products are complex to work with as they are highly flammable and have a high risk of explosion. As this example shows, it is important to optimize existing technologies to make sure that they can be applied to new use cases.

The ETS fleet of nitrogen vaporizers enable the work with systems and system components that contain highly flammable liquified substances. As nitrogen is an inert gas that does not react with other substances, it can be used to render inert the containers and safely flush the substance outside where it can be destroyed in combination with a mobile vapor combustion unit. This makes the ETS nitrogen services perfectly suited for maintenance work, degassing or emergency projects involving containers filled with liquified products that need to be cleaned or emptied.

Enhancing safety in the ATEX Zone 0

Ensuring the safety of employees in industrial facilities as well as the security of the people living in surrounding communities from dangerous gas emissions is as important as protecting the environment. Therefore, ETS Group offers two technologies that enhance occupational health and security in industrial facilities and that are certified

for use in the highly dangerous ATEX Zone 0, ensuring that workers no longer have to expose themselves to high health risks despite wearing extensive safety equipment.

The mobile ATEX Zone 0 blower skid enables the safe extraction of vapors from components such as plants, tanks and vessels. The blowers are available in different capacities – depending on the customer's requirements – and are easy to use due to their small and compact size. Additional equipment such as piping networks, flame arrestors and liquid separators are available as well.

The companies of the ETS Group also offer the ATEX Zone 0 robot as a rental service. The robot enables the remote-controlled cleaning of industrial tanks and can be operated via two joysticks from a safe distance. A monitor shows every movement in real-time. Due to its small size and mobility, the robot can be used in many industries and for a wide range of materials.

Helping customers world-wide to reduce their emissions

With offices in Germany, the Netherlands, France and the Middle East, the ETS Group companies work world-wide and have successfully completed more than 3,000 projects all over Europe and in Northern Africa. Some of these projects have of course been in the United Kingdom, too.

Recently, for example, SIS has deployed a 5 MW mobile vapor combustion unit to the UK for a tank degassing project. For the degassing of the propane tank, the Flying Combustor was applied, a

versatile, flexible and safe mobile vapor combustion unit. The unit has integrated power generation, propane vaporizing and storage, Zone 0 blowers and automatic stack erection. Furthermore, it has four internal and four external gas detectors as well as numerous other integrated safety features.

Another UK project carried out by ENDEGS involved the ATEX Zone 0 robot. Over several weeks, the team presented the robot to different companies in the entire United Kingdom. Besides showing all features and advantages of the ATEX Zone 0 robot in exemplary tank cleanings, the project also included training the on-site operators in the use of the robot and answering any questions the customers had.

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