TANKER Operator

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*Front Cover - Q88 has introduced several new software suites this year.*
*The latest software is the Voyage Estimator module, which can be used by shipowners, commercial operators and brokers to run what-if scenarios for prospective voyages. Voyage Estimator is an integral function of Q88's cloud-based Voyage Management System - Q88VMS.*
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# I have a dream

**With due deference to Dr Martin Luther King's famous 1963 speech, at *Tanker Operator's* recent Hamburg conference, regular speaker Martin Shaw said, rather tongue in cheek, that he also had a dream.**

To try to prompt some debate, he told delegates that his dream was a world where the tanker sector operated in transparent and balanced markets, providing a fair return for owners and economic transportation for charterers.

There would be a single uniform standard across the globe with consistent compliance and enforcement, thus there would be no need for port state control and vetting.

The requirements for this to work would include - transparent ownership and taxation, shipowners committed to common standards and no competition between flag states or class societies.

Any pollution clean up and liability costs would be totally covered by international funds with no overreaction by media and politicians. There would be no state support for shipyards encouraging building booms that are not linked to market conditions.

He suggested that this scenario was as likely as there being a tooth fairy.

At both *Tanker Operator*'s Mumbai and Hamburg conferences (see page 35), speakers and delegates alike lambasted the seemingly endless stream of inspections by so called vested interests.

Why can't they just interact with one another to make life on board that little bit easier? Fatigue is one cause of human error, either consciously by skipping a task on purpose or sub-consciously by forgetting to do the last thing on the list.

By cutting the number of inspections to a manageable level, fatigue could be contained enabling the Master and senior officers to think straight or get on with the never ending administration work - yet another problem.

As technology moves on at a rapid pace, so does the workload both ashore and afloat. I thought technology was supposed to save a person work- not in the shipping industry.

Although there hasn't been a major tanker incident for some time, apart from the recent explosion and fire on board a tanker at an Indian recycling yard, the list of faults found by the inspectors and auditors does not appear to be going down and it is the same areas, which always seem to cause the problems.

Surely just one or two authorities are capable of identifying the faults. They could have the power to tell and owner or manager to deal with it.

One of our other regular speakers is convinced that most of these inspection regimes are not 'fit for purpose'. He has been saying this for some time now and it is about time we listened.

## Vested interests

Maybe there are just too many vested interests today. Not one of them will go away quietly, as they have created what they think is a place for themselves at the top table of shipping regulators.

There is by and large no way of challenging a decision going against a ship or owner/manager, which could cost thousands of dollars in offhire and other costs. After all the inspectors and auditors are only human or so we are led to believe.

For the tanker sector, OCIMF's SIRE inspection process could take the lead as without a nod from the oil majors, the vessel would not get work today. TMSA could and does do a similar job for the office to a certain extent.

I might have to take issue with the flag of convenience mantle, as although still used by the ITF and some other unions, the old perception of a tanker flying a 'flag of convenience' being a rust bucket is well and truly dead, although to be fair, Shaw was calling for more transparency.

Some of the so called third world flags operate better than the more traditional flag states today and many sit on the various committees at the IMO.

No competition between flag states or class societies would fall foul of the various anti-competition laws, especially within the European Union. Indeed, a few years go both the Independent Group of P&I Clubs and IACS were investigated on the back of accusations of running a cartel.

Fortunately, sanity prevailed and the investigations were dropped, but not before a few sleepless nights were had by those in charge of the organisations.

However, I am probably knit-picking, as Shaw was trying to be a bit tongue in cheek to stir up a debate among the delegates, as he also said that the shipping industry was complex but asked "….what's the alternative?"

I guess it is up to the industry to come up with an alternative but with so many different vested interests am I also in cloud cuckoo land, dreaming of fairies and not ferries at the bottom of the garden?

TO

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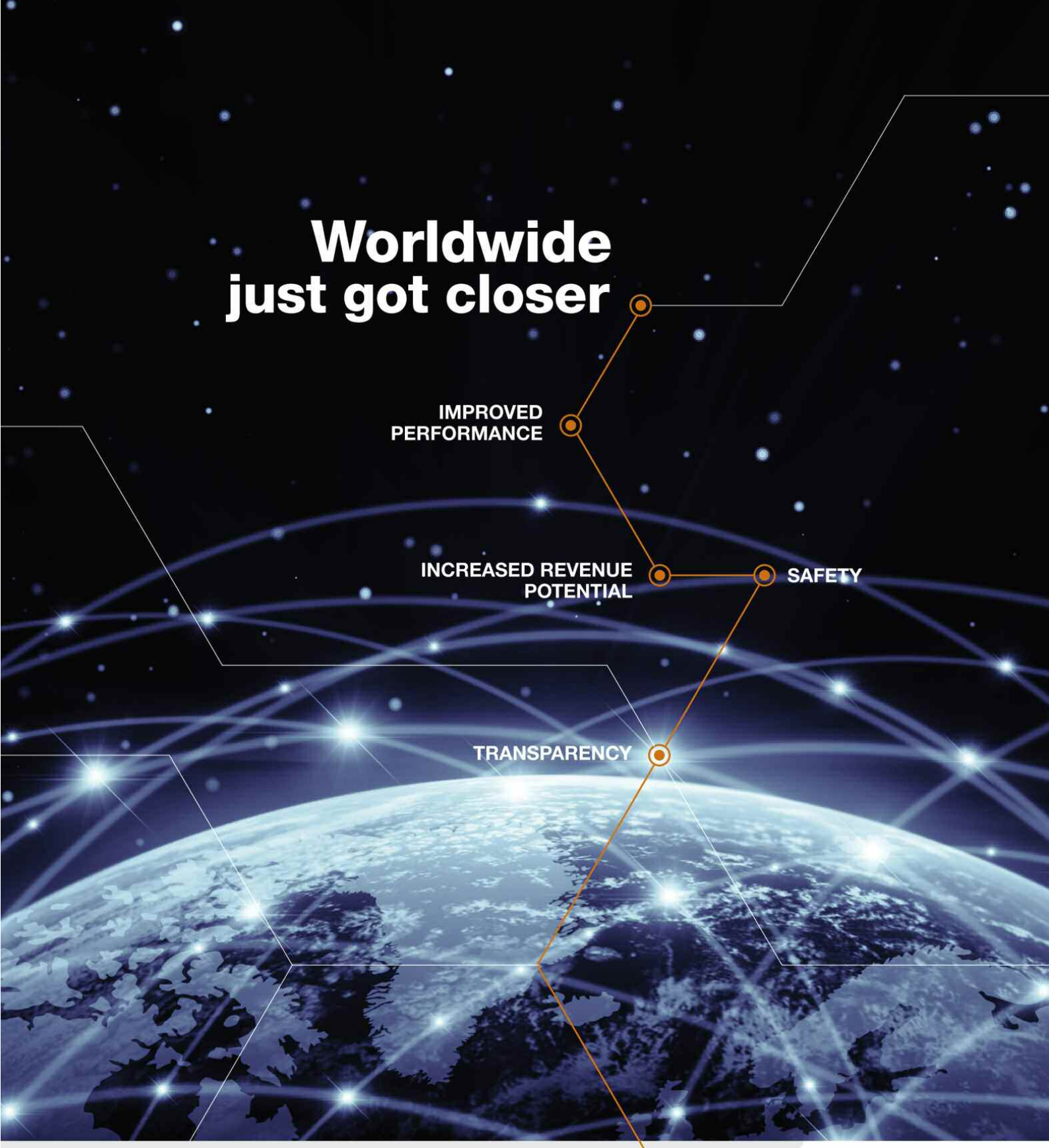


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# Newbuilding downturn should benefit the market

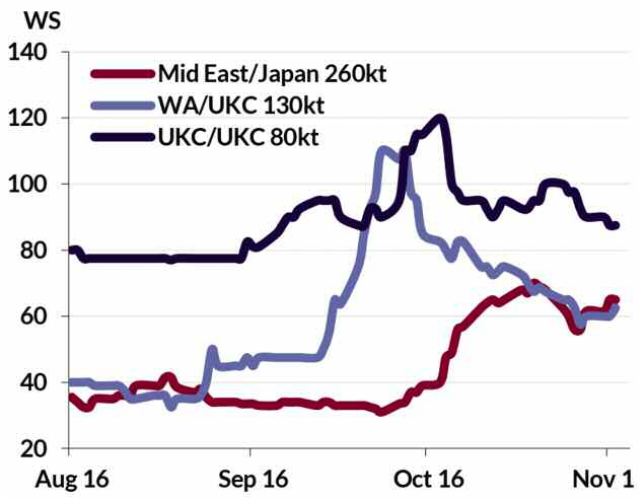
**McQuilling Services historical tonne/mile data for both DPP and CPP tonnage showed an annual demand growth of 1-3% on average.**

In this article, the tanker supply expectations and potential impact on freight rates over the period 2017-2020 are discussed.

This year started with 1,925 vessels in the dirty trading fleet, the highest recorded volume of vessels at the beginning of a year. Through the end of September, McQuilling recorded 76 additions to the dirty fleet, comprised of 34 VLCCs, 20 Suezmaxes, 21 Aframaxes and just one Panamax.

By comparison, this is more than double the 36 additions seen last year. Deletions have seen a second consecutive year of historically low exits with just eight DPP deletions year-to-date, following the six vessel exits over the same nine month period last year. Within the DPP sector, VLCCs experienced the largest net fleet growth of 4.9% from the beginning of the year, boosted by 34 deliveries and just two exits.

In addition, McQuilling said that more than 20 vessels were still due for delivery this year, although some slippage may occur as illustrated by reports that Euronav has delayed two VLCCs for three months. Through the end of 2016, 58 more deliveries are expected and about 10 more deletions from the dirty trading fleet.




**Crude Tanker Spot Rates** *Source McQuilling Services*

On the clean side, there were 41 additions and nine deletions to the product + IMO III trading fleet to the end of September. The LR types have seen a net growth of 32 vessels year-to-date, compared to the net growth of 24 vessels through the end of 2015. LR2s saw significant expansion, as 21 vessels were delivered, while none have exited. The LR1 fleet has grown by 11 vessels with 12 additions and one deletion.

The MR product + IMO III sector experienced no growth through September, as the orderbook is heavily weighted towards chemical tankers for this vessel class. This sector saw eight vessel additions and an equal amount of exits, while 88 IMO II tankers entered the chemical fleet this year with just six deletions.

Before the close of the year, McQuilling expected another 35 clean tankers would join the product trading fleet.

As the market continues to absorb the deliveries caused by the robust ordering activity in previous years, freight rates remain under pressure. The low earnings environment for significant parts of this year, combined with financial constraints and banking issues at shipyards, have contributed to a weak contracting year, comparable to 2011 and 2012.

McQuilling recorded 96 newbuilding orders through 25th October, including 61 crude carriers and 35 product tankers, representing a significant drop from 196 orders in 2014 and 339 orders in 2015.

Another trend seen this year is the significant amount of order cancellations, as many of the major shipyards have suffered severe financial losses.

## Looking forward

Looking forward to 2017, the DPP net fleet growth is expected to be 5.6% on an average inventory basis. This growth stems from a surge in ordering of 120 vessels in 2014 and 226 in 2015, resulting in a projected 160 additions to the dirty trading fleet next year. Even with the expectation of 51 crude carrier exits next year, rates are likely to be under pressure from oversupply.

The clean sector is expected to grow by 2.3%, supporting McQuilling's forecast for a more balanced demand/supply picture in 2017, resulting in flat to slightly higher freight rates for both MRs and LRs.

Beyond 2017, the data shows a marked shift in the supply fundamentals. With expectation of below average ordering activity next year amid a softer earnings environment, a tightening of supply growth between 2018-2020 for both CPP and DPP is forecast.

Expectations for dirty net fleet growth is around 2% in 2018 and to turn negative in 2019 (-0.1%) and 2020 (-1%). Without any significant demand shocks to the projected annualised DPP tonne/mile demand growth of 1% through 2020, this deceleration in supply will likely help rebalance the market and support freight rates going forward.

In support of this outlook, McQuilling referred to 2008 and 2015, when the DPP market saw a bottoming out of supply growth. The spate of low ordering in previous years allowed for a rebalancing of fundamentals and increased negotiating leverage for owners.

Regarding the clean sector, the current low rate environment can be attributed to steadily increasing net fleet growth since 2014. However, this trend is expected to reverse in 2017. The CPP tanker fleet is expected to grow at 0.9% and 1% in 2019 and 2020, respectively.

Given the expectation of steady annualised demand growth of 2-3%, it was McQuilling's view that product tanker rates should find some support in the coming years as supply/demand fundamentals rebalance.

# Cut out costly commercial mistakes

**Laytime and demurrage amounts to 42% of a typical owners Freight Demurrage and Defence (FDD) claims pattern, a leading operations manager warned.**

Cap Gaurav Arora, operations manager (controls & projects), Scorpio Marine Management, speaking at *Tanker Operator*'s 2nd Mumbai Conference, said that 25% of claims were related to charterparty problems.

This was followed by unpaid hire/delayed freight and bunker claims, which amounted to 8% each, followed by delivery/re-delivery problems and speed/consumption claims on 7% each. Finally offhire accounted for the remaining 3% of claims.

He stressed that companies should be commercially aware of the C/P requirements and also standard commercial practices during a voyage.

Quoting BP VOY 4 - a standard C/P used by the tanker sector - he advised Master's and vessel operators to obtain Free Pratique (clean bill of health) some six hours after tendering Notice of Readiness (NOR). If Free Pratique is not granted, vessel should issue an LOP (Line of Position) within the six hour time frame.

If a vessel fails to obtain Free Pratique or issue an LOP within six hours of the NOR, her laytime will only commence when Free Pratique has been granted or cargo operations commence, despite tendering a valid NOR.

Capt Arora gave an example of a vessel, which had arrived and anchored at Mumbai, issuing an EOSP (End of Sea Passage) on 28th September at 07.30 local time. The vessel anchored 30 minutes later to be told that berthing was scheduled after five days.

The vessel tendered an NOR upon anchoring and issued an LOP for not obtaining Free Pratique later during the day some 10 hours after the NOR was tendered. She was at anchor for five days and later, Free Pratique was granted upon berthing.

Charterers claimed that the NOR was valid but was not effective in absence of an LOP and that laytime was to start only after Free Pratique was granted. The exposure was estimated at $100,000 plus.

Free Pratique is not exercised in many ports, Capt Arora explained and many Masters fail to understand the commercial implication of this requirement.

He explained that demurrage was just as an important source of earnings as freight. There were many instances where vessels have waited for 30 days before discharging, but lost out on demurrage with a commercial impact of millions of dollars of losses per year.

## Most important document

Capt Arora stressed that NOR was the single most important document, as it triggers the commencement of laytime. It is not the same as an EOSP, as in many cases it can be issued many hours prior to a vessel's arrival.

A NOR must be tendered at a customary anchorage, or at an agreed place as per the C/P. An invalid NOR does not become valid automatically and must be re-tendered if there is any doubt.

He gave another example of a vessel approaching a port. She is instructed to await for a berth at the anchorage. She tendered a NOR at EOSP when approaching the port, outside the port limits, but did not re-tender it upon anchoring in the customary anchorage.

Charterers claimed the NOR was invalid. The vessel was at anchor for nine days bringing up a total exposure of $170,000.

Another problem encountered is with the voyage requirements. These include tank preparations. Incorrect procedures can lead to more bunkers being taken on board, resulting in time being wasted, more slops generated and worse - tank failure.

Cargo needs to to maximised, as the freight is paid on the cargo carried. As for cargo heating, this constitutes 12%– 15% of the total fuel consumed on a voyage, thus it is imperative to optimise the heating, and understand the specific requirements of the voyage.

Communications are also important. Understanding the voyage orders and the load quantity correctly and instigate voyage reporting.

Bunkers should be checked for fuel accumulation, resulting in pilferage. To counteract this, both pre- and post- bunker soundings should be undertaken to cut out short supply.

As for quality, there could be problems with density, presence of water in the fuel, cat fines and other impurities that affect the engine. By using right monitoring and control procedures what can an operator achieve? If an Operator with 50 vessels is able to save 0.5 tonnes per vessel per day, the saving potential will be $2.3 mill – $2.5 mill per annum.

In conclusion, Capt Arora outlined how a commercial operations can be improved.

1) An open dialogue with communications.
2) Commercial briefings and de-briefings.
3) All activities examined for commercial implications.
4) A joint effort of all those involved.
5) The application of robust processes to protect commercial interests.

Scorpio's Capt Gaurav Arora

# Bunkering activity increases in the Bay

**The volume of bunkers handled at Gibraltar's Western Anchorage increased last year for the first time in a number years.**

Thus far this year, despite the backdrop of a challenging shipping market, the volumes are similar to 2015, Captain of the Port, Commodore Bob Sanguinetti told *Tanker Operator*.

Since new tariffs were introduced for vessels using the Eastern Anchorage a couple of years ago, occupancy has gone up by over 50%, while the number of vessels calling 'off port limits' rose by around 10%.

According to figures produced by Gibraltar Port Authority (GPA), a total of 5,571 vessels arrived for bunkers at the Western Anchorage last year and the number up to 6th September this year was 3,700.

**GPA's Commodore Bob Sanguinetti**

Vessel calling at the Eastern Anchorage for various services numbered 188 and those making use of the 'off limits' services totalled 1,136 last year. Vessels undertaking commercial ship-to-ship transfers (STS) in Gibraltar waters totalled 32, which does not include the bunker operations.

Up to the beginning of September this year, the number of vessels visiting the Eastern Anchorage was 172 and those calling 'off limits' was 808. Commercial STS transfer operations numbered 21 and was described as "steady" by Commodore Sanguinetti.

The bunker tankers operated by the four main marine fuel suppliers are exempt from the IMO rules on STS, as they are deemed to be lifting fuel to be used on board ship.

Over a year ago, the GPA increased the number of slots available in the Western Anchorage to 14, an increase of 20%. Commodore Sanguinetti explained that the GPA was making more use of limited space and together with better vessel flow management, the waiting times for slots have been reduced dramatically, illustrated by over 80% of vessels anchoring within two hours of their declared arrival time.

The use of mass flow meters (MFM) to better regulate quantity issues has been in the news recently led by Singapore, which has decided to make their use mandatory next year. More recently, CEPSA has confirmed that it is to fit its bunker barges operating in Algeciras Bay and the Gibraltar Straits with MFMs.

Commodore Sanguinetti said that the GPA had been in discussions with the suppliers but saw no overwhelming need to fit the equipment at this stage, as there were very few quantity disputes at Gibraltar. "We have a very good working relationship with the four suppliers, but we're nevertheless reviewing the requirement," he stressed.

At the time of writing, the GPA was hosting IBIA's annual bunker conference, which was the first such conference to be held following the IMO's announcement that 2020 would be the date for the enforcement of the 0.5% sulphur cap. "This is an opportunity to promote Gibraltar to the wider world," Commodore Sanguinetti said, who earlier this year became an IBIA board member.

Space is always at a premium at Gibraltar and earlier this year the Gibraltar Government invited proposals for the design and construction of a land fuel storage facility.

This is an issue which has been ongoing for some time and in addition, recently an agreement was signed with Shell to evaluate the possibility of bunkering LNG in the next two to three years.

Also ongoing is a plan for the pipeline supply of fuel to the jetties within the port, which mainly handle cruise ships, super yachts and smaller commercial vessels.

## Large investment

As part of a several million pound investment programme, last August, it was announced that Kongsberg Norcontrol (KNC) had been awarded a contract to supply the GPA's new Vessel Traffic Services (VTS) system.

The VTS will be housed in a new Port Tower building to be located at Lathbury Barracks, which will also be the GPA's headquarters. The Authority will also keep a presence within the port area.

Once in service, which is scheduled for the late summer of next year, the new VTS will monitor the busy approaches to Gibraltar Bay.

To operate the new system, a training package was agreed with KNC as part of the overall contract. Separately, three recruits have recently qualified as VTS operators after attending a seven-week intensive training course at South Tyneside College, near Newcastle, UK.

This course covered VHF radio, radar and VTS training before a final assessment was held at the college. They were trained on KNC equipment to familiarise themselves with the system.

Against the backdrop of BREXIT, and not wishing to be drawn on the politics, Commodore Sanguinetti said that despite the general uncertainty following the BREXIT vote there had been no change in activity.

He went on to state that, 'regardless of any developments, Gibraltar's strategic location will clearly remain unchanged, and we will work closely with the shipping community to identify opportunities where we can maximise our support to vessels calling here'.

During the Gibraltar Chief Minister's

speech at the opening of the recent IBIA Annual Convention, he announced that the GPA had joined the Society for Gas as a Marine Fuel (SGMF).

Speaking to over 150 delegates, the Chief Minister said that he was delighted to see the port playing its part in this exciting development in the shipping world.

SGMF is a non-governmental organisation (NGO) established to promote safety and industry best practice in the use of gas as a marine fuel. Today, the society has over 100 members, including key ports, such as Singapore, Rotterdam, and some of the most well known suppliers and operators in this field.

Gibraltar's Minister for Maritime Services, the Hon Gilbert Licudi QC added; "This represents a key step for the Port Authority, allowing it to draw on the technical expertise and experience present in SGMF as it considers the possibility of LNG bunkering in the future."

Commodore Sanguinetti said; "Education, training and development of key skills for GPA specialists are fundamental to our business. Membership of SGMF will open up considerable learning opportunities in the field of LNG in the shipping environment."

Of course, bunkering is not the only service offered on the 'Rock'. It is also home to a thriving shipping registry which is a member of the UK's Red Ensign Group.

As at the middle of November, there were 293 vessels entered of 2.7 mill gt. Of these, 59 are oil/chemical tankers and another 23 are oil tankers, the registrar of ships for the Gibraltar Maritime Administration, Maria Antonia Baglietto, told *Tanker Operator*.

Shiprepair is another service offered with three drydocks and afloat repair facilities managed by Gibdock.

Last year, the yard opened what it called Pad 1, which is an area specially designed for conversion and retrofit projects, including fabrication.

Pad 1 adjoins the 435 m long south mole waterfront, which has an 11 m draft alongside, and includes a load-out quay. Craneage can also be used. It was built to provide Gibdock with an additional 2,940 sq m of prime space on which loads of up to 12 tonnes per metre can be handled.

When it opened, Gibdock said that it was marketing Pad 1 for projects such as exhaust gas cleaning and ballast water systems. The latter has come into prominence since the Ballast Water Management Convention was ratified by the IMO in September, meaning that thousands of vessels need to be retrofitted with BWTS.

The site is conveniently located alongside Gibdock's Panamax dimensioned drydock and allows the ability to pre-fabricate substantial sections of a project and assemble specialist equipment prior to a vessel's arrival, optimising the 'downtime' of a vessel throughout the project installation.

Electrical supplier and service company Sandvik is active around Gibraltar and Algeciras.

The company's world service manager John King told *Tanker Operator* that last year, the company has added BV and ClassNK to its list of class approvals for

radio, AIS, EPIRB and VDR surveys and also added Navico/Simrad to its agency lists along with Entel equipment.

Sandvik also joined the International Ship Engineering Service Association (ISES) and King said work has remained steady with a lot of drydockings and sales of new equipment.

In addition, the company has received requests for repairs to keep older bridge equipment operating, which is something Sandvik specialises in, King explained.

### Newcomer

A recent newcomer to the 'Rock' is start-up company Trafalgar Navigation, which is a marine consultancy, specialising in providing navigational audits and inspections and run by founder Mark Bull.

He explained that the target market was the tanker segment but he was already seeing owners with mixed fleets using this service. Bull explained that the trigger for these inspections was TMSA Element 5 stage 4, which recommended the use of a suitably qualified company to carry out navigational audits.

As there is no standard, Bull said that he had spent a considerable amount of time in creating an in-depth assessment scheme. This has been coupled with a totally new approach to auditing for navigation as it takes place when the vessel is at sea.

The objective is a loss prevention assessment to identify leading indicators and put in measures to prevent navigational incidents. The system allows comparison between ships of the same company or fleet and also between companies.

Even in the early stages, this has already identified common problems between ships widely separated by both ship type, age and geographically area of operation. A database is being constructed to hold the findings.

The introduction of ECDIS has had an impact on the audits because it is changing the way the navigation bridge is being operated, Bull explained. ECDIS is new for everyone - regulators, trainers, managers, manufacturers and inspectors – and the important phase now is feedback from the ships themselves.

The ideal amount of time for these audits or assessments is between three to five days and this leads to a problem – especially for a tanker operator – as trying to plan for such a voyage in advance and book an auditor is very difficult.

A solution to this is choosing a point that ships pass close by where the ETA is well known in advance. The auditor can then board by launch and continue to the destination port. Hence the choice of Gibraltar, which is located at one of the world's major shipping crossroads and provides many and varied opportunities close by for boarding ships. Voyages can be made into the Mediterranean, to the Canary Islands or north towards Europe. Similarly, voyages in reverse can be made allowing the auditor to disembark at Gibraltar.

The plan is to have auditors located at the major crossroads around the world, and already one has been appointed in the northern Far East. It is hoped to have another in Singapore by the year end and the US Gulf by early 2017. All of the auditors have vessel command experience and additional qualifications and experience in auditing and or vetting, explained Bull.

# Extra-contractual liability of classification societies

**The decision given by the Court of Appeal of Versailles on 15th December 2015[1] shows how the French Courts consider claims made on an extra-contractual basis against classification societies.***

The court found that the classification society was liable for the loss and damage suffered by the buyers of two previously certified vessels.

In October, 2005, Unicorn Tankers International (UTI) signed two shipbuilding contracts with the Chinese shipyard, Taizhou Sanfu Ship Engineering.

The French classification society, Bureau Veritas (BV), issued class certificates for both vessels, the 'Berg' and the 'Breede'. 'Berg' was delivered to Petrochemical Shipping in November, 2008 and 'Breede' was delivered to UTI who then resold it to Unicorn Baltic in March, 2009.

A few months after the deliveries, leaks were detected in the cargo collectors and both vessels were subsequently repaired, which took several months.

UTI claimed losses from the shipyard but under the terms of the shipbuilding contracts, only the costs of the necessary repairs were recoverable. Ultimately a settlement was reached for both vessels.

In order to recover the additional damages suffered during the period of repair (eg, loss of hire), UTI, Unicorn Baltic and Petrochemical Shipping brought a claim against BV on the basis of tort law.

## The decision

Before dealing with the substantive claim, the French Court had to decide what was the applicable law. BV argued in favour of English law whereas the claimants argued that Chinese law was applicable.

The Court found that in this case, Regulation 864/2007 (Rome II)[2] was not applicable because the events giving rise to damages (the delivery of the classification certificates) occurred before the entry into force of this regulation.

As a result, China was identified as being the country which was the most closely connected with the tort (being the place of construction, delivery of the vessels, inspections and delivery of certificates).

The French Court thus applied Chinese tort law, whose requirements are very similar to French law.

To succeed, the claimants needed to demonstrate:

(i) A wrong committed by the classification society.

(ii) Losses suffered by the buyer.

(iii) A causal link.

The classification society was found liable because the shortcomings of its testing and verification operations (in particular, its failure to detect defective welds) constituted a wrong, which had caused the claimants to suffer losses.

The Court therefore awarded damages to the claimants but on different grounds. In the case of Petrochemical, whose charterers terminated the charterparty with them, as a result of the problems with the cargo collectors, damages were awarded by reference to the loss of hire during the periods of repair and the loss of the opportunity to obtain a replacement charter at an equivalent hire rate.

UBL, whose vessel was not under charter at the time of repairs, was awarded damages for loss of the chance to charter the vessel out.

While both claimants were successful, neither was awarded the full amount of damages claimed from BV, as the Court took into account a number of other factors.

## Comments

This ruling appears to be in line with existing French law with regard to extra-contractual liability of classification societies.

In 1996, the French Court of Appeal of Versailles[3] held a classification society liable for the damages suffered by a third party (purchaser of a vessel). The court said that its repeated and significant failures, which went to the heart of its duty, constituted gross negligence.

A similar decision was reached in the 'Wellborn' case, in 2004[4]. The classification society was held liable having committed a gross negligence by the delivery of certificates, which enabled a dangerous vessel (dubbed a 'wreck' by the court) to sail for years in international waters.

This latest case therefore reinforces the view that the French Courts are prepared to award damages where they consider that a classification society has breached its extra-contractual duties. It also underlines that France is a more favourable jurisdiction than England in which to bring claims in tort against classification societies.

**This article is an extract from a paper compiled by Vincent Bénézech, Senior Associate, Holman Fenwick Willan in Paris.*

**Footnote**

1) Cour d'appel de Versailles, 15 December, 2015.
2) Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations (Rome II).
3) Cour d'appel de Versailles, 21 March, 1996 – 'Elodie II' case.
4) Cour d'appel de Versailles, 9 December, 2004.

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# Oil price impact hike on bad debts

**There has been reason to be optimistic about the oil price in recent weeks.***

Since OPEC announced its first planned output cut in eight years, oil prices crept back up to just above $50 per barrel. In recent days, however, some of the familiar uncertainty has returned as doubts about OPEC's ability to cut a deal have become more prevalent, leading to the oil price hovering around $46 per barrel.

**Norton Rose's Laura Hamilton**

Nevertheless, the current oil price of just under $50 per barrel is quite a different story to that of earlier this year, when the price tumbled to around $30 per barrel. The outlook then was gloomy.

Does this recent price hike mean that there is light at the end of the tunnel for companies and financiers engaged in the shipping sector? If it does, just how far away is that light and how long is that tunnel?

The fallout from the two year oil price slump has been widespread, with the global shipping industry hit particularly hard, arguably even more so than in the aftermath of the global financial crash in 2008.

This year has witnessed an array of reports on companies and financiers engaged in shipping and at all levels of the offshore energy industry.

A further inevitable fall-out from the turbulent oil price is its impact on lenders to the shipping industry.

The longer that the oil price remained low, the fewer options that struggling companies operating in the shipping markets had available to them. For much of last year, companies were able to negotiate extensions and amendments with their counterparts and their lenders, based on the assumption that prices would soon recover.

Alternatively, some companies sold non-core assets, obtained capital from public or private markets or relied on their hedging arrangements. The prolonged period of depressed oil prices means that many of these avenues are no longer available, which ultimately leaves these companies with little alternative but to default on their finance obligations.

Whilst it is part of the normal course of business for lenders to have some non-performing loans on their books, they become more of a focal point and a concern when a particular issue envelops an entire industry, or, in the case of the oil price, multiple industries. As the percentage of non-performing loans on banks' books grows, it becomes more likely that banks will take action aimed at realising as much value as possible from these loans.

There has been a marked increase in shipping problem loan issues in the past 12 months. Many lenders have taken steps to review their recovery rights under transaction documents and send reservation of rights letters, sometimes as a pre-cursor to acceleration and enforcement action, including litigation and winding-up proceedings.

Our experience tells us that many distressed loans are often restructured and repaid without the need for expensive and protracted litigation, particularly when both lender and borrower are transparent with each other and realistic in their expectations. However, in recent months we have observed a gradual reluctance on the part of lenders to tolerate defaults.

On the corporate side, in order to protect themselves against aggressive creditors, there has been an increase in the number of companies seeking court protection in various jurisdictions, Chapter 11 in the US being the most well-known. Whilst court protection offers companies an opportunity to restructure, it is not something entered into lightly, as it has the potential to become a very protracted and expensive process.

## Cautious optimism

Some commentators have responded to the recent oil price rise by calling the bottom of the cycle, with several companies reporting better than expected earnings for the third quarter of 2016. Whilst there is no doubt that the recent oil price recovery is positive, it should be remembered that there is still some way to go before the shipping industry is truly out of the darkness.

It is unlikely that there is going to be a strong broad-based global recovery within the next year. The general outlook remains clouded with uncertainty, which has been the case for the past two years, albeit now there are at least some reasons for cautious optimism. There remains the potential for continuing stress on borrowers and more frequent action by lenders while the number of problem loans remains high. This probably means we will see more restructuring, insolvency and enforcement in the months ahead.

**This article was written by Laura Hamilton, senior associate, Norton Rose, Singapore*

# DNV GL's analysis of tanker problems makes interesting reading

**When analysing its entered tanker fleet, DNV GL found that fire safety was the number one main category of deficiency identified by Port State Control (PSC) inspections during the period 2012-2016.**

Speaking at *Tanker Operator's* 4th Hamburg Conference last month, Sergey Gribanov, DNV GL's head of technical service, Germany said that certificates and documents came in second place, followed by life saving appliances and navigational safety.

At the top of the 10 deficiency types identified were lifeboats, followed by fire doors/openings, nautical publications, freeboard marks, emergency lighting/batteries/switches, ISM matters, lights/shapes/sound signals, other (fire safety) and propulsion/main engine.

Analysing the fire safety deficiencies in the PSC category listing, the most frequent findings were related to: – Fire doors and openings in fire divisions, fixed fire extinguishing systems (six detainable deficiencies – 30 code 17), fire fighting equipment, Inert gas system, fire dampers (nine detainable deficiencies – 30 deficiencies code 17), plus others.

The PSC top 10 fire safety deficiencies on board tankers were identified as- Fire doors/openings in fire resistant divisions, Other (fire safety), Fixed fire extinguishing installations, Fire fighting equipment and appliances, Inert gas systems, Fire-dampers, Fire detection and alarm systems, Fire prevention and structural integrity, fire pumps and pipes and finally - Ventilation.

"How do we improve fire safety?" Gribanov asked. "Most of the deficiencies in this category are typical maintenance related issues. Regular maintenance routines need to be reviewed to give practical guidance in problem areas and the implementation of same needs to be verified on a regular basis at all levels.

"Ensure that ship specific challenges are properly addressed in the planned PMS. Identify company and shipboard most frequent and high risk findings and run focused campaigns to improve and focus on this during the shipboard audits," he advised.

He also identified the top 10 tanker ports where the deficiencies were reported. These were Rotterdam, Novorossiysk, New Orleans, Hong Kong, New York, Antwerp, Port Arthur, Philadelphia, Dumai and Long Beach.

## Lifeboats top

He said that it was easy to identify focus areas for improvement with 'big data' and gave the class and statutory findings/safety on tankers, which again identified lifeboats as top of the list. DNV GL's tanker ISM audits revealed that the top of the safety management sector was vessel and equipment maintenance followed by resources and personnel.

"It's all about the crew." he said quoting the relevant ISM chapters.

He then took a look at the DNV GL's tanker hull damage statistics taken during 2006-2016.

The class society found -

- 50% of the hull findings were corrosion related.
- Cracks accounted for about 25% - workmanship and fatigue.
- Indents – deformation third most frequent damage cause.

| Finding Type | Number of Findings |
|---|---|
| Corroded | 16906 |
| Cracks | 8133 |
| Deformation | 5249 |
| Pitting | 1677 |
| Equipment | 791 |
| Buckling | 560 |
| Leakage | 427 |

*Source: DNV GL*

Addressing the question of the application of Common Structural Rules (CSR) and fatigue damage, he said that this was…"still to be seen, but there are positive trends…".

**DNV's Sergey Gribanov**

CSR has given an increased design standard with 25 years North Atlantic trade as the basis, Gribanov explained. The first CSR tankers are now eight years old and a total of 135 cracks were found.

Vessels of between one and five years old performed better, DNV GL found.

The type of cracks found were production related cracks, vibration related cracks (not CSR related), design related cracks (not CSR related), also cracks covered by CSR and approved according to the CSR standard.

Another problem area identified was anchor losses.

These have not decreased down the years and tankers now account for 41.7% of DNV GL's vessel types experiencing an anchor loss. Somewhat surprisingly, the highest number of losses occurred on vessels of only one to five years of age.

Anchor losses were usually caused by the hardware itself - equipment failure/securing of pins/winch failure, operational problems, weather/currents and water depth, Gribanov said.

He explained that DNV GL was co-operating with GARD and the Swedish Club to produce a study on anchor losses.

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# New UK training facilities for tanker operations

**Speaking at the inaugural UK Shipping Summit, in September, Nautilus general secretary, Mark Dickinson, issued a stark warning.**

He claimed that without significant investment, the UK will face a growing challenge to maintain its hard won reputation as the world's leading maritime training nation.

He added that urgent action would be needed to follow through on last year's Maritime Growth Study. Regarding skills in the sector, this stated "Without access to an appropriately skilled and sized workforce the opportunities for growing the UK maritime sector will be severely undermined."

To help alleviate the perceived lack of skills, Modal Training – a new centre of excellence in maritime training - will open next year in the UK. Located at Immingham, on the south bank of the River Humber, Europe's fourth largest trading estuary and the UK's largest port, Modal Training will provide training facilities both for general seafarers and tanker specialists.

When Modal Training opens in January 2017, at its core will be a full suite of Kongsberg advanced ship, offshore vessel, engine room and radar simulators.

This will enable Modal Training to effectively replicate the working environment for a wide range of maritime roles, including bridge personnel, navigators, maritime engineers and Vessel Traffic Service (VTS) operators. Each part of the simulator system will be able to be operated independently, or be interconnected to provide full vessel operation exercises for an entire crew.

**The centre is equipped with Kongsberg simulator suites**

The centrepiece of the simulation suite will be a Class A full mission K-Sim Offshore vessel simulator with forward and aft bridge, configured with a DP2 dynamic positioning system and anchor handling vessel hardware. The suite will also be equipped with two Class B K-Sim Navigation ship's bridge simulators, with one configured as a workboat/tug bridge.

Modal has also invested in a K-Sim DP Class C desktop simulator system for DP training, and a desktop K-Sim Navigation configured for ECDIS radar training for up to six students. The engine room suite will be equipped with a full mission K-Sim Engine simulator, including the high voltage functionality, and a desktop engine room simulator. A K-Sim VTS operator simulator system will complete the new equipment line-up.

**The £7m facility is due to open next January**

## Tanker training

Training on all common tanker types can be provided in Modal's new Kongsberg simulation suite, ranging from dynamic positioning (DP) shuttle tankers, to VLCC and other large deepsea tankers. Both individual and team training will be delivered, and competencies tested. But the Kongsberg suite will also be in demand for developing and testing new processes and procedures, prior to implementation.

Of particular importance to tanker

operators will be the suite's ability to provide experience of DP systems, offshore loading through turrets, single point mooring (SPM) facilities and movement between platform storage facilities.

Often carried out in extreme weather conditions, these operations can take years to perfect in the workplace, but can be achieved in just a few days in a simulator suite. Simulator training is safe, effective and cost efficient, and gives people the vital skills required to work in dangerous locations out at sea, Modal claimed.

### STCW and HELM training

In addition to advanced simulator-based skills development, Modal Training is already offering a full range of approved STCW basic training and refresher courses, which will become mandatory from 1st January, 2017. These range from entry-level, in accordance with section A-VI/1 of the STCW, to re-certification, and courses covering: maritime security; fire fighting and fire prevention; first aid and medical care; crowd management; crisis management; personal safety; survival; and rescue boats.

Human Element Leadership and Management Level Theory (HELM) courses are also available to book now.

In addition to maritime training, Modal Training will offer specialist training for the ports and other sectors, which makes it a UK first. Jointly funded by the Grimsby Institute and the Humber LEP, as part of the Humber Growth Deal, Modal Training is located in a purpose-designed 5,696 sq m facility.

Modal Training, the Humber region's new £7 mill training centre is now taking bookings for a number of courses that have been launched ahead of the facility opening in early 2017.

The courses are classroom-based and cover basic safety, competencies and proficiencies for individuals and businesses working in the maritime, offshore and wind energy sectors.

They will include the comprehensive STCW range of courses.

Modal Training has also invested in one of the region's most advanced audio visual (AV) systems. The kit will deliver an advanced interactive learning experience to those undertaking classroom-based courses.

AV specialists Electric String will be supplying a tailor-made collaborative system, manufactured by Kramer Electronics, to cover all training and debrief rooms at Modal Training's Kings Road site.

TO

# Seagull extends e-learning portfolio

**E-learning exponent Seagull Maritime has added eight new titles to its comprehensive library during the third quarter of this year.**

Developed in response to a demand for training on MLC 2006, several modules were released covering this regulation, including on board video training and a new distance course for fatigue management.

As a result, Seagull boasts 16 e-learning modules, seven distance courses and two training films aimed at MLC 2006.

In addition, Seagull's e-learning user interface has been re-designed, resulting in a clear, modern display, built with technology that supports the most current media formats.

Seagull's Roger Ringstad

The 'Seagull e-learning Player' was developed by Kristian Jordheim of Seagull Oil & Gas and Seagull Maritime's Knut Haakon Mikalsen. It will be implemented in all future titles and major revisions.

Seagull is also revising its 'Top 10' module collection. As of October, four modules had undergone a complete visual and educational makeover:

- 0001 Personal Safety.
- 0005 ISM Code.
- 0115 Security Awareness.
- 0123 Risk Assessment and Management.

The company said that there had been a specific focus on the quality and learning value of the modules recently released. This is highlighted through increased visual support for all learning elements, along with the introduction of case studies and relevant scenarios.

Among the new titles available from the third quarter of 2016, were Fresh Water Management; Fresh Water System Sanitation; Fatigue Management; Separators – Alfa Laval S type Separator; Pilot Ladder and Gangway Security.

Seagull later revealed that it had partnered with media response concern MTI Network to produce on board and online training content on social media awareness.

This new e-learning and video module explores the impact a seemingly innocent social media post can have when it involves a safety or security incident on board a ship.

"Social media has infiltrated every aspect of both our personal and professional lives," said Roger Ringstad, managing director Seagull Maritime. "People have gone from being consumers to also being producers of media. Social media reaches millions of people globally. Analysing your online presence, addressing potentially damaging coverage and establishing how it might be improved have become integral aspects of risk management."

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# Efficient learning of paramount importance

**Norman Schmiedl, crewing director, Columbia Shipmanagement, outlined his company's training efforts at *Tanker Operator's* recent Hamburg conference.**

He posed the question - do we have a working environment where people can continually learn and improve, including from colleagues and oil major inspectors? Are we managing to avoid a blame culture?

CSM went through 457 Port State Control and 261 SIRE inspections last year out of a total of 1,500 inspections.

He said that the company believed in efficient learning and then gave a breakdown of what was involved in 2015.

There were 3,197 ship specific and CSM customised training initiatives held, some 922 participants took part in conferences and seminars, there were 12,206 STCW courses, 25,220 Videotel video training courses, 18,311 Videotel CBT training courses and 10,377 in-house courses.

Taking the example of the STCW Manila renewal certificates, he said that trainees would remember around 50% of their theoretical training within a hour of the course. However, 24 hours later, that percentage will drop to 30% and only 10% would remember their theoretical training after a week.

On board and shore side training should be balanced and other initiatives seafarers should engage in include group discussions, scenarios, work-related learning and learning the basics.

Training opportunities and resources are time consuming but coaching programmes and information sharing will give seafarers a perception of good practices.

He also warned that the industry should also improve its future soft skills training.

Schmiedl said that the aviation industry has an app listing all near misses, incidents and accidents. He advised personnel not to blame others for their individual mistakes but when you do blame others, do it constructively and set an example by confidently taking the blame for failures.

Procedures should be revised in response to successes and learning should always be focused upon. Reward people for making mistakes, he said.

Near misses provide a good tool for people to learn. Companies have developed KPIs by learning from near misses, Schmiedl said with lessons learned databases and 'surprise' inspections and their results.

## NSAP explained

Meanwhile, Capt Bill Anderson, director of US-based MITAGS-PMI-West and head of the Navigation Skills Assessment Programme (NSAP) addressed a meeting of the Informal Tanker Operators Safety Forum (ITOSF) recently in London.

The meeting was attended by executives from more than 30 tanker operators.

Formed in 2006 by Chevron, Shell, BP and other major tanker operators, ITOSF is designed to stimulate the open exchange of information and ideas on industry best practices in an informal setting. Many ITOSF companies have adopted the NSAP curriculum.

Capt Anderson described the origin and development of the programme and how it can mitigate risks for seafarers and companies by leveraging limited training budgets for maximum impact.

Developed over a 10-year period, NSAP is a risk-based measurement tool that assesses seafarer performance using MITAGS-PMI's full-mission simulators.

It focuses specifically on the core watchkeeping skills required of licensed deck officers as defined by international standards and global best practices. NSAP sessions use realistic, scenario-based exercises, and performance is assessed by qualified subject matter experts.

In the UK, Bachmann Training continued to grow its course numbers and client base.

As part of the Bachmann Maritime Services Group, with a dedicated training centre's in Lee-on-Solent and Guernsey, it is offering an increased number of standard training programmes, covering a range of specialist subjects from electrical & gas engineering, health & safety, fire fighting, and STCW through to catering & food handling. TO

# Kelvin Hughes looks to the future

**Following Kelvin Hughes (KH) launch of a new range of radars at SMM, *Tanker Operator* spoke with Mark Brown, Group Marketing Director about the new offering and navigation in general.**

He explained that the product range had evolved, as the patented MantaDigital range was primarily Magnetron based supported by navigation display hardware and the easy to use navigation radar software.

"With the new range launched at SMM, we have dramatically improved the radar display hardware and operating platform providing a navigation radar display that is easy and intuitive to use and also easy to retrofit and is extremely cost effective," he claimed.

The radar sensors available are either the patented SharpEye S-Band or 12 kW X-Band. The S-Band SharpEye is a fully digital networked system, as is the 12 kW with SharpEye also having a fibre optic data connection.

Of course with SharpEye there is no Magntetron and therefore the sensor (transceiver) is solid state, bringing extremely high reliability, as there is no service requirement of the transceiver or degrading performance from a magnetron, he explained.

Both radars are upmast systems (the transceiver is located in the turning unit housing) and the 12 kW is ideally suited to retrofit applications with just a single cable and four bolts to fit.

The 12 kW radar sensor benefits from improved target resolution and beam sharpening. The product range is type approved and ideally suited to commercial ships, especially those looking for high reliability and cost effective retrofit applications.

With its improved performance, the 12 kW is equally suited to the smaller boat market. The display with it's easy installation and compact design lends itself to any ships bridge and comes with a range of mounting options, Brown said.

When asked about the ease of repair, Brown said; "We wouldn't normally expect a KH radar to be removed for repair and substituted, as that is the whole point of a highly reliable upmast system. However, the new KH Integrated Navigation Display (INS) can be easily replaced with a pre-configured display for the specific vessel without the need of a service engineer."


**KH's new radar is claimed to be easy and intuitive to use**

## Advantages

Explaining the advantages of an integrated versus a standalone system, Brown explained that multifunctionality brings a range of benefits to the bridge. "We would expect many newbuilds to adopt this capability, however, retrofit projects vary depending on the objectives of the shipmanager and or Master.

"Having said that, we also see many shipmanagers moving away from the complexity of having multifunction workstations all over the bridge, but instead trying to keep it basic. With the new KH navigation radars you can configure the system to meet the operators requirements, being multifunction or just a standalone system," he said.

The company designs and develops all of its radars, with COTS (commercial off the shelf) components, which the company takes advantage of where it makes sense to do so, but KH also manufactures and assembles a range of the system elements, such as antennas and transceivers, especially those components that differentiate KH in terms of performance and reliability.

Given the downturn in newbuilding contracts, having a system that is cost effective and easily retrofitted, has helped us to exploit the market situation currently, Brown said.

At KH's headquarters in Enfield in the UK, full training facilities have been built in a new state of the art building. "We can offer ECDIS type specific training in our training school, but also work with many partners around the world, so courses can be delivered near to where the users are or by online e-training," he explained.

Today, KH is focused on radar sensor performance and software development, both for commercial shipping and naval applications, as well as port VTS and coastal surveillance radar, which makes up a large part of the business.

"With an ongoing R&D programme, this ensures we continue to bring new products to market that address the needs of the customers," Brown said.

# New ECDIS compliant monitor from Simrad

**Simrad has launched Simrad M5027, an optically bonded HD monitor for the commercial marine market.**

The 27 inch marine monitor is designed to meet the colour calibration requirements of ECDIS systems and the size requirements of 320 mm CAT 1 radar systems.

It has been designed for long term, reliable operation with an optical bonded LCD as standard. Optical bonded displays eliminate the 'air gap' issues of condensation, overheating and contamination common in lesser quality displays. Touch menu controls and IPX6 rated water resistant flush mounting also contribute to long life design, the company claimed.

Jose Herrero, Simrad Commercial Marine Division, managing director, said, "The Simrad M5027 monitor really does add to the appearance and elegance of a Navico styled CAT 1 GLASS-Bridge, It has set the industry standards of monitors with its improved readability of the UI due to enlarged crystal-clear text and graphic information."

When flush mounted, the Simrad M5027 monitor has a low profile (8 mm) all-glass design, and complies with IPx6 water resistant regulations. HDMI and DVI inputs are standard, as well as auxiliary analog video inputs. Bracket mounting or table top mounting options are also planned.

Presenting a viewing area that is 597 mm x 336 mm, this extra-large widescreen features 20% more viewing area than a traditional 23 inch display. Crisp HD resolution of 1,920 x 1,080 pixels and MVA technology provide optimal viewing from anywhere on the bridge or pilothouse.

Navigators benefit with larger informational workstations, less cluttered on-screen menus and improved, clarity of data presentation, the company said.

As part of the type approved M series, the M5027 is now the flagship of the company's monitor portfolio. The type-approved monitors in this series now include the M5016 (16" WS) and M5019 (19" WS) for 180 mm radars, the M5024 (24" WS) for 250 mm radars or ECDIS and the new M5027 (27" WS) for 320 mm radars and ECDIS display.

Available in both AC or DC versions, the Simrad M5027 is now included in the company's radar and ECDIS packages.

# Ballast Water Management Convention implemented - what next?

**There has been, and still is, a lot of rhetoric flying around since the IMO's Ballast Water Management Convention BWMC) was ratified last September.**

A lack of a clear decision on a single implementation scheme for complying with the D-2 biological standard for ships constructed prior to 8th September, 2017, will result in two proposed schemes being considered at MEPC 71 in May 2017, following BWMC's entry into force, class society ABS said.

These are -

1) Compliance with D-2 at the first IOPP renewal survey after 8th September, 2017.
2) Compliance with D-2 as above, unless that survey is completed prior to 8th September, 2019, in which case compliance is at the first IOPP renewal survey completed that date.

Under the provisions for amending the BWMC, MEPC 71 will then need to approve and circulate for adoption at MEPC 72, set for March, 2018, the agreed revised implementation scheme.

Unfortunately, the lack of a decision on a single D-2 implementation scheme leaves industry in a predicament in that there is no agreed implementation scheme at this point in time to be applied upon entry into force of BWMC on 8th September, 2017, ABS said.

Given the dependency of the implementation schemes on the IOPP renewal survey, and without a strong majority view expressed at last October's MEPC 70, ABS understands that implementation of scheme 1, above, will result in an earlier D-2 compliance date.

Shipowners should therefore take into account both schemes when considering compliance planning.

## Revised type approval guidelines (G8)

MEPC 70 approved a set of substantial revisions to the G8 Guidelines that were prepared by an intersessional working group, which met the week before the meeting. The committee also agreed that the G8 Guidelines are to be reviewed and revised into a mandatory Code at a subsequent session.

This revision of the G8 Guidelines recommends that BWT systems installed on board ships, on or after 28th October, 2020 should be approved taking into account the revised Guidelines (G8) and prior to that date, should be approved taking into account either resolution MEPC.174(58), or preferably the revised Guidelines (G8) approved at MEPC 70.

'Installed' means the contractual date of delivery of the BWTS to the ship or, in the absence of such a date, the actual date of delivery of the BWTS to the ship.

The revision also provides greater robustness and transparency to the type approval process, which should be applied when approving ballast water management systems as soon as possible, but not later than 28th October, 2018, and includes the following substantive revisions:

- Testing facilities – Testing is to be carried out by an independent facility accepted by the administration. Facilities should implement a rigorous quality control/quality assurance programme that addresses appropriate challenge water, sample collection, sample analysis and method detection limits.
- Salinity and Temperature – Testing is to be carried out across a full range of salinities (fresh, brackish and marine) and through a temperature range of 0 deg C to 40 deg C (2 deg C to 40 deg C for fresh waters). BWMS unable to demonstrate successful performance across these salinity and/or temperature ranges will be assigned 'Limiting Operating Conditions' on the type approval certificate.
- Consecutive testing – Land-based testing is to consist of five consecutive valid test cycles that show D-2 compliance. Shipboard testing is to reflect actual ballast operations and consist of at least three consecutive valid tests, which show D-2 compliance spanning a period of not less than six months.
- System design limitations - An important development is the concept of documenting the critical parameters known as 'System Design Limitations' (SDL). These parameters impact the operation of BWMS (eg,, minimum and maximum flow rates, time between ballast uptake and discharge) and design limits (eg, water quality expressed by oxidant demand and ultraviolet transmittance). SDLs are to be identified by the manufacturer, validated during testing and indicated on the type approval certificate.
- Bypass arrangements – BWMS bypass or override arrangements, provided to protect the safety of the ship and personnel in the event of an emergency, should activate an alarm and be recorded by the control equipment.
- Self-monitoring - BWMS are to be provided with a system that monitors, records and stores sufficient data/parameters to verify correct operation for the past 24 months. Alerts are to indicate when the system is shut down or when an operational parameter exceeds the approved specification.
- Scaling effects - Mathematical modelling and/or calculations should demonstrate that any scaling of the BWMS will not affect the functioning and effectiveness on board the ship. Shipboard testing is intended to further validate the scaling and should, preferably, be carried out at the upper limit of the rated capacity of the BWMS.
- Test results reports – Reports for land-based and shipboard testing, submitted to the administration, should include information regarding the test design, methods of analysis and the results of these analyses for each test cycle, including invalid test cycles, BWMS maintenance logs and any observed effects of the BWMS on the ballast system. Shipboard test reports should include information on the total and continuous operating time of the BWMS.
- Installation survey and commissioning procedures - Prior to issuance of the International Ballast Water Management Certificate, installation of the BWMS is to be carried out in accordance with the technical installation specification, relevant type approval

certificate, and the manufacturer's equipment specification. The workmanship of the installed system, including completion of all agreed commissioning procedures is to be satisfactorily demonstrated.

At MEPC 70, basic approval was granted for the ClearBal BWMS, submitted by Denmark and final approval was granted for the ECS-HYCHLOR system, submitted by South Korea.

The meeting also noted that four additional BWMS were granted type approval in accordance with the G8 Guidelines, bringing the current number of type approved BWMS to 69.

## Amendments suggested

Following MEPC 70, Liberia led a move to amend the BWMC to allow certain ships additional time beyond 2020 in order to ensure that adequate new BWMS are commercially available, along with the necessary dockyard space for installation.

Following representations made by Liberia at MEPC 70, David Pascoe, senior vice president, operations & standards at LISCR, the US-based manager of the Liberian Registry, said, "Against significant odds, Liberia and other industry representatives at IMO were able to garner sufficient support from a majority of IMO members during MEPC 70 to create an opportunity to re-visit the installation deadline through alternative proposals to amend the convention.

"There are two major constraints effecting smooth implementation and compliance with the convention – namely, lack of availability of systems that will meet the performance standards, and the evident lack of sufficient installation capacity.

We are pleased that MEPC 70 adopted and advocates the early use of new guidelines for approval of BWM systems. Concerns remain however, that it might be several years before new IMO-approved equipment is readily available and that, with effect from 8th September, 2017, tens of thousands of ships may be required to install existing systems that may not fully comply with the convention standards.

"We are pleased that MEPC agreed to our proposal for a review to determine whether a sufficient number of BWM systems are approved and available when required and will perform reliably, where and when necessary.

"The alternative amendment drafted by Liberia, industry and supporting states will go forward, together with the amendment approved by MEPC 69, to MEPC 71 in first-half 2017 for final consideration. We intend to work with other interested IMO member states and industry in advance of MEPC 71 to see if common ground can be agreed on one set of amendments. An amendment cannot be adopted until the MEPC 72 meeting in first-half 2018, after the convention enters into force," he explained.

## OEM comments

Among the comments received by *Tanker Operator* from BWMS OEMs, Anders Lindmark, Alfa Laval's general manager, business centre, PureBallast, said; "Alfa Laval is aware about the discussions at MEPC 70 about a possible delay of the implementation schedule for the IMO BWMC and that some representatives suggested a change of the implementation schedule.

"The entry into force date is however, not changed; 8th September, 2017 is still valid. We continue our preparation accordingly, since we have the ambition to support the market with solutions for installations when the BWMC enters into force," he said.

**Alfa Laval's Anders Lindmark**

Optimarin's Tore Andersen said; "We understand that the industry wishes to delay the implementation dates of the BWMC. Following the MEPC 70, the implementation dates after the enter into force date have not been changed and the implementation schedule as given in Assembly Resolution A.1088(28) still stands.

"There was a strong push from the industry organisations, Liberia and others, to delay the dates and after long deliberations, no decision on alternate implementation dates was made. It was agreed that the industry could write an alternate resolution text and attach it to the report of MEPC 70.

"This issue will be raised again at MEPC 71 in May, 2017 and we believe that it is less likely to get traction then. We believe that there will be a number of systems with US Coast Guard type approval and also IMO type approval in accordance to the revised G8.

"This fact and better documentation regarding available drydocking and services for retrofits will remove the main industry arguments for delay, and In our opinion gives a signal that shipowners should proceed with the dates as known," he stressed.

Andrew Marshall, Coldharbour CEO, said: "My thoughts are that in the absence of a new timetable, the old timetable still stands. The move to 'decide at MEPC 71 or 72' might just be an effort of attempting to lose the football in the untrimmed herbaceous area. We will all find out in due course. Meanwhile, sensible owners are quietly getting on with their BWTS planning.

"Far more important are the rumours surrounding revised G8 – which FINALLY look like there will be official recognition of the issues surrounding regrowth on extended ballast journeys and the problems of scalability (or otherwise) of some technologies (and the lack of relevant testing thereof). No wonder some BWTS manufacturers are getting nervous!

"In respect of USCG - as I have said on more than one occasion, show me the difference between the IMO type approval test discharge standard and the USCG type approval test discharge standard! There is none.

"So, aside from the UV

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# The ideal solution for retrofit ballast water systems

DE NORA BALPURE® BALLAST WATER TREATMENT SYSTEMS

## BALPURE® Ballast Water Treatment System

- Ideal for retrofits as well as new build vessels
- De Nora electrochemistry experience:
  - 90+ years and more than 6,000 electrochlorination installations
  - Owner of the slip stream technology patent
- Helping you to achieve compliance:
  - IMO Type Approval, USCG AMS Certified
  - USCG testing in progress
- Operating advantages:
  - Patented slip stream design reduces water treated and increases flexibility
  - Self-Cleaning electrode design
  - Systems installed and operating with major ship owners

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technology vendors who have the specific issue of the validity of MPN test methods vs CMFDA - an issue, which is itself a function of lack of trust that officials have in some vendors test results - why would a vendor of any other kind of BWT technology currently holding a (valid?) IMO type approval certificate have to upgrade / modify / replace / redesign that equipment to pass the same standard for USCG type approval?" he concluded.

**De Nora's's Don Stephen**

Don Stephen, vice president product management, De Nora Water Technologies, said; "Shipowners, as well as BWTS manufacturers, have been planning for ratification of the IMO BWMC for many years. Now that the day has come, we know that owners are reviewing their plans and BWTS shortlists and getting in contact with potential suppliers to set those plans in motion. We expect the retrofit market to ramp up quickly as owners respond rapidly to fit ballast water treatment systems (BWTS) at their next drydock.

"This market boom will challenge some suppliers more than others. However, in terms of capacity, proven technology and reliability De Nora is poised and ready to help our customers meet compliance effectively and for the long-term. De Nora's patented BALPURE system is IMO and USCG AMS type-approved and has been rigorously tested in commercial use, including proven ballasting and deballasting, to provide a reliable and proven answer to compliance.

"Shipowners and operators will be familiar with the criteria for selecting each BWTS and will have likely discussed them at length. This includes elements, such as the routes it is expected to operate along, vessel size, ballast tank volume and pumping rate, and type-approvals. Something that is critical but often overlooked, however, is the requirement for and level of system maintenance required.

"For larger vessels with large ballast tanks and high pumping rates, slip stream electrochlorination systems are the clear BWTS of choice. These systems offer a flexible footprint and because the chemical treatment is introduced into the ballast line, rather than treating the entire volume of water in the line, it is more effective for large ballast tanks. But, standard electrochlorination systems require ongoing maintenance to ensure effective treatment and safeguard the energy efficiency of the system.

"Electrochlorination BWTS use electrolysis of seawater to produce a sodium hypochlorite solution, which is injected into the ballast line to kill the organisms in the water. Over time, mineral deposits of calcium and magnesium can accumulate on the cathodes. This fouling reduces levels of chlorine produced, compromising the efficacy of the system and ability to deballast to D2 standards.

"In more serious cases, fouling can lead to a total failure of the BWTS as the electrodes become overloaded with residue and short-circuit. Or if a full blockage occurs, the electrodes are no longer cooled by the seawater and can overheat to a temperature able to ignite the body of the electrolyser.

"To avoid these potentially damaging situations, crews will typically need to be specifically trained to clean the electrodes regularly every 8-10 months using hydrochloric acid, or another similar acid. Additional training and personal protection equipment will also need to be supplied to ensure the safe handling of this acid.

"In an industry where many crews are already overburdened and tasked with activities that many are ill-equipped to perform, shipowners and operators are understandably nervous about potentially increasing that burden through their choice of BWTS. It is therefore not just a matter of the type of BWTS that best suits the vessel and its operating pattern, the maintenance requirements of each solution and potential impact on crew duties and day-to-day operations must also be considered.

"De Nora's vast knowledge and experience of 'in situ' biocide electrolytic disinfection solutions extends beyond shipping and ballast water treatment; thereby enabling innovations that overcome this key and significant maintenance challenge. Its unique and proprietary self-cleaning system reverses the polarity of the electrodes. This means that the deposits are stripped from the cathodes as they switch, becoming anodes through the same process in which it accumulated. This is done in a fully automatic manner by the system, eliminating the need for crew intervention, ensuring that an effective and efficient BWTS is self-maintained.

"Although ratification of the BWMC presents an additional environmental challenge in a period of economic uncertainty, taking a short-term view could lead to additional problems further down the line. To safeguard long-term compliance and efficiency, this regulation requires more than just a tick-box solution, which is why owners must contemplate the full breadth of considerations before making an informed and effective decision," he concluded.

## US position

As has been well documented, the US Coast Guard (USCG) has taken a different route in the type approval process, not being a signatory to the IMO convention.

At the 2016 BWMTech Conference held in Miami in late September, various elements of BWM regulators were discussed.

Lt Cmdr Jason Kling, of the USCG Marine Safety Center, described the differences between the US and IMO ballast water standards, and the process for US type-approval of a BWMS.

The USCG uses four separate offices to manage the different areas of responsibility.

First, the Office of Operating and Environmental Standards is the group that developed the regulation and is responsible for current policy determinations relating to interpretation of the regulations. This office is also responsible for Alternate Management System (AMS) reviews and vessel compliance extensions.

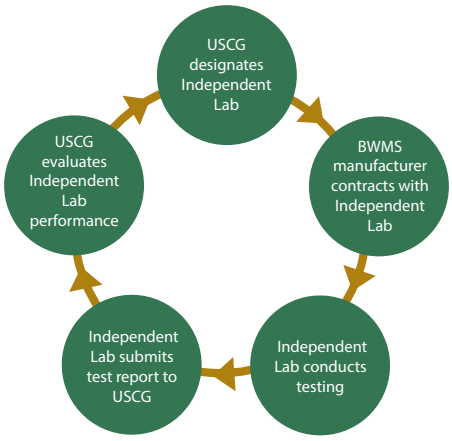
Second, the Office of Design and Engineering Standards is the group that reviews Independent Laboratory (IL) applications to evaluate whether such third parties are capable of carrying out the test protocols as required by the regulations. This group is responsible for designating ILs and associated sub-laboratories.

The Marine Safety Center is responsible for reviewing type approval applications and issuing type approval certificates, while the Office of Commercial Vessel Compliance is responsible for the vessel compliance issues, including the BWM plans and BWTS once they are installed on ships.

He explained that BWMS design and testing requirements are in the Code of Federal Regulations and the EPA's ETV Protocol. USCG designated ILs must conduct the test programme.

A three-part test programme takes place at shore-side tank facilities, at sea, and at engineering test labs to verify that treatment systems meet the design and testing requirements.

The Marine Safety Center will review the IL test reports and BWMS manufacturer's application to evaluate compliance and issue a type approval certificate if the system is found to be compliant.




*Source: USCG*

Administrative and technical differences between the IMO's G8 Guidelines and US regulations were highlighted to explain the challenges and delays experienced in the US type approval test programme.

The USCG is due to publish an updated version of a FAQ sheet as *Tanker Operator* went to press. It will cover new issues, such as the use of multiple ILs, BWMS component changes, and scaling.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Hatches are small, doorways narrow, and space limited.
So we combined filtration + UV in a single unit, and engineered a compact system that is up to 50% smaller than others.
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Finally, Lt Cmdr Kling explained that ILs must create test plans for every manufacturer. They have the plans that were used to test for IMO, but again, the standards are different, so they have to develop a new test plan for each phase of this test programme, and that takes time to put together.

"We still have, generally, a limited number of designated ILs compared to the queue of the manufacturers that want to get approval. Ship selection continues to be a challenge because of needs to match the technology with the operational conditions, and finding the right trade route to support the test programme and analysis is difficult.

"The environment has presented insufficient challenge conditions, which has led to invalid test cycles, so ILs must continue to perform more land-based and shipboard tests to get valid tests to complete the test series," he said.

## USCG type approval

Several OEMS have submitted their final documentation for USCG approval, including Optimarin, which claimed to be the first.

Helping its cause was an order to supply Fincantieri Bay Shipbuilding (FBS) in Sturgeon Bay, Wisconsin with two 500 cu m per hour capacity BWTS to be installed on a clean products barge.

"The ability to trade in US waters is key to global shipowners who want flexibility for their fleets," said Andersen. "Our success in satisfying all of USCG's stringent testing requirements demonstrates that we are the clear choice for businesses, like FBS' valued customers, who want compliant, quality and care-free operations in national waters and beyond."

Optimarin said that it had submitted its final documentation for USCG type approval in late September - a move that John Mauger, Commanding Officer of the USCG's Marine Safety Center (MSC), called "an important milestone" for protecting US waterways.

The company said that it expected to hear confirmation of approval within the next few weeks.

Alfa Laval said last month that it remained on track to submit a USCG type approval application for Alfa Laval PureBallast 3.1 in the coming weeks.

The company claimed to have successfully completed all the required land-based tests using the current system design.

As anticipated, Alfa Laval completed the requisite tests of PureBallast during the second quarter of this year, which were performed using the USCG-approved CMFDA/FDA (staining) method.

"PureBallast has achieved high-performance results without any change to its components or system design," said Lindmark. "The tests show that PureBallast provides reliable biological disinfection at full flow, whether by IMO or US Coast Guard standards."

Ecochlor also said that it had completed all environmental testing of the patented Ecochlor BWTS in support of USCG type approval and expects to submit applications to the USCG within November.

Land-based and shipboard testing of the Ecochlor BWTS on the Golden Bear Facility (GBF) was completed in May, this year.

De Nora has also secured IMO Type Approval and is currently progressing through USCG land-based and shipboard testing, the company said.

In addition, BALPURE has been named by the US EPA Science Advisory Board as one of three systems that demonstrated the ability to meet a standard 10 times more stringent than the IMO D-2 standard. The company has established engineering, production and assembly facilities in Italy, the US and China.

De Nora has also signed a brokerage agreement with MARCAS, a major buying group for the maritime industry. The deal means that MARCAS members representing close to 1,700 vessels can access aggregate purchasing deals with De Nora for its patented BALPURE BWTS and spare parts at a discount.

# Unravelling ballast water legislation

**The ratification of the IMO's Ballast Water Management Convention (BWMC) in September, seems to have spawned more questions than answers.**

A lack of a clear decision on a single implementation scheme for complying with the D-2 biological standard for ships constructed prior to 8th September, 2017, will result in two proposed schemes being considered at MEPC 71 in May 2017, following BWMC's entry into force, class society ABS said (see page 21).

In one way, it's a relief that it's all over but on the other hand the questions remains - what happens next?

The major problem confronting shipowners and others is that the US is not party to the IMO convention and has gone in a separate direction when it comes to the type approval methodology.

In May, the US Coast Guard stated- ' Technology to achieve a significant improvement in ballast water treatment efficacy on board vessels cannot be practicably implemented' This was because at the time of the USCG's review - 'There are no data demonstrating that ballast water management systems (BWMS) can meet a discharge standard more stringent than the existing performance standards.'

By the middle of this year there were around 2,500 systems installed on board ships but the number actually working is probably much less. With the ratification of the Convention, some experts are predicting that vessels need to be drydocked at the rate of 6,000 per year to cope with the volume of work needed.

There will be vessels coming to the end of their economic life at which point an owner will decide enough is enough and consign that vessel to the recyclers, rather than go to the expense of fitting extra equipment.

A vessel could have a five year grace period after the Convention enters into force on 8th September, 2017 following a recent special survey docking, as the Convention calls for the fitting of a BWMS by the next special survey after its entry into force.

One way of unravelling the seemingly complex ballast water issue is to purchase a copy of 'Ballast Water Management 7th Edition - Understanding the regulations and the treatment technologies available' published last month by Witherby Seamanship International, part of the Witherby Publishing Group.*

This comprehensive book is updated to MEPC 69 (April 2016) but contains all the information needed for owners, managers and operators to make an informed decision, as to which way to go and what pitfalls to avoid.

*Tanker Operator* has reproduced below extracts from Chapter 8, which covers the financial implications of the BMW legislation, courtesy of Witherby Publishing.

Due to the nature of the invasion of aquatic alien species and the time it takes for them to establish and become an economic nuisance, the cost savings due to ballast water management will take time to become evident.

A report was prepared by the European Bank for Reconstruction and Development in 2014, much of which was taken from a 2007 Australian report from the Centre for International Economics called - Ballast Water Management-A regulation Impact Statement.

Despite the time taken to evaluate the impact of invasive species, the initial costs of prevention are direct and immediate. It was suggested at this year's IMO GloBallast Montreal Conference that the cost of BWMS to the shipping industry was expected to top $40 bill over the next five years.

However, the cost to shipowners/operators for delays, due to the inability to ballast are high and so this should be a strong motivator to ballast. For example, the average delay cost for a tanker is estimated at $32,000 per day.

There are two ship-based options for treating invasive species- ballast water exchange (BWE) and ballast water treatment (BWT). For both of these options, there is a compromise between CAPEX and OPEX when considering either a retrofit or the fitting of equipment on a newbuild.

The CAPEX for BWE compliance is relatively low when compared to BWT. This could include the cost of new pipework necessary for a satisfactory exchange. Other costs to be considered include -

- Additional pumping costs.
- Cost of additional fuel.
- Energy and manpower requirements.
- Cost of maintaining machinery.

The amount of time taken to pump water on board is related to a specific vessel's pumping capacity, irrespective of the BWE used.

There will also be costs attached to the rules enforcement, thus -

- Monitoring by national authorities will be necessary to ensure regulatory compliance including the inspection of paperwork and, if necessary, the ballast water. In addition, maintaining of ballast water risk assessment tables and inspecting ports for local invasive species will be necessary.
- The vessels will incur costs for the development and maintenance of a BWM plan, plus surveys and checks of ballast water equipment at regular intervals.

Any inducement to be non-compliant to avoid passing on these costs to the customers is not predicted to be high, since these costs are relatively small, compared with other investment costs.

## Extra costs

As for BWMS, the OPEX will originate from the increased power needed to operate the systems on board ship. Obviously, some treatment systems have higher power demands than others.

For example, chemical dosing treatment systems require very low power and the main cost associated with these systems is the price of the chemicals.

Larger vessels may have to fit extra generators to manage the power needed for BWM, which will influence both the CAPEX and OPEX. Also any extra power needed will lead to increased emissions and this will have further cost implications in complying with GHG legislation.

Using a BWTS demands a much higher investment cost than using a BWE system. This cost could double for those needing to comply with the US regulations. BWMS accepted by the temporary US Coast Guard Alternative Management System (AMS) might not be awarded a full type approval, which could lead to a situation where an owner has purchased a BWTS, which has gained an AMS, only to find that the system has not been granted full USCG

type approval.

An AMS lasts for five years before a fully approved system needs to be fitted, which can either be the same system fully approved or another, if full approval is not granted to the original BWTS fitted.

In 2011, Lloyd's Register carried out a research project on the CAPEX and OPEX of various BWTS. It was found that the CAPEX for a BWTS with a capacity of 200 cu m per hour, ranged from €14,000 to €420,000. For a 2,000 cu m per hour system, the cost ranged from €35,000 to €1.4 mill. The OPEX varied between zero - when waste heat is used - and €140 per 1,000 cu m of treated water.

The fitting of a BWMS can be a lengthy process, from around four days for a small system up to several months for a large BWMS. This could lead to a vessel being offhire for a considerable amount of time.

A shipping company reportedly spent $5 mill on the purchase, installation and operation of a BWMS for one vessel. It was claimed that the cost of the installation and operation was found to be more than the purchase price of the system.

Anglo-Eastern Ship Management fitted 108 vessels with 12 different makes of BWMS - both UV and electrolysis. The vessels fitted included newbuilds and retrofits. The company said that it encountered problems with the provision of adequate information manuals, equipment breakdowns, the ordering of spare parts - systems were lying idle for months - maintaining the systems and alarms failing to report failures.

## Crucial factor

These operational difficulties, which could lead to considerable OPEX, will be a crucial factor in the early years of the BWMC. There will also be consolidation among the 69 or so IMO type approved OEMs with smaller companies being swallowed up by larger concerns. Therefore, it is important when choosing a BWMS for owners to think about the long term relationship with the manufacturer and whether that company will survive.

In general, it is considered that the economic value of global trade is so big that BW legislation will only have a minimal economic effect on world trade and international markets. Much of the cost of compliance is expected to be passed onto the customers.

However, certain shipowners could face hardships, such as those needing compliance to operate in US waters, small short-haul operators or owners of older vessels nearing the end of their economic life.

There are port-based treatment systems springing up, plus barge-based treatment systems could be offered while a vessel is in port. These port-based facilities would require significant global and co-ordinated investment. Co-operation would be needed between ports, shipowners, ship operators and the marine insurance sector.

For some vessel types, including VLCCs, there could be difficulty in obtaining a BWMS that is suitable for their specific requirements. A port-based solution could be ideal if scheduled, used on a regular basis, predictable and cost effective.

However, installing a port-based BWMS purely as an insurance policy in case a vessel proves to be non-compliant, would be an expensive investment with a low likelihood of a return on investment.

**Ballast Water Management, 7th Edition - Understanding the regulations and the treatment technologies available, by Capt Nadeem Anwar and revised by Dr Linda Churcher; Published by Witherby Publishing Group; RRP £275; 345 pp plus appendices; illus; ISBN 978-1-85609-717-8.*

# Taking advantage of digitalisation

**Digitalisation is an opportunity to develop industrial services into deeper partnerships, with a focus on business growth through new ways of utilising data and intelligent solutions to create value, explains Wärtsilä's website.**

**Wärtsilä's Mikko Tepponen**

This will not only mean time and cost savings, but will also lead to a new level of equipment performance and operational efficiency, resulting in a direct impact on business top line.

Digitalisation is now moving beyond the connectivity and data gathering focus of the current industrial internet applications, towards a comprehensive digitalised approach to optimising operations, creating new opportunities for growth and enabling new business models, the Finnish-based group said.

*Tanker Operator* spoke with Mikko Tepponen, Wärtsilä's Director Digitalisation, part of the company's Services Division, about how digitalisation can and will make a difference to an owner/operator's bottom line.

Although the concept of digitalisation is relatively new to the shipping industry, Wärtsilä has been involved in condition-based monitoring and other similar activities for several years.

The rapid progress of so called 'Big Data', the 'Internet of Things' and satellite communications to and from a vessel and the shore-side management office has brought a new dimension to the amount of data that can be collected, transferred and stored. However, it's how a company uses that data, which will determine its usefulness.

Recently, Wärtsilä bought Eniram into its portfolio of companies, which since its inception about 10 years ago, has gained a foothold in operational data gathering and analysis, mainly for large vessels. Tepponen said his growing team's next task was to see how to build up a digital service with Eniram.

He described his role as building a large digital business within Wärtsilä's service offering, which itself is very comprehensive. For example, the use of data could support the various service agreements by offering performance guarantees using the data as evidence, as it is measurable in real time or with a minimal delay from the vessel.

## Efficient operations

The digital business will be able to offer support to the owners and operators by advising them how data can help their operations become internally more efficient. One of the more obvious areas was the ordering spare or replacements parts where processing, ordering and delivering could be undertaken automatically.

Another innovation is the 'virtual speed log' enhancing the more traditional version. The traditional speed logs installed can be as much as 10% out if not calibrated properly. In the long term an owner/operator could see significant vessel operational savings by analysing performance against accurate speed over water, thus extending a vessel's life cycle.

In addition to shipowners themselves, Tepponen said that major charterers (commercial operators) were becoming more interested in vessel performance, especially fuel consumption. "We want to make it available for all markets, both large and small," he stressed. "We need to identify what is important to the customer both ashore and afloat."

He thought that transparency was a key issue when dealing with real data in real time. People on board ship can be guided by smart enriched data from the systems or by other people using the data ashore.

Illustrating this point, he said that a ship's engineer could have a helmet fitted with a visual system (augmented reality) by which a shore-side technician can actually see the problem on board with a piece of equipment and advise accordingly.

In general, the cost of satcoms is falling, thus making the transfer of big data more economic. With the introduction of low orbit satellites, the costs will come down even further, Tepponen predicted and also the amount of bandwidth needed will also become smaller, as only the immediate relevant data needs to be transmitted in real time and while the non-time critical data can be compressed or sent at a later time.

Tepponen acknowledged that some people working in the shipping industry will need a change of mind-set to adapt to the use of big data, especially on board ships. "It is a question of how quickly they can adapt to the ever increasing pace of change and adapt to the developments," he said.

Wärtsilä's digitalisation team is also seeking ways to collaborate with other sectors of the maritime industry, including classification societies and even competitors, hence the need for transparency. "How can we be more open for the good of the industry?" he asked.

His department has developed a KPI depicting how fast a digital idea can be turned into a product - just three months.

The group's service personnel are being trained worldwide on the use of digitalisation, as well as on the more traditional side of the business.

He explained that one of the main attractions for Eniram joining the Wärtsilä group was being able to hook up with its parent's worldwide sales and service network, which is something a small company can only dream of.

Tepponen thought that there was more company consolidation to come, especially in the smaller more specialist areas and said Wärtsilä was always on the lookout for further opportunities to expand.

# Software solutions to handle Big Data

**Advanced ClassNK CMAXS package was developed to assist shipping companies with on board machinery maintenance.**

Through connected sensors and data-gathering platforms, the Internet of Things (IoT) has found its way to sea. However, the growing amount of data and information being generated by fuel-efficient, electronically controlled marine engines and other equipment is also increasing the workload for many shipping companies and the time it takes to assess the data monitored.

In co-operation with Diesel United, IMC, MES Technoservice and Mitsui Engineering & Shipbuilding, ClassNK has been the common thread in a fast-evolving and comprehensive menu of software solutions to support safe ship operations and prevent machinery issues, the class society claimed.

Branded ClassNK CMAXS, the suite was recently updated to embrace five systems, which collect and analyse sensor data, with maintenance work results input manually - CMAXS PMS, CMAXS SPICS, CMAXS ABLOG, CMAXS LC-A and CMAXS e-GICSX.

ClassNK CMAXS PMS (planned maintenance system) is a user-friendly interface for managing maintenance work input by crew members on board ship.

The system manages the maintenance work schedule and monitors work progress, as well as issuing and managing work reports on the completion of maintenance work. To alleviate the burden of ship-to-shore communications, the system has been augmented by a simple and integral e-mail function that synchronises data between ship and shore.

With the addition of ClassNK CMAXS SPICS (spare parts inventory and control system), this cloud-based spare parts management system offers a simple and efficient tool to manage the parts and automatically calculate a ship's requirements, allowing a better understanding of the ship's inventory and easily identifying shortages.

The software has been installed on six ships - two managed by Manila-based Rosy Star Ocean Vessels Management and four managed by South Korea- based Dong Jin Shipping.

## New solution

In response of the increasing need to monitor ship's fuel oil consumption and engine performance, ClassNK CMAXS ABLOG is a new tool to help the Master and crew to reduce the administrative burden and deliver better decision support.

Using CMAXS ABLOG, information such as the ship's position, weather conditions, sailing distance, bunker quantity, port arrival/ departure, etc can be used to create performance analysis reports and graphs.

CMAXS LC-A is an abnormal-state diagnosis system to maintain machinery in optimal operational shape. By advanced big data analysis, using data from several sensors rather than just one, correlations can be identified and abnormal relations can be detected. This is a key feature of CMAXS LC-A which distinguishes it from other CBM systems to date, ClassNK claimed.

It can identify optimum fuel injection and cylinder oil feed rates on board ship in response to the condition of the machinery, supporting optimal operations. The effects of such reductions in fuel and cylinder oil have been confirmed with the co-operation of shipping companies. In one example, a 13% reduction in cylinder oil feed rate resulted in more than $40,000 in savings per year (2014 price level).

"CMAXS LC-A is an example of new software developed by ClassNK to help users overcome inefficiencies in operations and maintenance management, therefore increasing the efficiency of the entire ship," explained Hirofumi Takano, president, ClassNK Consulting Service. "The system has the potential to simplify surveys by enabling ClassNK to monitor the condition of the machinery in the engine room remotely and dispatch surveyors only when necessary."

## Early detection

Providing early detection of abnormalities using a sophisticated algorithm, CMAXS e-GICSX completes the CMAXS package and is claimed to provide high accuracy condition analysis of data collected by both the main engine sensors and navigation data, such as weather and sea conditions.

ClassNK CMAXS e-GICSX was developed by Mitsui, with ClassNK advanced Big Data analysis experience to provide a support system for preventive maintenance. This technology makes it possible to conduct early countermeasures to prevent critical, time-consuming repairs and extend the frequency of overhaul intervals, in turn helping ensure the safe operation of the ship and reduce lifecycle costs.

The software can share information, such as main engine, machinery in engine room and navigation data between shipmanagement companies and shipowners, as well as manufacturers through the ClassNK Ship Data Center.

A new common interface -CMAXS Web Service - connecting ClassNK CMAXS LC-A and ClassNK CMAXS e-GICSX, is now being offered to shipping companies to support the fast and straightforward identification of machinery condition trends fleet-wide.

## Data Centre

Last April, a wholly owned ClassNK subsidiary, Ship Data Center, officially commenced operations at its big data centre, ShipDC.

ClassNK's Information Technology Department General Manager Takashi Nagatome was appointed as representative director and president of the subsidiary.

Ship Data Center was established on 7th December, 2015 with the aim of providing a secure platform through which ship-related big data can be accumulated and provided to end users.

Speaking at the ShipDC launch, Nagatome said:"ShipDC has officially begun operations following successful data transfer trials from ship to shore. As of now, voyage data from multiple vessels from Japanese shipping companies is being continuously gathered. Also, the data is being practically applied for hull structure stress monitoring during voyages and for voyage data monitoring by cargo owners."

ClassNK and Ship Data Center C aim to facilitate big data application across a range of maritime-related functions to unlock new value for various industry stakeholders, the class society said.

# Conversion technology available for low sulphur fuels

**At MEPC 70, the IMO took the landmark decision to implement the global 0.5% sulphur limit under MARPOL Annex VI in 2020, and not 2025.***

It is a decision, which fundamentally changes the marine fuel supply chain, adds increased complexities, and requires shipowners and operators to take real steps in understanding how they will operate their fleets in a way that ensures compliance, efficiency and profitability.

There are three viable options in the short to medium term. One is LNG. However, there still needs to be a significant amount of investment made in the development of bunkering standards and global infrastructure before this is a truly viable option on a widespread basis. In addition, the upfront investment necessary to convert to LNG is also prohibitive.

The second option is exhaust gas cleaning systems – or scrubbers. Like LNG, this technology also requires the same need for significant upfront capital investment, which has so far limited its uptake.

Third, there are distillates and distillate-based products. Although these don't require upfront investment, their cost per tonne is significantly higher than that of HFO, which will only increase as crude prices rise over the next three and a half years. There are also concerns about product availability, and a lack of commitment from refiners to invest in the significant sums required to produce enough product to meet demand in 2020 and beyond.

It is for these reasons that Genoil, a publicly traded clean technology engineering company, has developed its technology – the Hydroconversion Upgrader (GHU) – for the shipping industry. The GHU converts heavy crude oils and refinery bottoms into clean burning fuels for the transportation sector.

There are a number of ultra low-sulphur fuel oils, which have come on the market to address the 2020 legislation, however, there have been compatibility issues with blending them port-to-port. Genoil's low sulphur fuel oil product has all the same qualities as the HFO users are familiar with, just without the sulphur, providing one fuel standard worldwide.

Genoil's innovation improves upon the existing data-verified Fixed Bed Reactor technology, which is widely used worldwide. Currently, 85% of all desulphurisation is taking place worldwide via hydroconversion. Genoil's technology, an investment into hydroconversion projects, can help further desulphurise fuel in order to be compliant with global 2020 legislation. Furthermore, it significantly increases the desulphurisation, demetalisation and denitrogenisation conversion rates, and increases operating efficiencies by 75%.

## No capital needed

For shipowners, it negates the requirement to invest capital in scrubbers or to switch to LNG, and for fuel suppliers, it ensures a reliable supply of compliant fuel oil, which they can provide to customers at a reduced cost, but at a higher margin than traditional distillate products. And of course for the fuel bill payers, their bunker costs are significantly reduced.

Port authorities will be able to differentiate themselves, and increase their competitive advantage by being able to guarantee the continuous supply of MARPOL Annex VI-compliant, cost-effective fuel products, delivered through a state-of-the-art bunkering infrastructure. Indeed, Genoil's GHU unit can be easily placed in locations, including receiving terminals, pipelines and ports.

In many respects, the shipping industry has traditionally been sceptical of innovation. This is why Genoil has invested over $50 mill over the past several years in research and development from its 147-acre site in Alberta, Canada, delivering an abundance of test data, which verifies the viability of the product.

The company continues to invest significant capital. Genoil has also filed more than 20 patents in relation to its GHU technology, including the process for treating crude using hydrogen in a special reactor unit.

Most significantly, credibility is often measured by the company that you keep. That is why in April 2016, Genoil announced, in conjunction with consortium partner Beijing Petrochemical Engineering (BPEC), the receipt of a $5 bill Letter of Intent (LOI) for the funding of a 500,000 barrels per day desulfurisation and upgrading project located in the Middle East.

Following the implementation of the GHU technology, this project will see a production capacity of 500,000 barrels per day of low sulphur crude oil.

The recent announcement on the implementation of the global sulphur cap has served to significantly complicate an already complex marine fuel supply chain.

A more phased approach to such a substantial change may have been desired, but, as Genoil's GHU technology proves, there is still time to adapt and choose a compliance solution that creates opportunity and competitive advantage, not just commercial hardship.

**This article was written by Bruce Abbott, President and COO of Genoil.*

# Not just a commodity: the value of condition monitoring

**October 2016 was a good month to be in the oil tanker business.**

Russia pumped a post-Soviet era record volume, Nigeria and Libya increased their exports. There was also an increase in Middle Eastern production, and the US returned to the global market in full for the first time in four decades.

Larry Rumbol

According to Galbraith's, the London-based shipbroker, traders booked the most October spot cargoes for at least 12 years. Although there is a reasonable suspicion that this unusually high output might have been solely from the Middle East in expectation of OPEC cutting production in November, the news was warmly welcomed. With analysts surveyed recently by Bloomberg anticipating rates of $35,000 a day in 2017, a fourth consecutive year of profitability should keep operators smiling.

Nevertheless, it would be a mistake to only see plain sailing ahead. A global glut has hindered arbitrage opportunities and put pressure on earnings. Furthermore, as Charles R Weber's tanker report recently spelled out, the expected net fleet growth for VLCCs is 6% in 2016, and 4.5% for Suezmaxes.

Despite the optimism in the market, shipowners therefore have little room for complacency and ensuring that they're optimising operations in order to maximise their competitiveness.

Businesses of all sizes face these same challenges and competitive pressures. What they don't share is the budget. That differential will impact in many ways, but often the most damaging is the loss of vessel uptime to unforeseen infrastructure failure.

The best way to level the playing field is through the use of condition monitoring to protect vital assets from unforeseen breakdown or accelerated wear necessitating an inopportune service interval.

Yet with the Swedish P&I Club recently estimating that 60% of marine machinery failures are caused by avoidable human interference, the answer to minimising failure will not be found, as one might assume, in more frequent machinery inspections. In fact the opposite is true. The days of engineers physically examining equipment and relying on their hard-won experience are long gone.

## Right tools

Smarter processes, planning, and innovation in operations are key components. But it's also about having the right tools to get the job done. The most effective modern engineers know that through a combination of online and offline tools they can effectively arm themselves with the knowledge they need to avoid accelerated wear, prevent catastrophic damage and safeguard against inconvenient downtime.

Parker Kittiwake's Cat Fines Test Kit, for example, is a simple, on board test kit that can detect these highly abrasive particles in a representative sample of bunker fuel oil during loading or post bad weather when settled that cat fines in a tank can present.

This means that engineers are able to take preventative action before the fuel oil enters the system, or refute fuel spec accordingly. From our conversations with H&M insurers, we know that the cost of replacing just one liner damaged by cat fines is typically $65,000. This figure can rapidly escalate to more than $1 mill when the associated costs of labour, repair, offhire and the likelihood that multiple cylinders are affected are also factored in. Insurers are starting to be more forensic in their claims investigation when it comes to due diligence by the vessel operator.

Moreover, utilising the the right tools offers rewards in addition to risk prevention management. Parker Kittiwake's Cold Corrosion Test Kit is designed to give early warning of corrosive elements in the scrape down oil when slow steaming allowing immediate optimisation of the cylinder oil feed rate to counter this.

This 15 minute test is both reliable repeatable and accurate. The provision of an instant corrosive Fe indication allows immediate action when it is needed on board. Waiting for the result of a laboratory test could prove to be costly, as action would be taken too late.

The key to profitability is taking responsibility and initiative. By investing in condition monitoring owners and operators are shoring up an important cornerstone of owning and operating modern vessels. As rates remain buoyant in the tanker market to the envy of other sectors, full operability has a key role to play to keeping shipowners and operators smiling.

Today's choices shape tomorrow's mood!

**This article was written by Larry Rumbol, Marine Condition Monitoring Manager, Parker Kittiwake.*

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# Alfa Laval meets DNV GL's ETC notation

**Following an investigation into the design of tank cleaning solutions, which use Alfa Laval G-Pass simulation software, DNV GL has issued a statement confirming the company's ability to meet the ETC tank cleaning notation.**

The ETC notation, which is designed to ensure thorough tank cleaning on chemical carriers, was introduced by DNV GL in response to the lack of specific rules from IMO. Increasingly requested by shipowners, it defines cleaning targets that set the bar for similar notations from other classification societies.

Now DNV GL has issued its first official statement confirming a supplier's ability to meet the notation. After observing the use of Alfa Laval G-Pass, the 3D simulation software used to create Alfa Laval Gunclean Toftejorg tank cleaning solutions, DNV GL has verified the accuracy of the resulting shadow diagrams in writing.

"No other maker of tank cleaning equipment has received such a statement, and I think it will prove difficult for others to obtain one," said Christian Mathiasen, Alfa Laval's business unit manager, Tank Cleaning.

Conforming fully to the ETC notation is no simple matter. The tank surfaces must be hit directly by the cleaning media at an angle greater than 10 deg, using certified machine throw lengths where the jet's dynamic pressure corresponds to 700 mm water head or above. This is dependent not only on the machines themselves, but also on their placement and configuration.

Unfortunately, the required 2D shadow diagrams do a poor job of reflecting the cleaning results. Intentionally or unintentionally, suppliers without thorough expertise can produce diagrams that are misleading, especially with regard to hit angle. Since the diagrams are reviewed but not approved by classification societies, this can lead to failed inspections, costly manual cleaning and the need to add machines to an existing installation.

"Without seeing what lies behind the diagrams, it can be really difficult for yards and even the classification society to verify that the calculations are done according to ETC," said Mathiasen. "This is why we invited DNV GL to observe our design process and confirm the Alfa Laval G-Pass results."

### Cost saving

For chemical carriers, the value of having a trustworthy solution cannot be underestimated. "Because tank cleaning is a critical process on board, the cost of fulfilling ETC 100% is very small compared to the potential cost of a single failed inspection. At most, the installation might differ by one or two machines at a cost of €5,000-10,000," Mathiasen said. "The costs of getting it wrong and having to perform manual cleaning can be infinitely higher, especially if it means cross-contamination or missing a voyage."

### Three dimensions

With a solution designed in three dimensions using Alfa Laval G-Pass, chemical carriers can be certain of meeting ETC requirements. "A 3D analysis is more comprehensive and identifies problems that are easily missed in 2D, such as difficulties with the jet hit angle," said Mathiasen. "As the DNV GL statement confirms, customers with Alfa Laval Gunclean Toftejorg solutions can rest assured that their installations are configured to pass inspections."

Alfa Laval's automated Gunclean Toftejorg tank cleaning solutions represent over 50 years of optimisation. With a helical or criss-cross spray pattern that reaches the whole tank in a fraction of the traditional cleaning time, they eliminate both hassle and expense, the company claimed.

The single- and dual-nozzle technologies have evolved to include the hysteresis clutch of the i40 and i65 series, which prevents false starts and eliminates the leakage risk of a second shaft penetration.

Supporting the nozzle technologies is Alfa Laval's G-Pass design software. G-Pass goes beyond shadow diagrams to produce a 3D simulation of a tank – showing its corrugations, stringer platforms and other internal obstructions from all angles.

Using G-Pass for a total assessment, the position, quantity, jet length and jet hit angle of the tank cleaning machines are evaluated. This ensures an optimised installation that prevents product build-up and reduces fluid and energy use.

### Cleaning machine

The Gunclean Toftejorg i40 D is second generation dual nozzle tank cleaning machine. It is designed for use in fixed installations aboard chemical and product tankers, as well as in offshore applications.

Gunclean Toftejorg i40 S is a second generation fully programmable single nozzle tank cleaning machine, designed for installation on board chemical and product tankers, as well as offshore applications.

To achieve the best possible cleaning results, Toftejorg Rotary jet heads use an optimised high-impact jet pattern to provide the highest possible coverage. Cleaning patterns reach the inner tank surfaces to ensure the most effective cleaning in place (CIP) solution possible.

Used in product tankers and in the offshore industry plus the petrochemicals and chemical processing industries, the T-82 is grease lubricated and designed to clean tanks in a rough environment.

The TZ-82 and TZ-75 machines are widely used as portable tank cleaning machines on oil, product and chemical tankers. TO

### Tank Lining system

Chemco has developed a multi-purpose tank lining system suitable for seawater ballast, potable water, crude & refined oil, cargo, grey/black water, mud/brine and sewage.

This is a two coat system comprising of a primer coat and a topcoat.

Any surface preparation method can be used – grit blasting, water jetting or mechanical preparation. It is IMO approved for seawater ballast tanks and crude oil cargo tanks.

# Continuing the human element theme

**At this year's Mumbai and Hamburg *Tanker Operator* conferences, the human element theme, both afloat and ashore, continued in the face of ever increasing regulatory burdens and world economic and political uncertainty**

Speakers at both conferences slammed the number of inspections that a tanker's Master must endure. For example, **Capt RK Singh**, vice president (Shipping)/head of marine at Reliance Industries told delegates at the 2nd Mumbai Tanker Conference that during a five year period, a tanker would be subject to 65 inspections/surveys/audits, averaging 13 per year or one per month.

**Reliance Industries' Capt Rajeev Kumar Singh**

A month later in Hamburg, Capt Mark Bull said that many were unnecessary today and that flag states should take the lead (see page 38).

Remaining in Mumbai, Capt Singh said that there should be a synergy among the stakeholders in the ship-to-shore interface. For example, new technology is producing improved communications networks. Cross-functional training would lead to an understanding of each other roles, he said, acknowledging that the shoreside manager might be from a non-shipping industry.

**ABACA's Capt Gyanendra Singh**

**Capt Gyanendra Singh**, **Capt Pankaj Sengar** and **Abhishek Singh**, from ABACA Research and Consultancy Services examined a recent list of accidents and posed the questions - Why do such incidents happen - ship staff not competent - not committed - poor attitude -lack knowledge?

Probably a mix of all of the above… but why? Are they all (barring a few self-motivated ones) bad people, careless, least bothered, etc? Are we living in the risk of… "It will not happen to me" attitude? A person's eyes can become accustomed to situations and he or she can become mechanically engrossed in a task. Seafarers do not see unsafe conditions after few days of joining a vessel.

A business environment is dynamic and hence the modus operandi has to keep changing accordingly. "We all make a lot of effort to achieve our company's long term and short term goals, objectives and KPIs, but we lose sight of the mission and vision. The situational awareness is lost. Concentrate on the main goal and look for alternate means," they said.

Seafarers have a different mindset …. more remote in perceiving the long term and short term goals, objectives and KPIs of the owners, managers, charterers, commercial operators, receivers, terminals, oil majors, etc.

On board safety - as perceived ashore (in practice).

Work planning (just in case); Toolbox meeting (okay); risk assessment (copy/paste); Checklist used (filled up); Proper PPE used (mmmm); Work permit duly completed (no hurry); Compliance of procedures… where (taped manual); Near miss / incident / accident reported (???).

## Endless list

Capt Singh then outlined many on board scenarios, which could lead to problems if not actioned properly. He said that the list was endless and not just vetting observations.

As for the scenario ashore - too many safety messages with little follow up; safety circulars, memo, separate from CSO, fleet manager, owners messages, etc; adding documentation with little attempt in reduction; asking vessel to resend old messages; risk assessment and critical equipment and spares lists prepared by ship-staff; superintendents unaware of SMS requirements; too many safety related files – uninviting;intrinsically safe cameras..?

A Master sends a daily noon report copied to various departments but still often receives a request for … Next port and ETA and more.

Seafarers are like children, they become what parents make them, and it is with the combined parenting effect of all the companies that they pick up both good and bad habits along the way. Before we jump to conclusions, let us think why, Capt Singh explained. It is like a father and son scenario,

who are for some reason displeased with each other.

What is broadly required is – leadership ashore and on board; commitment at both ends; understanding and team effort; recognition and appreciation of a good performance; attitude change, for example - 'Not My Job'.

More specifically, Capt Singh said that the way ahead was to motivate the seafarers to perform; a better understanding between ship/shore was needed; give seafarers responsibility, authority, respect, social welfare and freedom to operate; offer a stint in the office to understand the shore perspective and vice versa give the shore staff an opportunity to sail or visit ships.

In addition, supplies adequately and timely delivered, owners/charterers/terminal operators and receivers requirements clearly spelt out, procedures available – not followed. A company also needs to educate well and appreciate, award or penalise an employee as necessary.

There should be a 360 deg appraisal system with feedback from the more reliable crew. Improve the appraisal system using 1 - 5 criteria.

**Capt Rahul Varma** of Lilly Maritime addressed the existence of the 'blame culture'.

He said that the institutional model created a name, shame, blame culture. Accountability for errors lies with the employee. A perfect performance is expected and when not achieved, disciplinary action results, which creates a culture where mistakes are hidden.

**Lily Maritime's Rahul Varma**

Blame culture is inherent in human nature and like Darwin's theory of 'Survival of the Fittest', it is the weakest element in the chain which is blamed for all the mishaps.

A person centric model offers us a different view, he said and recognises human error. It helps us distinguish between mistakes and behavioural choices. He advised consoling a person who has committed a human error, coach someone who has displayed at risk behaviour but punish a person who has shown reckless behaviour.

### Safety valued

Employees know that optimal safety is valued. When errors occur, they are seen as learning opportunities. Reporting errors and near misses is encouraged and acknowledged. Employees are held accountable for choices, not mistakes. Clear guidance about what is acceptable and unacceptable behaviour is important for more than just reducing errors. People have an innate sense of fairness and justice and they want to work and are happier in places where they perceive everyone is treated justly.

Do not make the same mistake that many who have entered the person centred journey have made, he warned. You must distinguish between a just culture and a no blame culture. A just culture has a higher accountability for both the formal leader and the employee.

Capt Varma explained that holding yourself accountable means - Do I have all the information before I make a judgement? Have I clearly communicated my expectations? Have I done a root cause analysis? Was this human error or a personal decision? Have I given this person everything he or she needs to be successful? Have I listened to the employee's reason for the behaviour? Am I certain this is not where the employee will grow?

Holding others accountable means - how can I care for this person and help him or her grow instead of tearing them down? What does that look like? People who blame others have not begun their lesson; people who blames themselves have begun their lesson; people who blame nobody have finished their lesson, he said.

MMS Maritime's Sanjay Bhavnani

**Dr Sanjay Bhavnani**, director & COO, MMS Maritime, gave an example of a person who is perfectly qualified but asked - are they competent?

His or her qualification could be a certificate of competence, plus rank, vessel type, trade and company experience.

Using the acronym ACCIDENT, he explained his thinking, thus -

A = Attitude (Knowledge + Skills x Attitude) - a feeling or way of thinking that effects the person's behaviour.

C = Complacency (lack of situation awareness) - results in reduced or an absence of situational awareness - job repetition leading to short cuts taken.

C= Communication- either insufficient or incomplete - lack of sufficient information exchange - Identification of all hazards - divulgence of goals.

I= Inter-cultural differences - power distance - uncertainty avoidance.

D= Demonstration of professional's skills - lack of application of knowledge & skills - Insufficient motivation.

E= Effective surveillance & enforcement - preventing short cuts - monitoring delegated jobs.

N= Need of self-esteem - lack of confidence - unsafe state of mind.

T= Team work - congruent objectives - synergistic output.

Dr Bhavnani continued by outlining the methods for continuous improvement, which included - mentoring, challenge & response, leaderships at the top at all levels, mutual respect, effective management of complacency, seafarers as stake holders, go beyond mere compliance and the embodiment of the principle of safe work.

Training should be effective by designing & implementing training programmes to develop latent potential of all seafarers, while also evaluating the training's effectiveness. The training, final knowledge and skills set should be be closely related, while a company needs the continuous identification of training needs through a robust performance management system.

For cost effective and sustainable shipmanagement, use management systems that are fit for purpose and integrate all aspects of the safety programme into a single comprehensive system, he said.

Using another acronym- POLICE - Dr Bhavnani advised companies to plan, organise, lead, inspect, correct and evaluate.

## Data usage

As for the tanker industry in foreseeable future, he saw the main technological changes as greater analysis of data, data collection via sensors, energy & fuel management, route optimisation, fleet management, remote monitoring and smart ships.

Better asset management includes the enhancement of cargo tank cleaning without confined space entry, use of drones & other technologies for effective surveys, enhancement of simulation technology including modelling for effective performance assessment, optimisation of cargo operations systems, holistic energy management and the reduction in downtime through the identification of equipment failure.

Dr Bhavnani then took the delegates through OCIMF stipulated changes, including the release of TMSA 3 due next year.

TMSA 3 will include chapters on security, increased stress on cargo operation practice, a reflection on changes in legislation & best industry guidance, an update of mooring equipment guidelines and the development of a marine terminal information system.

## Hamburg conference

At *Tanker Operator*'s Fifth Hamburg Tanker Conference held last month, kicking off proceedings, **Martin Shaw**, managing director, Marine Operations and Assurance Management Solutions (MOAMS) gave an insight into the general state of the oil industry and the tanker market.

MOAMS' Martin Shaw

He warned that the growth in lithium battery powered road vehicles could impact on the oil industry going forward, as the drive in hydrocarbon growth is allied to the transportation industry.

Many years ago, the tanker sector were dominated by large oil majors, but today, this segment is led by large national oil companies, rather than the international giants, such as ExxonMobil, Shell and BP.

He said that in general, charterers wanted safe, reliable ships offering on time deliveries with no field outages, vessel breakdowns, or pollution, fixed at a good rate and loading/discharging a full cargo stem. Good communications was another plus point, Shaw explained.

As for the owners/operators, their main challenge was regulatory, which comes in many forms, for example, OCIMF is currently working on TMSA 3, which should be be released next year.

In addition, healthy tanker rates are on the wish list and although incident and pollution rates are low, the consequences of making a

mistake is higher than before. Demand in world growth, prices, energy security and climate change were all uncertain today.

"The industry is complex but what's the alternative?" he asked.

He told the delegates that he had a dream whereby the tanker sector operated in transparent and balanced markets, providing a fair return for owners and economic transportation for charterers. There would be a single uniform standard across the globe with consistent compliance and enforcement, thus there would be no need for port state and vetting.

The requirements for this to work would include - no flags of convenience, transparent ownership and taxation, shipowners committed to common standards, no competition between flag states or class societies. Any pollution clean up and liability costs would be totally covered by international funds with no overreaction by media and politicians. The need for traders would cease and there would be no state support for shipyards.

Offen Tankschiff's **Stephan Polomsky** outlined some of the problems facing shipping today.

These included environmental challenges,

**Offen Tankschiff's Stephan Polomsky**

regulatory burdens, technology developments, eight years of shipping crisis, high demands from OMs and not least - generation changes.

For example, the oil majors demanded the highest standards for the vessel, from the crew and the operator. The environmental challenges included SOx, NOx reductions, carbon footprint, emission trading, the ECO story, oil prices, ballast water treatment systems and SECAS.

He also pointed out one of the inconsistencies in the industry - no standards in the interface between the terminal and ship.

As for tomorrow, Polomsky said that the next generation would be more interested in a work/life balance scenario. This will see the further growth of social media with more connectivity. There will be an adaptation of work flow and work culture. "Are shipping companies positioned to follow the speed of technology change and are they flexible enough to cope with cultural change?" He asked.

## Dedication

However, he said that shipping is still traditional and requires dedication and passion.

**Trafalgar Navigation's Mark Bull**

**Mark Bull**, director of auditors Trafalgar Navigation, said; "We tend to focus on the negatives when we consider safety and the measures taken to improve it. Our safety vocabulary has become populated with deficiencies, detentions, deviations and disaster. It does not matter where you look, however because the overwhelming evidence is that the tanker industry enjoys a good safety and pollution prevention record."

He believed that the starting point to move

forward was to begin working from the positive angle to achieve an improvement. However, before this can be done, how this good record has been achieved needs to be analysed.

What sets the tanker industry apart? " I would argue that the OCIMF SIRE inspections have been the trigger to the current good safety records achieved by the tanker industry, and however much you hate them, they are providing benefits today – it is now time to cash in those benefits."

He stressed that Port State Control is beyond it's sell by date, at least for tankers, as any tanker detained by PSC would be just about unfixable, ISM is no longer fit for purpose, while P&I condition inspections are superfluous for tankers, as all information could be gained from the SIRE inspections.

"I have reviewed the presentations from our colleagues in Mumbai (see page 35) and I agree with them that - tankers are inspected too many times. We have reached the ceiling in what can be achieved with the present systems – including SIRE. The human element is overlooked in both the structure and conduct of the inspections or audits – they have and are re-creating the fear factor. A new system of 'scoring' is required," Bull said.

Tanker operators could request a reduction in the inspection burden based on their good safety record. For example, flag states could take the lead for compliance related inspections, as they have a responsibility to ensure their ships are kept and operated in a good condition. Their annual inspections should be maintained. They should stand up for their own standards. They could also monitor a ship's SIRE (or CDI – m) reports.

Among the inspections that could be removed or reduced are PSC. "We have moved on since the early 1980s. PSC in my view is beyond its sell by date - its original objective. They (PSC inspections) did not prevent any of the recent disasters," he said. Tanker PSC inspections should only occur when there are reasonable and justifiable grounds and then only when accompanied by a flag state inspector.

Vetting inspections should be reduced to a maximum of three per year or roughly once every tour of duty per Master. This will allow other inspections to fall into line (eg, technical superintendent, marine inspection/internal audit). A code of conduct should be drawn up for all inspectors or auditors, which would give an officer or crew member the right to complain about the inspector's behaviour.

## Requirements impact

Bull said that the impact of requirements on core safety activities was another problem. " I have personally observed how much time Masters are spending on mundane reporting and administration, which is taking them away from their core role on board, which is to command the vessel. The advent of ECDIS has even seen them with ECDIS and Radar monitors in their office. This is a recipe for disaster – and a disaster will happen due to this trend.

"How is it possible that the same entities insistent on a high safety standard require four separate reports at noon each day? How is it possible that the ships are inundated with 'where are you now messages'? What are the shore-based offices going to do with autonomous ships? Who will send the messages?" he queried.

Bull continued; "Every inspection involves reviewing the ship's certificates. The amount of time reviewing ship's certificates is directly proportional to the extremes of the weather outside

during the inspection. Why is it taking so long to post these on the internet when we – companies – have been doing this for years. Does anyone know a piece of paper that can stop a ship sinking?"

"Whilst the tanker industry has a good and continually improving safety record, it must guard against hubris. One positive element I have noticed in tanker operations is that rushing to start cargo operations, or sail upon completion does not happen. Compare this with the 30 minutes available to vacate the berth on a containership – this is an idea the tanker sector can export," he said.

**Can we learn from others?**

- Other ship types are experts in certain fields of operations.
- Passenger ships: in lifeboat and rescue boat operations – they practice frequently. Food safety and health & hygiene – with 7,000 people on some ships - this is a must.
- Bulk carriers: watertight integrity.
- Containerships: planning for the port stay, attention to torque, maintaining the ship upright and near to even keel throughout cargo operations; reefer containers and handling multiple gases injected into containers; automated operations, are some of the pluses.

**Enesel's George Poularas**

**George Poularas**, Enesel COO, said that according to the Shell Partners in Safety initiative, the three pillars of the new safety approach are visible leadership, reflective learning and resilience.

Resilience is the ability to bounce back from a failure and learn from adversity; it is an internal check to see what is missing; it is the art of helping a person to master change and expand his/her radius of confidence until the whole world becomes mapped into your awareness, he explained.

Confidence is rational versus emotional thinking. An example - 'I am a new watch-keeping officer and I am observing all the fishing vessels around. But it is getting busier and a lot of them are making sudden course alterations. Shall I call the Master?' Another example, 'A pump important to our operations has vibration levels that have trended upwards over the last few weeks, but has not reached alarm status. Shall I set the pump off-line ?'

**Keep things in perspective -**

Situation: 'You arrive ready to start your E/R watch. The previous watch was tasked with making the necessary preparations to leave port. When you arrive, you find that this work has not been done. This is the third time this has happened. Now you must complete the work in order to be able to leave port on time'.

**Internal Monologue -**

1) They knew that it was their responsibility to do this.
2) It is not the first time I have been left having to do their work.
3) I will be blamed for missing the tide and not leaving on time.
4) The previous watch is lazy and incompetent.

**Keep things in perspective - challenges -**

1) Are there any other possible explanations as to why they didn't do it?
2) Am I focusing on the negatives and ignoring other information?
3) Am I being too inflexible in my thinking?
4) Is it as bad as I am making out?
5) Am I jumping to conclusions without looking at all the facts?
6) Instead of blaming, shall I ask for help?

**Adaptability: Change is a part of living -**

Identify the risks of the every day working environment and adapt yourself to cope with associated risks. Become risk-proof, he advised.

**Change is a part of living – the reverse example -**

assume that the company changes the PPE policy and does not require anyone to wear a helmet. Do you approve of this change? True or false?

1) You should not need PPE where there is no risk.
2) Walking on deck under a clear sky is not a risk.
3) It is uncomfortable and can restrict visibility.
4) I can still demonstrate my safety commitment whether I am wearing my helmet or not.

**Social Well being - Taking care of yourself -**

What does taking care of yourself mean to you? Taking care of family? Taking care of other crew members? Why is taking care of yourself important for your home life? Your life on board?

Developing resilience promotes better safety choices and behaviours to help protect ourselves and each other and achieve a zero incident industry - according to Shell Partners in Safety, he concluded.

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