

Marichem: carrying chemicals

This year's Marichem conference focused on the role of the Port of Rotterdam in the chemical logistics chain, the needs of charterers and those of chemical tanker operators

Last year, the Port of Rotterdam's total throughput of liquid bulk cargo was 151 million tonnes (mt), and of the 'ARA' ports (Antwerp-Rotterdam-Amsterdam), it is the leader in throughput of oil products. The Port hosts a number of tank storage, rail handling and refinery facilities, making it an ideal port of call for carriers of crude oil, chemicals and petroleum products. Rotterdam was therefore an appropriate choice of location for the 14th annual Marichem conference, held during the first week of September.

Shell Chemical expands

Businesses in the West have been forecasting the 'opening up' of China for years now. A potential market of 1 billion people and the nascent technology industry growing up alongside the already substantial industrial manufacturing base in the country have proven to be strong lures for Western businesses looking for a share of what they believe will be a lucrative market. Producers of chemicals are no different. According to Roger Barth, global marine coordinator of Shell Chemical, the major is currently working on "the largest Chinese-foreign joint venture so far", worth \$4 billion in the southern China, in Nanhai.

"Nanhai is a world-scale plant on a greenfield site in Daya Bay, Guandong," said Barth. "At the centre will be an 800,000-ton per year ethylene cracker, with room for future expansion. The joint venture will build, own and operate the petrochemical complex and market the products, primarily into the domestic market."

Shell forecasts that by 2004, China's petrochemical demand will rise by more than 60 per cent and that by almost 100 per cent by 2006. "In anyone's language, that's a phenomenal growth curve," said Barth.

Growth is also expected in the Middle East. Shell estimates that 25 per cent of global ethylene growth over the next 10 years will derive from the Middle Eastern region. When oil prices are high, Barth pointed out, the region is competitive; when they are low - below \$15 per barrel - Middle Eastern producers lose their competitive advantage. Barth emphasised the importance for global players to have a presence in the region, both in order to maintain a global portfolio and also to capitalise on the flexibility of feedstock in the face of changes in the price of oil.

Growth in both areas of the world - China and the Middle East - will inevitably have an impact on trade flows and provide future opportunities for chemical tanker owners and operators.

Ship vetting...again

Shipowners complain incessantly about the burden of commercial vetting inspections, and much attention has been paid to the Chemical Distribution Institute's (CDI) and Oil Companies' International Marine Forum's (OCIMF) vetting schemes for chemical tankers and oil tankers, respectively. In recent months, several announcements have been made about the progress the two industry bodies are making towards a harmonised inspection regime for cross-trading tankers. The initiative includes the holding of common seminars for vetting inspectors, the harmonisation of the Vessel Particulars Questionnaires and the updating of both bodies' software in order to make the transferral of information between their databases possible.

At the Marichem conference, however, Martin Whittle, director of CDI, raised the question of whether commercial vetting inspections are really as much of a headache

as owners and operators would have the industry believe. According to INTERTANKO's (International Association of Independent Tanker Owners) figures, CDI inspections only account for one to two of the 30 or more inspections that a tanker might undergo in the course of a year. As Whittle pointed out, in this context CDI inspections do not place an undue burden on tanker operators, and therefore, the idea that the harmonisation of CDI and SIRE will somehow solve the problem of multiple inspections is something of a red herring.

The debate about the proliferation of inspections notwithstanding, CDI continues to make discernible progress. Whittle said that CDI's access ratio - the average number of accesses per report - continues to rise. Last year, the figure was 3.5, and this year the Institute expects it to rise to 3.7. The rise indicates that existing CDI members - of which there are currently over 40 - are using CDI more and more.

CDI and SIRE both show trends of increasing usage of their systems by their members, which means that the problem really lies elsewhere. Port state control authorities, for example, are allowed free access to both systems, but have so far declined to take up the option. According to Whittle, CDI invested \$15,000 in creating the software that would enable PSC to extract statutory data and is more than a little disappointed that PSC only withdraws one to two reports a month.

On the other hand, one group which has grasped the opportunity with both hands is that of pool managers. In this case, CDI spent \$25,000, and it was money well spent. Pool managers have a great interest in the CDI reports and are able to withdraw them in read-only format.

In spite of PSC's apparent lack of interest in CDI reports, Whittle pointed out that the reports contain valuable information which can be used for many other applications beyond their utility as part of the vetting process. Shipowners themselves have to "force it forward" and encourage other parties within the industry to make use of CDI reports, said Whittle. Such a statement places the onus of halting the proliferation of inspections firmly on owners.

Bunkering and the environment

The Port of Rotterdam is the third biggest bunkering port in the world, selling 17,000 bunker stems worth \$1.3 billion per year. According to Capt Cornelius de Keyzer, senior policy advisor to Rotterdam Port Management, sales of heavy fuel oil (HFO) have been steadily growing in relation to other grades of fuel oil, leading to demand for larger stem sizes and larger barges. This demand has seen the development of so-called 'mega-barges', several of which are currently being built by various barging companies, including Vopak and Unilloyd.

The natural focus on the bunkering industry within Rotterdam has led to a heightened awareness of the environmental implications of ship emissions, and the pressure the EU is bringing to bear on the industry has only served to sharpen that awareness. According to Capt de Keyzer, global marine fossil fuel consumption comprises 6 per cent of the world's annual liquid energy demand, with combustion responsible for 2 per cent of global CO₂ emissions; 4 per cent of global SO₂ emissions; and 7 per cent of global NO_x emissions.

Capt de Keyzer asserted that the question is not whether or not to reduce emissions, but how they should be reduced, an approach that he terms "EROS" (Emission Reduction ObjectiveS). "People often argue that shipping does not contribute much to the world's emissions, but in the EU at least, all of the other modes of transport have reduced theirs," he said, making it clear that the shipping sector would have to follow suit. He pointed out that the EROS approach will cost money, but that it is necessary, not least because the legislative authorities have taken the initiative onboard, as codified in IMO's MARPOL Annex VI and the EU's Gasoline Directive 1994/63/EC; Sulphur Directive 1999/32/EC; and Acidification Strategy 1997-2010. However, in spite of IMO's good intentions, MARPOL Annex VI remains unratified, as it requires the approval of 15 countries representing at least 50 per cent of the

world's tonnage, and to date, this is lacking. So far, only Sweden, Norway, Singapore, the Bahamas and the Marshall Islands, representing 15.8 per cent of the world's tonnage, have ratified the Annex. At this rate, it is believed that Annex VI will not come into force until perhaps as late as 2007.

It was clear that this was unacceptable in Capt de Keyzer's point of view. He called on IMO to give MARPOL a "facelift", or else the industry would have to bow to the will of Brussels.

Another important issue is that of sulphur emissions, a key factor in the generation of acid rain in Europe. This has become a major issue for ship operators, who may be subject to the EU's Directive on Sulphur in Fuels. The Directive may require ships to store and burn at least two different types of fuel in different geographical areas. There are several alternatives being discussed within the industry, not least the emissions trading scheme being championed by BP Marine and the suggestion that economic instruments, in the form of higher port dues, could be used to reduce sulphur emissions.

According to Capt de Keyzer, the latter is unacceptable. "Over our dead bodies," he said; economic instruments such as that suggested above could reduce the competitiveness of Rotterdam and distort competition between European ports in general. The balance between the environment and the economy must be safeguarded, he said, and a productive, pro-active approach must be adopted.

In the public eye

The concept of risk management has taken hold in the shipping industry in recent years, and particularly so in the tanker sector, where one misstep can result in negative headlines for years afterwards (witness the Erika). According to Patrick Russi, general manager for quality assurance, safety, ship vetting and regulatory affairs for the Stolt-Nielsen Transportation Group, owners have to have an adequate strategy for managing their operational risk. He delineated four areas where owners and operators have to exercise vigilance, and these were: safety risk, environmental risk, equipment risk and continuous improvement processes.

Dealing with safety risk involves targeting the 80 per cent human error factor, and this can be done by putting quality assurance programmes into place, overseeing hiring practices and instituting training programmes for existing staff. Stolt-Nielsen, for example, adheres to what Russi termed as "the most comprehensive standard for shipmanagement", the International Ship Management Code (ISMA), which involves a stringent quality audit regime and the maintaining of proper management controls. In the realm of hiring practices, minimum requirements should be identified and verified; skills and language testing should be carried out on a regular basis; and turnover needs to be monitored and controlled and perhaps minimised, as lower turnover reduces the incidence of human error.

Environmental risk is a major component of any operator's overall risk. Russi suggested putting comprehensive environmental operating procedures into place. Stolt-Nielsen, for instance, has extensive emergency response planning, training and testing, as well as a 52-week drill schedule for all ships. In addition, the company's new ships (of the P-37 class) have been specifically designed to be environmentally friendly, with medium speed engines, resulting in lower levels of emission, propulsion redundancy and efficient stripping systems. Stolt-Nielsen also carries out annual contingency exercises with the US Coast Guard and other authorities and was chosen this year to participate in a safety drill with ExxonMobil, DowUCC and government agencies, at a cost of \$60,000 to the company. Russi also advocated a straightforward approach to media relations in the event of an incident occurring. Equipment risk primarily involves the condition of the ship itself and of the equipment onboard. Russi pointed out that the construction of chemical tankers (multiple, small tanks and double hulls) means that only the cargo in the penetrated tank is at risk. Stolt-Nielsen's ships are built to trade in the chemicals market (Russi emphasised

that the company's vessels are not traded down market) for at least 30 years, and at the end of their lives are scrapped. Maintaining equipment involves computerised planned maintenance systems, the upholding of clear maintenance standards, real-time monitoring of the ship by shore-based management and a comprehensive ship inspection programme.

However, with the best of intentions, not all risks can be covered, as proved by the case of the Stolt Rotterdam, a chemical barge that spilled nitric acid into a German river. According to Russi, the company believes that the incident occurred due to a burst gasket or a failed valve. For the time being, he said, Stolt is no longer using that type of ship for the carriage of nitric acid, and all of the barges in the fleet have had their valves and gaskets checked.

Although a company can pursue its risk management strategies in the best of faith and with a concerted effort, incidents can still occur, which leaves the door open for continuous improvement processes. Stolt-Nielsen has developed a number of improvement teams which draw on members from senior management who set overall continuous improvement objectives, manage the improvement process and ensure that the objectives are being achieved, as well as department members who provide specific input.

Ultimately, charterers also have a role to play. "Shippers should use quality as the sole selection criterion for chemical tankers," said Russi.