SIGNALS

EST. 1990 • SPRING 2019 • ISSUE:115

IMMERSIVE TRAINING

Virtual reality emerging as a new training tool for seafarers

2020: A VIEW FROM THE REFINERY

North asked two big hitters from the refinery industry for their thoughts on 2020 and the new fuels.

CAN BLOCKCHAIN FIT THE E-BILL?

Looking at the recent progress of blockchain technology and the potential wider use of electronic bills.

UPGRADE TO SAFETY MANAGEMENT 2.0: NORTH HOSTS WORKSHOPS

The effects of a systems-based approach to safety have plateaued. The human element is now the focus of where the safety performance of companies can be improved. Safety management needs to be upgraded to version 2.0 and North is here to help.

LOOK INSIDE THIS ISSUE

SIGNALS • SPRING 2019 • ISSUE:115

NORTH
SERVICE, STRENGTH, QUALITY

'*Signals*' is published by The North of England P&I Association Limited

100 The Quayside,
Newcastle Upon Tyne NE1 3DU UK
Telephone: +44 191 2325221
Email: loss.prevention@nepia.com
www.nepia.com

HOW HAVE WE DONE?

Let us know what you think of the latest edition. Contact us at: ***signals@nepia.com***

CONTRIBUTORS

Editor: Alvin Forster

Contributors: Alvin Forster, Kostas Katsoulieris, Mark Smith, Catherine Doyle, David Richards, John Southam, Claire Andrews, Sean Durr, Katherine Clifford and Gemma Middis

Photographs: Shutterstock, istock, ITOPF, Care4C, RSS Infrastructure Royston, Seabot XR, v360marine and North

Thanks to: Erik Green – Managing Director of Green-Jakobsen, Sea Health and Welfare and Made Smart Group, Chaffe McCall New Orleans, CWA International, Gary Hemphill of Phelps Dunbar LLP, Alan Gelder of Wood Mackenzie, Damien Valdenaire of Concawe, IOTPF and RSS Infrastructure Ltd.

INSIGHT ARTICLES AND BACK ISSUES

Current articles from Signals can be found online at: ***www.nepia.com/insights*** and back issues of Signals are available online at: ***www.nepia.com/signals***

JOIN IN THE CONVERSATION

- www.nepia.com
- @NorthPandIClub
- NorthPandIClub
- The North of England P&I Association Limited
- North P&I Club

DIGITAL DISRUPTION

Advances in digital technology, combined with faster and cheaper global communications, have affected almost everyone in the world.

Amazon changed how we shop, Uber changed how we travel and Airbnb changed how we find places to stay. But what and who will be the big digital disruptors in shipping?

Time will tell, but in this edition of *Signals* we look at some areas where new technology is being used in shipping and how it could change the way we live, learn and work.

One such area is crew training, where immersive technology such as virtual reality can be used to provide a more realistic and engaging experience. Supporters of this technology claim this leads to better knowledge retention and has the added benefits of versatility and mobility. We also look at how the current trend of wearable technology can be harnessed to manage fatigue on board vessels – a very topical subject following the IMO's recent release of revised guidelines on seafarer fatigue.

Vessel performance optimisation is another application of advanced technology. We consider some of the systems reducing energy consumption and overall emissions through more efficient operations.

Our final article with a tech theme is on the much-hyped topic of blockchain and explores how it could accelerate change in issuing and using bills of lading.

Elsewhere in this edition, we return to the 2020 sulphur cap. Two influential figures from the refining industry give their views on the much-anticipated new fuels and how refineries are preparing for the big switch. We also look at the importance of checking LNG terminal contracts (and, of course, how North is here to help), camera surveillance as evidence and fumigation confusion.

By Alvin Forster
Deputy Director (Loss Prevention)

FATIGUE MONITORING COULD PROVIDE INDUSTRY WAKE UP CALL

The collision incidents involving the *USS John McCain* and the *USS Fitzgerald* in 2017 led to US Navy Admiral John Richardson expressing concerns that naval staff viewed going without sleep as a badge of honour.

This is only one of the many ways that fatigue impacts the shipping industry and is an oft-repeated causal factor in maritime incidents and seafarer injuries.

To address the problem of seafarer fatigue, the IMO has published new industry guidance. With the advent of wearable technology, fatigue monitoring could get a whole lot easier.

UNDERSTANDING FATIGUE

In the past sleepiness and fatigue were considered one and the same, but this is not always the case. A seafarer can suffer from fatigue without feeling sleepy. In broad terms, sleepiness is a short term condition that comes on quickly and is simply caused by a lack of sleep. Fatigue, on the other hand, is a long term condition that gradually takes hold and can be caused by a number of factors[1].

UPDATED GUIDANCE

The IMO has issued updated guidance on fatigue in MSC.1/Circ.1598. First issued in 2001, the guidelines on fatigue have been brought up to date for 2019, using more user-friendly language and focusing more on providing practical advice.
The new guidelines can be downloaded from our website: ***www.nepia.com/media/991577/MSC1-Circ1598.pdf***.

USING TECH TO FIGHT FATIGUE

An important aspect of managing fatigue is monitoring. It is possible to monitor the conditions that contribute to fatigue, such as work scheduling and the monotony of certain tasks, but the actual monitoring of a seafarer's level of fatigue is difficult. It has largely relied on self-assessment and sleep diaries, which can be unreliable.

In response, some technology companies believe real-time monitoring of individuals can help. The use of wearable tech has been successful in other industries, in particular the haulage industry where truck drivers are at risk of falling asleep at the wheel.

These systems vary, but essentially the seafarer would wear a device that tracks motion and heart rate – similar to the popular 'Fitbit' personal devices. This feeds into monitoring system where it is analysed. User activity, sleep patterns and – just as importantly – quality of sleep is assessed.

The data can provide an alert to the seafarer or the shipping company if calculated fatigue levels are considered to be unacceptable. Over time, the data can provide a valuable insight into life on board and can influence future work planning and manning.

This technology is currently unproven in the maritime industry and its use does introduce other risks, particularly if called as evidence by another party against the shipowner in the event of an incident where fatigue is suspected.

RECHARGE YOUR BATTERY

Imagine your body and mind like a mobile phone battery. Quick phone charges will give you some battery use over the immediate to short term but battery life will deteriorate in the long term. Short term quick fixes or charges are not the solution to long term efficient battery use and the same is true of the human mind and body.

Image reproduced with kind permission of RSS Infrastructure Ltd

Image courtesy of Care4C

FIND OUT MORE

Major Report on Fatigue Released: ***www.nepia.com/insights/signals-online/people/fatigue/major-report-on-fatigue-released***

Poster: ***www.nepia.com/media/384550/NORTH-Soft-Skills-Poster-Fatigue.PDF***

By Kostas Katsoulieris
Senior Executive (Claims)

[1]Project MARTHA Report 2017, ***bit.ly/ProjectMARTHA***

CAUGHT ON CAMERA

A recent incident in the United States highlights that when a vessel is in port and something happens, there is a chance it's being caught on camera.

A vessel was loading bulk cargo at a terminal located on the east coast of the United States. A surveyor retained by cargo interests came on board to observe loading. Because of the configuration of the terminal, the surveyor had to access the ship via a stepladder rather than a customary gangway or accommodation ladder.

The surveyor fell when departing the vessel and a crew member alerted the Master who immediately attended on scene. He saw the surveyor lying on the concrete wharf apron about 20 feet below with his leg bent at such a grotesque angle that there could be no doubt that it was badly broken.

The terminal operator contacted emergency medical personnel and the injured surveyor was taken away by ambulance. The ship's crew took photographs of the surveyor as he lay on the wharf apron and as he was loaded into the ambulance.

The Master interviewed crew members who were on watch at the time and they all prepared written statements of what they had observed. The witnesses' recollections were consistent – the surveyor descended to almost the bottom of the ladder when he lost his footing and fell a short distance. They all gave the opinion that the surveyor fell because of being overweight.

The P&I club was not notified of the incident before the ship sailed.

Several months later, litigation was commenced and the shipowner forwarded to their P&I club the written statements given by the crew at the time of the incident. Because these statements tended to indicate the fault for the incident lay with the surveyor, the club initially took the position there was no liability and proceeded to defend the case accordingly.

DISCOVERY

However, during the course of discovery it was learned that the terminal had a closed-circuit television camera (CCTV) as part of its security system. The entire incident was captured on video.

The video showed, contrary to the written statements of the crew, that the surveyor fell from the top of the ladder when it became momentarily unhinged. He fell, not just a step or two as the crew witnesses had said, but approximately 20 feet.

Under United States law, the crew's written statements would be produced to the plaintiff's attorney in the course of pre-trial discovery. Because the statements were demonstrably false, the crew would have been easily discredited at trial. This means the ship would have been unable to call any credible eyewitnesses in an effort to defend the case.

LESSONS LEARNED

There are several lessons to be learned:

- Always assume that any incident occurring at a terminal in the US has been captured by closed-circuit television cameras.
- Be aware that false written statements could conceivably be contradicted by irrefutable video evidence.
- Always notify the relevant parties, such as the P&I club's local correspondent, as soon as possible so they can attend on board before sailing. The correspondent is likely to know if the terminal has a closed-circuit television security system, and their investigation would have been guided accordingly.
- If the correspondent is a lawyer, then any written crew statements prepared by the correspondent might be protected from discovery by the attorney-client privilege.
- The photographs taken by the crew showing the badly broken leg of the surveyor would have to be disclosed to the other side during the discovery process and might not have been helpful had the matter proceeded to trial. To the contrary, they would have demonstrated to the jury how severe the plaintiff's injury actually was. The lesson is that any pictures taken are disclosable, regardless of whose case they assist.

It is important that when any incident occurs – especially in the United States – the master notifies the shipowner and the P&I club as soon as possible so that the required investigations can be carried out.

By Gary Hemphill
Phelps Dunbar LLP

ALWAYS...

1. ASSUME THAT CCTV IS OPERATIONAL IN PORT
2. BE AWARE THAT FALSE STATEMENTS WILL DISCREDIT THE CREW
3. NOTIFY EARLY

2020: A VIEW FROM THE REFINERY

Much has been said on the reduced fuel sulphur cap which will come into force on 1 January 2020. The majority of shipowners are likely to opt for compliant fuels rather than fit their vessels with scrubbers.

However with so little known about the new very-low sulphur fuel oil (VLSFO) products expected to enter the market, it is difficult to make an informed decision on future fuel choices. North asked two big hitters from the refinery industry – Damien Valdenaire of Concawe and Alan Gelder of Wood Mackenzie – for their thoughts on 2020 and the new fuels.

Q Little information is in the public domain on the characteristics of the new VLSFO products expected to come on to the market in 2019. Can you share any insight?

AG (Alan Gelder) Given our assumptions on scrubber adoption and global compliance levels, we expect high-sulphur fuel oil (HSFO) and VLSFO to each represent about 25% of total bunker demand, with the remainder distillates.

VLSFO composition will vary significantly between regions. European volumes are anticipated to contain significant volumes of low-sulphur atmospheric residues, whereas Asia will contain significant portions of cracked and straight run vacuum residues. North American volumes may comprise of more Fluid Catalytic Cracking (FCC) products, such as slurries and cycle oils.

US tight oil, if processed in a simple refinery configuration, can provide VLSFO at small volumes. But it introduces spare residue upgrading capacity into the refining system. Blending of low sulphur VGO is an opportunity but it will depend upon the relative strength of gasoline, as that is the alternative outlet. We expect VGO diversion to be modest.

DV (Damien Valdenaire): We see an evolution towards middle distillates and a broad variety of VLSFO products. It will vary from the current HFO type (high density, high viscosity but originating from very-low sulphur crude oil) to light-middle distillate type. Buyers will need to ask for a specific quality and ensure it satisfies their needs, as there will be not be a standard quality.

Shale oil could be used as the sulphur content is very low and it brings more middle distillates. Vacuum gas oil (VGO) blending may occur, but will remain minor as it is an intermediate feedstock for further production of gasoline and middle distillates.

Q Do you see any clarity on the prices of distillates and VLSFO on the run up to and after 1 January 2020?

DV No, the spread between products will be affected by many other factors. Over the last 10 years, the factor ranged from 1 to 3 for ultra-low sulphur diesel (ULSD) versus HSFO because of free market forces. Prices will be primarily dictated by the price of crude oil but the global sulphur cap will put more pressure on middle distillate demand.

AG Clarity on distillates and VLSFO pricing is starting to emerge. Price reporting agencies are adopting various methodologies and a futures market is also emerging. We anticipate further clarity on pricing after summer 2019, when shipowners start material purchases of compliant fuels.

Q How will refiners adjust to the expected reduction in HSFO demand and how do you see the long term price trend?

AG Refineries currently producing HSFO will largely continue to do so – it needs to be consumed. Our base case analysis suggests HSFO prices weakening considerably from 2018 levels. The long term trend is for its pricing relative to crude to strengthen as scrubber numbers increase and some refiners undertake major capital projects to upgrade HSFO to road transportation fuels.

DV This is the major unknown and key uncertainty post 2020. HSFO has a value for its energy density and can be used in power plants, but any new market requires time to develop. The excess of HSFO could limit the operation of some refiners if they don't find the right outlet in good time. It may be the limiting factor for the entire supply chain.

Q Fuel testing experts predict an increase in VLSFO compatibility problems. Do you agree?

DV VLSFOs will be made with new components with very different properties. Therefore the stability and moreover the compatibility risk cannot be ignored. It is already widely recommended that the ship operator minimises mixing of fuels on board. ISO, CIMAC and Concawe are developing a tool to determine compatibility criteria.

AG We are aware of these reported compatibility issues and have noted the regional variations in VLSFO composition. The processing of very low sulphur crudes can supply a paraffinic VLSFO which would not necessarily mix well with "cracked" fuel oil components.

BIOGRAPHIES

Damien Valdenaire is Science Executive at oil industry research body Concawe.

Alan Gelder is Head of Oils Research at energy research consultancy Wood Mackenzie.

By Mark Smith
Loss Prevention Executive

OPTIMISING PERFORMANCE

Data is becoming increasingly valuable in shipping. As technology and satellite communications improve, it is easier to harness and take advantage of this information.

The insights provided from this easy availability of data can be used to help shipowners optimise the performance of their vessels, drive more efficient operations and help tackle future challenges.

The looming introduction of the 2020 fuel sulphur cap is a prime example.

Depending on a shipowner's choice of compliance method, they could find themselves at a commercial disadvantage with a competitor who opted for a different approach. Looking further ahead, the IMO has set the shipping industry ambitious targets on decarbonisation. It will require a huge change in many aspects of shipping – from design to operations to regulation – and it's unlikely that one solution will resolve all the challenges.

Part of the solution to both these challenges could be vessel performance optimisation. This has the potential to reduce fuel consumption, resulting in reduced operating costs and lower CO_2 emissions.

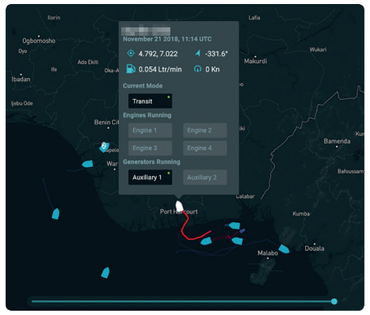


Image Courtesy of Royston

DRIVING FORWARD WITH DATA

Optimising the performance of a vessel ultimately relies on making the right operational decisions. Decisions need to be based on the best available information and when it comes to data, sometimes bigger is better.

A vast amount of data can be collected, not only from the vessel itself but also from external sources. Systems that consolidate the data collected can then quickly analyse the information using complex algorithms and, in some cases, artificial intelligence. This can then prove to be an effective decision-support tool.

An increasingly popular application of this process is fleet performance monitoring. Data is collected and analysed by an individual vessel, a specific class of vessel, or the entire fleet.

This information can be used to improve individual vessel performance as well as allowing remote monitoring and performance benchmarking of the fleet by shore based staff.

There are a number of fleet performance systems emerging, ranging in scope and complexity. One such system is SMARTShip from Singapore-based Alpha Ori. SMARTShip is a platform that uses thousands of onboard data points. It monitors a vessel's equipment by interfacing with existing outputs and uses real-time data such as vessel speed, fuel consumption and other essential voyage information. This allows for rapid and more accurate analysis of ship systems such as engine control, navigation, cargo handling, power management, hull stress etc.

Combined with route tracking and weather monitoring, this generates guidance on voyage optimisation which aims to achieve maximum fuel efficiency, whilst following a safe passage plan.

Targeting a different sector of the market is engine*i* by UK based Royston. This is an energy management system that, using dedicated sensors, monitors fuel usage, tank monitoring and voyage data in real time. The platform allows the vessel crew and the shipowner to better understand the fuel costs associated with each mode of vessel operation and as a result each factor can be optimised accordingly.

OTHER USES

Vessel performance optimisation systems can allow for remote monitoring and diagnostics of ship based machinery which can then be used as a proactive predictive maintenance tool by monitoring trends and sending alerts.

Another advantage of this technology is that it can provide transparent and reliable recording of operations which could assist with emissions data collection requirements or help a shipowner demonstrate environmental compliance.

Consider a vessel entering or exiting an emission control area (ECA). Systems that can detect when fuel changeovers take place by recognising changes in tank levels or fuel system valve movements can correlate this information with the vessel's position and time. This provides an automatically generated record of the operation and proof of compliance.

CHALLENGES

The technology is still developing and there are challenges to be overcome before vessel performance optimisation systems become widely accepted. Typically:

- Incompatibility of monitoring systems with some outputs of ship's equipment
- Increased reliance on the reliability of sensors
- Satellite coverage, bandwidth and data costs
- Use of data as evidence and whether it will be discoverable by an opposing party

A key consideration is to ensure such systems are used to support the ship's crew and not to undermine or micromanage them. Used correctly, these systems can be effective decision-support tools. By having better information, the crew can make better decisions and be more aware of the importance of efficient operation – therefore changing crew behaviour for the better.

CUTTING THROUGH THE JARGON

Digitisation and technology has been a significant disruptor in many industries and shipping is no different. New terms are emerging, but what do they all mean?

Big Data: extremely large data sets that can be analysed to reveal patterns and trends

IoT: Internet of Things, sometimes called IIoT (Industrial Internet of Things) – sensors, equipment or systems that are connected to the internet and communicate with each other without any human interaction

Artificial Intelligence (AI): also known as 'machine learning', computer systems that learn, adjust, and improve based on the data fed to them

Algorithm: A mathematical formula or process used to analyse data

By Alvin Forster
Deputy Director (Loss Prevention)

ITOPF – IT'S NOT JUST ABOUT OIL

ITOPF is well-known across the shipping industry for providing objective technical advice in the event of an oil pollution incident. Perhaps less well-known is that ITOPF has a range of in-house expertise and can assist Members in pollution incidents involving cargoes other than oil. Examples of this expertise include assisting in spills involving bulk liquid and solid cargoes and also container related incidents.

Image courtesy of ITOPF website

IT'S NOT JUST ABOUT TANKERS

In an actual or threated pollution event, ITOPF is an invaluable resource available to all North's Members. ITOPF can assist in providing an effective spill response and help mitigate any environmental and/or socio-economic damage. The range of ITOPF services includes damage assessment, claims analysis, contingency planning and advisory, training and education and information services. These services can prove critical if the local authorities have limited expertise and experience in dealing with pollution spills.

Perhaps surprisingly, in recent years ITOPF has responded to more pollution incidents involving the bunkers of non-tankers than oil cargo spills from tankers. This coincides with the steady downward trend in tanker spills globally.

IT'S NOT JUST ABOUT OIL

Pollution incidents involving oil cargoes and heavy fuel oil bunkers have traditionally had the highest profile in local and international media. Oil spills attract huge media attention and ITOPF's involvement at the earliest stage can be hugely beneficial. But what about pollution by substances other than oil? They might not have the same impact on the perceptions of the general public and the media but some have the potential the cause environmental harm and directly affect human health. Such incidents also require careful and safe management. ITOPF can help with non-oil pollution, including the following:

Container losses. The loss of containerised cargo from container vessels into the sea is an all-too-regular and regrettable occurrence. By the nature of the container trade, the cargoes inside these boxes vary massively as does the associated pollution risk. Cargoes range from dangerous goods (DG) such as chemicals, to waste products to materials that outwardly appear more benign, such as plastics. Each has an effect on the marine environment. Chemicals are an obvious marine pollutant but 'non-hazardous' plastic feedstocks such as nurdles can adversely affect marine life. A single 40 foot container could container over a billion nurdles. (Nurdles are small plastic pellets about the size of a lentil and billions are used each year in the manufacture of nearly all plastic products).

Coal. Over the last 10 years, ITOPF have attended 12 pollution incidents involving coal cargoes. The response differs to that of oil as coal is more likely to sink, takes longer to degrade and can have a high content of heavy metals. This can have a significant impact on marine life.

Chemical bulk cargoes. A chemical spill response can be more difficult and dangerous than an oil spill response. There is a lack of specialist knowledge around the world and chemicals have a huge range of characteristics and behaviours, whereas oil products are largely uniform in properties and behaviour. Consideration also needs to be given to possible reactions with the air, water and other chemicals. The potential risk to human health and loss of life is also high and may not always be immediately apparent.

TANKER VS NON-TANKER

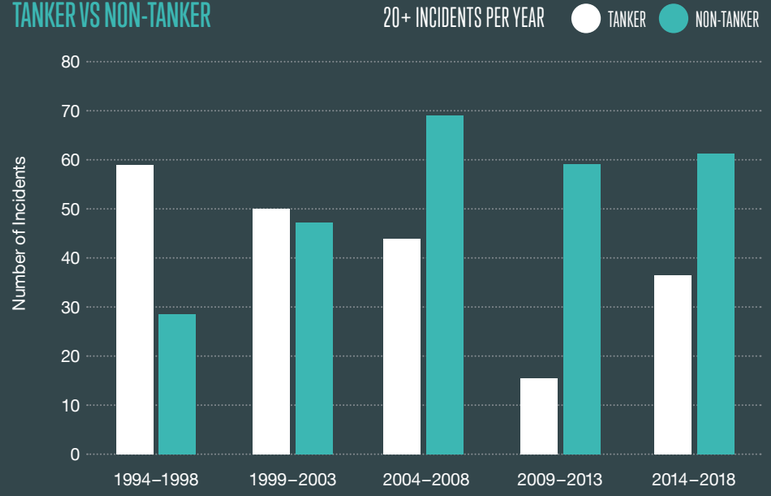


Chart courtesy of ITOPF

ABOUT ITOPF

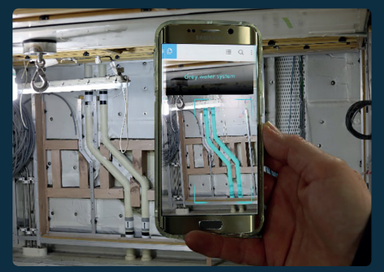
ITOPF, the International Tanker Owners Pollution Federation, is a non-profit making organisation that provides technical advice in respect of pollution incidents and is funded by the shipping industry via the 13 IG P&I Clubs. Their services are automatically available to all North vessels. The 2018 ITOPF Handbook can be read here: ***www.itopf.org/fileadmin/data/Documents/Company_Lit/ITOPF_Handbook_2018.pdf***

By Catherine Doyle
Deputy Director (Claims)

IMMERSIVE TRAINING

Immersive technologies, such as virtual reality, have become much more affordable and accessible in the last few years. Their best well-known application may relate to enhancing gaming experiences, but they are now also emerging as a new training tool for seafarers.

THE CHALLENGE WITH ANY FORM OF TRAINING IS ENGAGEMENT. VR'S IMMERSIVE EXPERIENCE CLAIMS **TO ENGAGE A PARTICIPANT'S AUDITORY, VISUAL AND OTHER SENSES**. IT MIMICS THE REAL WORLD AND CAN SAFELY PUSH OPERATIONAL BOUNDARIES TO CRISIS POINT.



UNREAL REALITIES

Immersive technologies are generally categorised as Virtual Reality (VR) and Augmented Reality (AR) with everything in between classed as Mixed Reality (MR).

VR is a completely digital world – an interactive computer-generated experience in a simulated environment.

AR is where the digital world overlaps the real world. An example is 'Pokémon Go' where, through a smartphone, the image of the real world has digital images superimposed to make it look like real life.

The use of virtual and augmented realities for training is gathering pace in many sectors, but would it work for the maritime sector?

VIRTUAL REALITY TRAINING

The challenge with any form of training is engagement. This is often linked to how realistic it is. If the trainee doesn't fully engage then there is less chance of that individual retaining much of the course content, regardless of the subject matter. However training which uses immersive technology is proven to increase knowledge retention.

VR's immersive experience claims to engage a participant's auditory, visual and other senses. It mimics the real world and can safely push operational boundaries to crisis point.

One such technology provider is v360marine and they claim that using immersive technology in training is proven to increase knowledge retention. They provide vessels with a complete VR kit which is pre-loaded with a specific training programme.

Examples include:

- **Enclosed space entry training:** VR sets can add realism to the scenario and allow remote monitoring to ensure that the crew are following safe practices and procedures. The experience can be heightened by having another remote participant introducing commercial pressure and adding additional hazards
- **Crane operations:** The offshore industry is already using VR for remote training and re-familiarisation for crane operators. This avoids the need for extensive travel to training centres
- **Fire training:** A virtual replication of the vessel allows for various firefighting scenarios that can be modified mid-exercise to further challenge the trainee

The use of VR training is being used by some companies that do not have the resources to develop their own ship simulators. They are attracted by the flexibility of use that VR brings and how a trainer or supervisor ashore can participate in real time, providing support and feedback.

GOING MOBILE

Although VR sets are becoming increasingly more affordable and are widely available in most electrical stores, there is another way to spread VR to a wider audience – using a smartphone.

SeaBot XR turns a person's smartphone into a VR set by providing learning applications and a cardboard box headset.

Their ship familiarisation training application provides new crew with the layout of the ship prior to joining. For example, an engineer can download the layout of the engine room on their smartphone which is then placed into the VR headset. This allows the engine room to be explored and a series of tasks can be set.

AUGMENTED REALITY

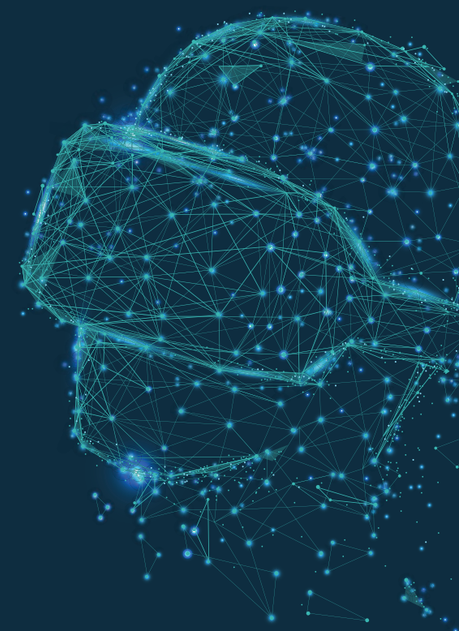
A particular application of AR is allowing crew to locate piping, systems or points of interest without removing panels or floorplates etc.

This is used extensively for familiarisation training where systems can be physically traced on the vessel. Procedures and instructions are called upon through the digital interface making fault finding safer and simpler.

BECOMING IMMERSED

Effective training that stays with the trainee is an ongoing challenge for the industry. Ship simulators have already proved effective in helping to provide realistic and engaging training, but they remain out of reach for some. The flexibility afforded by VR sets, combined with the gamification of learning, could prove to be a useful additional training method.

By Mark Smith
Loss Prevention Executive



Images in this article courtesy of Seabot XR and v360marine

CAN BLOCKCHAIN FIT THE E-BILL?

The last few years have seen blockchain lauded as the solution to a number of problems for the shipping industry. Despite the hype, the buzz of blockchain technology in shipping shows no sign of fizzling out.

There are many projects in development using blockchain, from tracking the source of bunkers to providing a full documentation pipeline for trade transactions.

One application of blockchain technology in shipping concerns the bill of lading, and a number of companies have made significant progress in recent months. This brings with it the potential wider use of electronic bills of lading, perhaps eventually replacing traditional paper bills.

HISTORY OF E-BILLS

Electronic bills of lading have been in use for a number of years. In 2010, the International Group of P&I Clubs (IG) approved the Bolero and the essDOCS systems, before being joined by the e-title system in 2015.

When using these systems, it is very important that the correct version and user agreement is in use. To the extent liabilities arise because an electronic bill of lading has been used instead of a paper bill, cover is discretionary unless the governing Rule Book or User Agreement matches the titles set out in the latest IG circular and are unamended.

To date, the use of e-bills has not been widespread. The low adoption rates are attributed to number of reasons on top of the obvious cyber risk. These include its ability to function as a document of title, problems with transferability and the investment needed in new IT systems.

But the advent of blockchain could prove a renaissance for the e-bill. Recently, the Bolero electronic bill of lading was successfully used in a blockchain transaction. However, until there is further clarity on the legal status of e-bills in more jurisdictions, a significant barrier remains.

THE FUTURE IS ALREADY HERE

Recent success stories of trialling blockchain technology in bills of lading transactions include the Smart B/L from Cargo X, Wave and the Maersk-IBM partnership TradeLens.

The CargoX trial involved a shipment of garments from China to Slovenia. They report a bill of lading was successfully processed in minutes at a cost of US$15 using a public blockchain network. The TradeLens system does not just limit itself to the bill of lading but the whole process of transactions and document control in the supply chain. When studying the need to improve the process, Maersk announced that a single shipment of avocados from Mombasa to Rotterdam involves 30 parties of over 100 people and 200 information exchanges. Their trials showed a time reduction of 40 percent and reduction of costs by thousands of dollars.

BLOCKCHAIN BENEFITS

Fintech (Financial Technology) companies have been understandably vocal in extolling the benefits of using blockchain for bill of lading transactions, typically claiming:

- Reduced delays in international trade through standardised practices
- Transparency in trading and traceability
- Reduced risk of fraudulent transactions and counterfeit products
- Increased trust in accuracy and integrity of transactions through automated payment processes
- Streamlined process for cargo claims that leads to lower costs
- Better reassurance on the provenance of goods being traded

BRAKES ON BLOCKCHAIN

Shipowners should be mindful of the potential pitfalls in participating in any electronic system, including blockchain. Because of the hype, it is understandable that the shipping industry might think that blockchain is the solution to every issue. Not all companies will need blockchains, and not everything a company does will need to be put on a blockchain.

The legal framework protecting carriers who carry cargo under an original bill of lading is not suitable for electronic bills of lading and this problem is not solved by the use of blockchain technology. Whilst the International Group tries to assist the shipping community by periodically approving terms governing the use of electronic trading systems, the growth of new platforms and constant changes to user agreements means cover often remains discretionary.

Blockchain technology involves its own discrete legal issues, such as:

- Blockchain technology shares data across multiple jurisdictions, leading to potential issues concerning cross-border data protection issues and anti-trust rules.
- The legal efficacies of digital or smart contracts are still not fully tested under the law of contract.
- As blockchain technology is decentralised, and has no single controlling entity, it means liability would not be clear if the system were to fail.

QUICK GUIDE TO BLOCKCHAIN

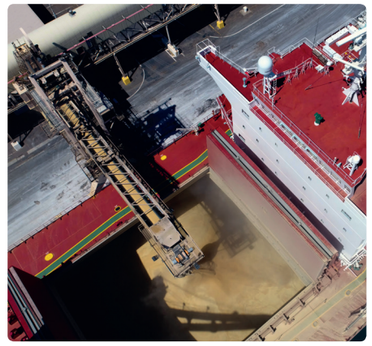
- Blockchain is a secure and decentralised shared database
- The database is a digital tamperproof ledger of transactions
- It is housed on a shared platform. There is no central point controlling the blockchain and it is stored across a network
- Each transaction – whether it is a payment, a record or a contract agreement – is entered into a 'block'
- Every new block is linked to the last block to form a chronological 'chain'
- Transactions are verified through participants confirming changes with one another

By David Richards
Deputy Director (Cargo)

Alvin Forster
Deputy Director (Loss Prevention)

FUMIGATED CARGOES: TO VENT OR NOT TO VENT?

Claims have emerged where grain cargoes loaded in the United States and subsequently fumigated on board were found to be affected by mould during the voyage. In each case the claimants alleged the cause of the damage was the failure to ventilate whilst the vessel was on passage.



Upon investigation, it was found that the shipowner had been provided with conflicting instructions regarding fumigation and ventilation of the cargo hold.

CONFLICTING INSTRUCTIONS

In the United States, fumigation guidelines are published by the United States Department of Agriculture (USDA). The section *"Fumigant Application Methods and Mandatory Minimum Exposure Time"* provides direction on exposure time for fumigation. The times are based on the fumigant type, dosage and the depth of the cargo hold.

This would appear to be straightforward. However, also contained within this section of the USDA handbook is the following statement:

"It is recommended that fumigated holds remain closed during the entire voyage even if the mandatory minimum exposure time is met or exceeded."

Because of this statement, some fumigators in the United States are instructing vessels' Masters to keep the holds sealed for the entire voyage. In some cases, this has involved long voyages of 40 to 60 days crossing over differing climates. As is customary, the Master followed the fumigator's advice and no ventilation was carried out. When the affected vessels arrived at the discharge port and mouldy grain observed, the receivers asked for evidence of correct ventilation, which of course showed no ventilation took place.

PROTECT YOURSELF

To avoid this and similar types of incident, a good clause in the charterparty will help. It is recommended that the BIMCO fumigation clause for charterparties be incorporated, which is suitable for both time and voyage charterparties.

Remember, the USDA fumigation handbook is only a guideline. Parties, such as the shipowner, charterer and/or shipper are free to agree to a specific fumigation timetable at the time of fixing. This should confirm the number of days that fumigation is to be carried out taking into consideration the total length of the voyage and whether ventilation of the cargo is required.

Should a Master receive instructions from the fumigation company to keep the holds sealed for the duration of a long voyage, they should seek immediate and written clarification from the charterer or shipper. Clearly outline the risks of keeping the hold sealed when conditions would otherwise require hold ventilation.

Contact your usual contact at North or the local correspondent for further advice.

Written with thanks to CWA International and Chaffe McCall New Orleans.

FIND OUT MORE

Read more in our briefing on fumigation:
www.nepia.com/media/869091/Fumigation-Jan-2016-LP-Briefing.PDF

By John Southam, Loss Prevention Executive
Claire Andrews, Deputy Director (Claims)

NICKEL ORE LIQUEFACTION RISKS STILL EXIST

In Indonesia and the Philippines, the increased rainfall during the yearly wet season increases the risk of liquefaction of nickel ore bulk cargoes loaded in the regions.

Recent reports on the condition of wet nickel ore cargoes presented for loading in Indonesia highlight the importance of heightened vigilance. These cargoes – usually transferred via barges – often bear little resemblance to the transportable moisture limit (TML) and moisture content (MC) as declared on the certificates provided. Masters are frequently under pressure from shippers not to reject these cargoes despite its observed condition.

Even if the cargoes are rejected, they often undergo the ineffective process of 'air-drying' before being presented once again to the vessel.

112 seafarers' lives and 12 vessels have been lost to liquefaction incidents since 2005. Avoid becoming another statistic – strictly follow the requirements of the IMSBC Code.

You can access our training pack on how to carry out a 'Can Test' here: ***www.nepia.com/our-services/loss-prevention/education-and-training/bite-size-training-packages***. Remember, this simple test, when done properly, indicates when a cargo could be unsafe. It could save your and your shipmates' lives.

Members are reminded of our Circulars in relation to loading nickel ore and the requirement to notify North when planning to load nickel ore from the Philippines or Indonesia.

- Circular Ref: 2012/023 – Dangers of Carrying Nickel Ore from Indonesia and the Philippines – Mandatory Notification Requirements.
- Circular Ref: 2011/009 – Indonesia and the Philippines – Safe Carriage of Nickel Ore Cargoes.

www.nepia.com/circulars

FIND OUT MORE

We also recommend reading our loss prevention publications on the subject:
www.nepia.com/media/648167/LP-Briefing-Carriage-of-Nickel-Ore-March-2017.PDF

www.nepia.com/media/72814/Hot-Spots-Liquefaction.PDF

www.nepia.com/media/493380/NORTH-Cargo-wise-Poster-Liquefaction-.pdf

By Alvin Forster,
Deputy Director (Loss Prevention)

LNG TERMINAL CONDITIONS OF USE - THE CONTRACTUAL MAZE

Vessels routinely need to sign LNG Terminal Conditions of Use (COUs) before being allowed to berth at LNG Terminals. We are often asked by our Members to review COUs to check whether the relevant contract is acceptable from a P&I/Pooling point of view. These COUs frequently include clauses that are favourable to the terminal.

BEWARE OF ADDITIONAL CONTRACTUAL LIABILITIES

Broadly speaking, International Group (IG) P&I clubs cannot cover the contractual liabilities agreed to by a Member which the Member would not otherwise be liable for under the relevant law (e.g. the law of the place where the LNG terminal is located). In addition, where a Member has waived their legal right to limit liability under a contract, IG P&I clubs may only cover the Member up to the limit which would otherwise have applied.

POOLABLE COVER

These principles are subject to some exceptions in the International Group Pooling Agreement (some of which are specifically concerned with COUs).

Generally, for a COU to be poolable it must meet certain requirements which include:

- A limitation of liability by statute or in the contract (the maximum permissible contractual limit is currently US$150 million)
- Where a contractual limit applies, the limit must include all of the liabilities a Member faces under the contract flowing from one incident. However, exceptions apply for wreck removal and crew injury where the Member has tried their best (the so-called "best endeavours" test) to obtain a right to limit all of their liabilities flowing from one incident but has failed
- The Member should bear no liability when the party requesting an indemnity (i.e. the LNG terminal) is solely or 100% negligent, unless such indemnity arises under a Knock for Knock agreement

In a contract which includes a Knock for Knock provision, each party (a) agrees to accept its own loss, damage and liability regardless of which party is to blame; and (b) agrees that they will not claim against the other party. To be acceptable for club cover, there must be a fair balance of liability between the parties, and the right to limit liability must be preserved. Again, however, exceptions apply for wreck removal and crew injury on board the Member's vessel where the Member has carried out best endeavours to achieve this outcome but has not succeeded.

HOW CAN WE HELP?

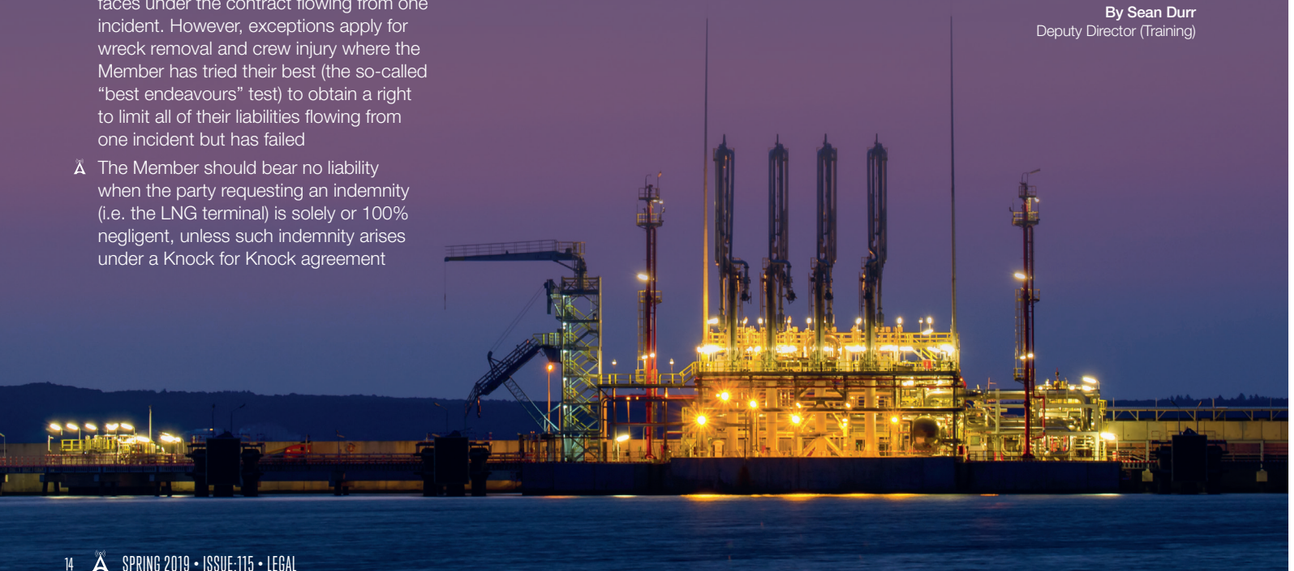
If the COU doesn't comply with the above requirements, we will provide our Members with recommendations on how the contract can be changed to correct the offending clauses. If the LNG terminal still refuses to make the amendments, we can then assist the Member to consider available options including obtaining a quote for alternative market insurance cover.

North has a dedicated and experienced LNG Terminal COU Advice Team which reviews COUs. Our assistance has on occasion resulted in terminals agreeing to vary their terms so that the contracts are poolable or are more favourable to the shipowner.

FIND OUT MORE

If a Member has a vessel which is due to call at an LNG Terminal and would like North to review the COU sufficiently in advance of the vessel's call, send it to: ***LNG-COU-Advice@nepia.com***

By Sean Durr
Deputy Director (Training)



NORTH IN THE NEWS

You may have missed...

200 MILLION GT

NORTH P&I CLUB DELIVERS LANDMARK 200 MILLION GT AT 2019 RENEWAL, FEBRUARY 2019

The February 2019 renewal saw North reach a total entered tonnage exceeding 200 million GT.

http://bit.ly/200mGT

NORTH IS THE FIRST UK P&I CLUB TO CONFIRM POST-BREXIT TRADING ARRANGEMENTS, JANUARY 2019

North has opened and staffed a new office in Dublin to ensure that North's EEA members can continue to trade post-Brexit.

http://bit.ly/NorthDublin

NORTH P&I CLUB RETAINS S&P 'A' RATING, MARCH 2019

S&P Global Ratings has confirmed the 'A' rating of North of England P&I Club for the fifteenth year.

http://bit.ly/SandPRating

NORTH CLUB LAUNCHES SAFETY CULTURE ORGANISATIONAL ASSESSMENT TOOL, MARCH 2019

SCORA, a self-assessment tool to help Members assess and improve their safety performance, was launched in March.

http://bit.ly/SCORAlaunch

NORTH CLUB LAUNCHES CAN TEST TRAINING PACK TO ADDRESS LIQUEFACTION RISK, FEBRUARY 2019

Our new series of bite-sized training packs to help seafarers avoid the contributing factors to workplace casualties launched in February.

http://bit.ly/CanTest

NORTH P&I BOOSTS APAC TEAM WITH EXPERT'S RELOCATION, JANUARY 2019

Our loss prevention team was strengthened with the addition of master mariner Andrew Glen to the Singapore office.

http://bit.ly/AGlen

GLOBAL: PRUDENCE PAYS, FEBRUARY 2019

Tiejha Smyth, Deputy Director (FD&D), speaks to Bunkerspot about the role of insurers in an increasingly challenging marine fuels sector.

http://bit.ly/PrudencePays

EXPERT THINKING ON SULPHUR CAP, FEBRUARY 2019

In this experts' column, Deputy Director (Loss Prevention), Alvin Forster, shares his views on whether to expect a spike in incidents related to the 2020 sulphur cap fuel switchover.

http://bit.ly/2020FuelSwitch

NORTH P&I CLUB EXECUTIVE TO CHAIR INDUSTRY FORUM, JANUARY 2019

Rune Dybedal, Senior Executive (Claims), takes up the role of chairman of the annual North Sea Operators' Claims Conference (NSOCC).

http://bit.ly/NSOCCchair

UPGRADE TO SAFETY MANAGEMENT 2.0: NORTH TO HOST WORKSHOPS

Most modern day shipping companies comply with the requirements of the ISM Code with a systems-based approach to safety. This approach has had a positive impact on how shipping companies have managed safety, but in many cases has not focused on human crew behaviour.

The effects of this systems-based approach to safety have plateaued. The human element is now the focus of where the safety performance of shipping companies can be improved. Safety management needs to be upgraded to version 2.0 and North is here to help.

SAFETY MANAGEMENT 2.0

To assist our Members, we are launching Safety Management 2.0 workshops. North Members will be kept informed of when a Safety Management 2.0 workshop is available near them. The workshops will cover two topics delivered by industry experts and supported by North's loss prevention team:

Simplifying SMS: delivered by Lovoy AS

Lovoy (***https://lovoy.info***) has researched and developed methods to simplify and improve Safety Management Systems (SMS). The idea is simple: if the procedures are user-friendly, we will use them more.

This is an interactive, high-pace workshop with case studies and examples of how companies are benefitting from using the Lovoy method. You will learn more about how to simplify your safety systems to improve safety, training efficiency, compliance and seafarer satisfaction. You will also learn how to make procedures and checklists more risk based. Lovoy also offers a confidential SMS review before the workshop.

Organisational Safety Culture: delivered by Green Jakobsen

Green Jakobsen (***www.green-jakobsen.com***) is a leading maritime safety and human resource consultancy involved in projects worldwide. In this interactive workshop Green-Jakobsen allows delegates to explore a number of issues around measuring and assessing safety performance from both an organisational perspective and a crew perspective. The workshop will also include an introduction to North's new SCORA self-assessment tool that provides you with an insight into your company's organisational safety capacity.

FIND OUT MORE

Safety Management 2.0: ***www.nepia.com/insights/safety-management-20***

By John Southam, Loss Prevention Executive

OUR OFFICES

UK

100 The Quayside
Newcastle upon Tyne
NE1 3DU
UK
Telephone: +44 191 2325221
Facsimile: +44 191 2610540

GREECE

4th Floor
61-65 Filonos Str
18535 Piraeus
Greece
Telephone: +30 210 4283038
Facsimile: +30 210 4280920
Email: Piraeus@nepia.com

JAPAN

Shinkyobashi Building
6th Floor
2-8-8 Kyobashi
Chuo-ku
Tokyo
Japan
104-0031
Telephone: +81 3 5159 5373
Facsimile: +81 3 5250 0003
Email: TokyoOffice@nepia.com

HONG KONG

Room 3011
COSCO Tower
183 Queen's Road Central
Hong Kong
Telephone: +852 2544 6813
Facsimile: +852 2542 4424
Email: HongKongOffice@nepia.com

SINGAPORE

80 Anson Road
26-03 Fuji Xerox Towers
Singapore
079907
Telephone: +65 641 10160
Facsimile: +65 622 40160
Email: SingaporeOffice@nepia.com

NORTH OF ENGLAND MARINE CONSULTANTS (SHANGHAI) LTD CO.

Room 302, Building 7
18 Gongping Road
P.R. China
Telephone: +86 21 6087 5988
Facsimile: +86 21 6087 6198
Email: shanghai.marine@nepia.com

NORTH OF ENGLAND P&I DESIGNATED ACTIVITY COMPANY

Harcourt Centre, Block 4
Harcourt Road
Dublin 2
D02 HW77
Ireland
Telephone: +353 1 477 3051
Email: DublinOffice@nepia.com

THE NORTH OF ENGLAND INSURANCE SERVICES, INC.

140 Broadway, 46th Floor
New York, NY 10005
USA
Telephone: +1 646 740 1800
Email: NewYork@nepia.com

JOIN IN THE CONVERSATION

www.nepia.com

@NorthPandIClub

NorthPandIClub

The North of England P&I Association Limited

North P&I Club

CONTACT OUR LOSS PREVENTION TEAM ON LOSS.PREVENTION@NEPIA.COM

Current articles from *Signals* can be found online at: ***www.nepia.com/insights*** and back issues of *Signals* are available online at: ***www.nepia.com/signals***