Forum

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New IMO Secretary-General outlines his plans for the future

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- Greeks banking on tankers
- RCCL hoists quality flag
- LNG for California
- Risk Based Assessment at Ericsson

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Facing a world of growing risk

Tor E. Svensen chief operating officer, DNV Maritime

This issue of *DNV Forum* appears at a time of economic uncertainty for land-based businesses but remarkable growth for companies involved in the maritime sector. The former are still recovering from 2003, a year characterised by war in Iraq, the SARS epidemic in Asia, and general economic malaise throughout most of Europe, Africa and Latin America.

By contrast, the maritime sector remembers 2003 as a year in which freight rates for most types of shipping reached record levels and shipyards recorded a steep rise in newbuilding contracts. Continued high ordering levels are expected in 2004 and freight rates are expected to remain at high levels in both the dry and wet bulk segments as well as the containerised business. Indeed, such uniformly strong freight markets have not been seen for decades.

However, while shore-based businesses and the maritime industry may have different views of the global economy, they share concern over one vital issue: Managing risk.

Recognising risk at sea ...

Tor E. Svensen, chief operating officer of DNV Maritime comments, "For the maritime sector, adopting effective risk-management strategies is business critical. Many issues will challenge the sector in 2004. The EU will start closing its harbours to single-hulled tankers and criminal penalties are being introduced for oil pollution. Zero tolerance to accidents and an increased focus on environmental performance will have a significant impact on the entire maritime industry.

"In addition, 2004 will also be the year of increased legislation for shipping, much of it security-related. The ISPS Code comes into force in July, a measure that will force ship operators and port authorities around the world to implement far-reaching security initiatives," says Svensen.

Indeed, according to Efthimios Mitropoulos, secretary general of the International Maritime Organisation, the ISPS Code has encouraged IMO members to establish systems to manage future changes: 'There are clear calls from our members to establish a mechanism whereby they can assess their performance as Flag, Port and Coastal States, with a view to identifying exactly where improvements need to be made."

... and on land

Managing risk for land-based companies presents its own challenges. Increasingly, strict environmental regulations, including the standards for ISO 9001 (quality management systems), ISO 14001 (environmental management systems) and OHSAS 18001 (occupational health and safety management systems), have encouraged companies to be more proactive in their risk management. Some, such as Mero CR, a Czech crude oil-transport company, have been working closely with DNV to manage theses issues.

At the same time, the uncertain global economy has forced other companies to refocus their efforts on risk management as a cost-saving tool. For example, the Swedish mobile-phone maker Ericsson has been working with DNV to establish a company-wide certification programme based on a business-oriented assessment methodology, Risk Based Assessment. The company is confident that these measures will result in significant cost savings and position the company for efficient growth.

"No matter how well companies perform over the course of the year, on land or at sea, one thing remains clear: Risk Management will continue to be a vital tool in helping them create value," concludes Svensen.

Stuart D. Brewer
Editor

The future and beyond

As Efthimios E. Mitropoulos begins his first four-year tenure as the seventh Secretary-General of the International Maritime Organisation, he is under no illusion that there are a number of key areas that will underlie what the IMO does in the near future and beyond. The first, he says, is to concentrate on the implementation of existing standards rather than the development of new ones.

"There is a discernable groundswell among IMO Members, the shipping industry, its customers and the general public calling not just for standards to be implemented properly but also that they should be seen to have been implemented properly. And where this is not happening, there should be transparency and perhaps even sanctions." Adm. Mitropolous sees the Voluntary IMO Member State Audit Scheme as crucial in this regard and is committed to ensuring that he does all he possibly can to give it the backing it needs.

Among other specific areas of his concern is the acute shortage of seafarers. Referring to a study carried out by BIMCO and the International Shipping Federation which suggests a shortfall of 16,000 officers worldwide, he says the situation may become worse by the year 2010, when a shortage of both officers (46,000) and ratings is predicted. "We have to try to do something about this problem before it becomes insurmountable," warns the former Director of IMO's Maritime Safety Division.

Imprisonment of seafarers

He is also concerned about the detention of seafarers serving on ships involved in accidental pollution incidents, and although recognising the complexities of the issue and fully respecting the independence of the judiciary in countries that have suffered as a result of accidents, he believes the prolonged imprisonment will deter many from pursuing a career at sea.

He told *DNV Forum:* "I am concerned about the seafarers of the world who may justifiably fear for their future livelihoods following an accident involving the ships on which they serve and I am concerned about the impact an act of detention may have on the global campaign to attract young people to the maritime profession." Perhaps another detriment to the recruitment of seafarers is the tainted image of the industry due to the irresponsible few that operate sub-standard ships.

Piraeus-born Adm. Mitropoulos concurs, and is very much leading the fight to eliminate sub-standard performance in shipping, whether it be sub-standard ships, seafarers, ship operators, classification societies, administrations or anyone else who plays a part in holding the safety chain together. It is a challenge we relish and in which I am confident we will succeed."

The Member State Audit Scheme will be a particularly useful tool in this regard and has been developed to raise standards universally. "The impetus is coming from within IMO, where there are strong calls from the membership to establish a mechanism whereby they can assess their performance as Flag, Port and Coastal States, with a view to identifying exactly where improvements need to be made."

It is envisaged that the scheme will address issues such as a Member State's conformance in enacting appropriate legislation for the IMO instruments to which it is a Party; the administration and enforcement of the applicable laws and regulations of the Member State; the delegation of authority by a Member State in terms of the implementation of convention requirements; and the control and monitoring mechanism of the Member State's survey and certification processes and of its recognised organisations.

Speeding up the process

The Scheme is also expected to go some way in speeding up the process of Members' implementation of IMO measures. Adm. Mitropoulos explained the Audit scheme's far-reaching effects: Not only could it help identify where capacity-building activities would have the greatest effect, particularly in the developing world, but it would also enable appropriate action to be much more precisely targeted. Individual Member States themselves would receive valuable feedback and, on a wider scale, generic lessons learnt from audits could be provided to all Member States so that the benefits could be shared, and the regulatory process at IMO could also benefit from the results of this learning experience.

"One further thought on the question of speeding up IMO processes: most Conventions have an in-built time lag for amendments to come into force, through the tacit amendment procedure, once they have been adopted. If the contracting Governments choose to, they could elect to shorten these periods. The Conventions belong to States parties and they can change them if there is a will to do so."

The Secretary-General, who sees his role akin to that of a politician, diplomat or chief executive officer who leads by example, motivating, inspiring, taking initiatives and providing full strategic and policy direction, is fully committed to the Audit Scheme, to the extent that he has put it under his 'personal supervision'. "The aim is to ensure that the impetus and enthusiasm with which early proposals for the scheme have been greeted are maintained and translated into positive and tangible results" he asserts.

Class work

On the question of class and the work that the societies do, Adm. Mitropoulos makes it perfectly clear that there has never been any suggestion that IMO would take over the detailed work of the classification societies. "What is being examined," he admits, "is the notion that IMO would develop 'goal-based' standards for ships construction and equipment; which means that IMO would state what has to be achieved, but would not be involved in the details of precisely how this should be done."

He says that this would leave classification societies, naval architects, engineers and ship builders the freedom to decide on how best to employ their professional skills in order to meet the required standards. It would also be possible to benefit from the wealth of expertise within the technical organizations and classification societies when drawing up the standards. "But the key factor is that the standards would be internationally agreed, transparent and capable of being monitored by national administrations."

The IMO Secretary-General told *DNV Forum* that, to push the idea forward, an item has been added to the work programme of the Maritime Safety Committee and that interested Governments and international organisations have been invited to submit specific proposals on goal-based standards and design philosophies to help clarify and define their meaning.

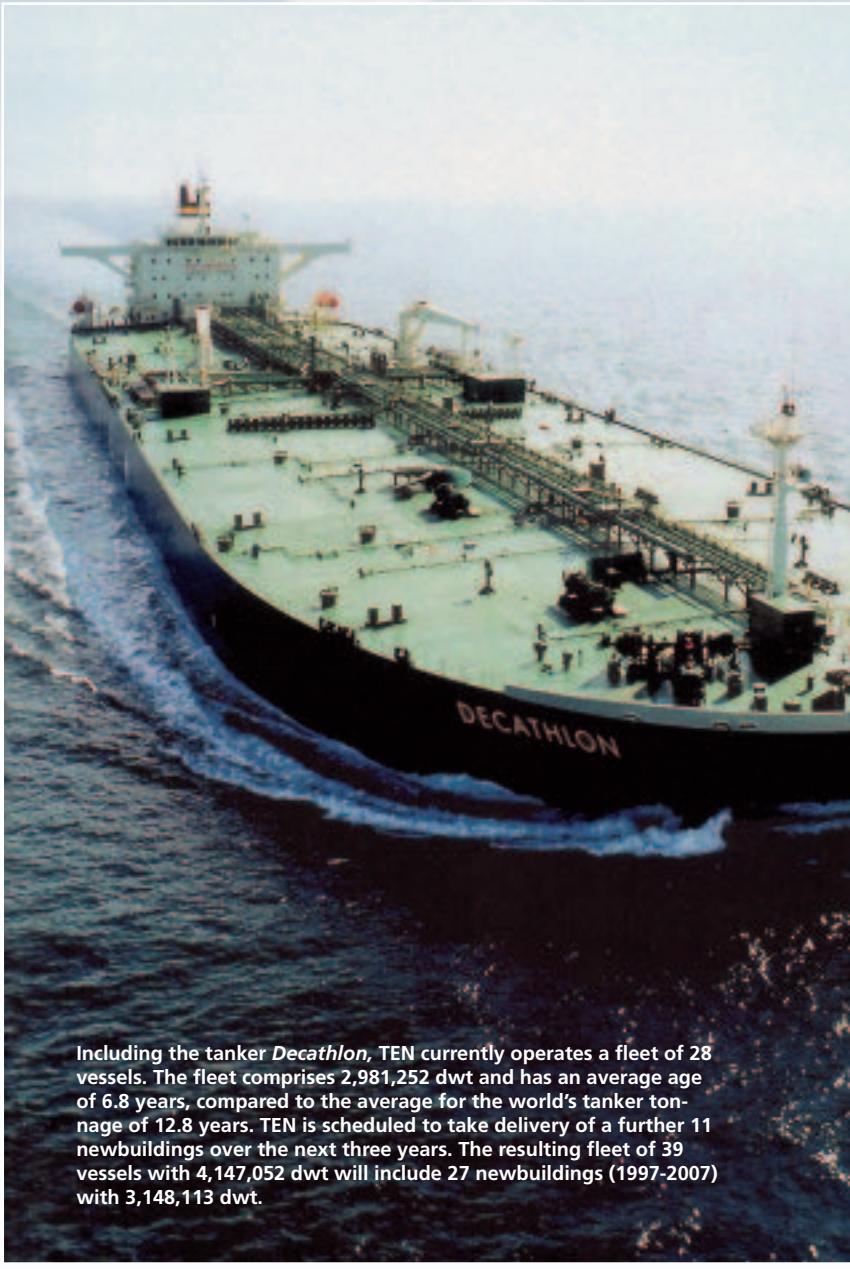
"I think the idea in principle is a sound one and I am keen to support the membership in bringing the idea to fruition," he said.

Greece is recognised as one of the world's most important shipping nations; not only has it been traditionally active in second-hand purchases, but it has also placed a wealth of newbuilding orders over the past few years. *DNV Forum* recently interviewed two leading and influential shipowners to find out how they see the market developing.

Banking on tankers

As part of its commitment to becoming the first-choice provider in the oil transportation industry, Tsakos Energy Navigation (TEN) continues building up a state-of-the-art tanker fleet.

As the head of TEN, Nik Tsakos has focused on creating an industrial shipping company that produces the results investors are looking for and the modern, high-quality ships that charterers demand.



Including the tanker *Decathlon*, TEN currently operates a fleet of 28 vessels. The fleet comprises 2,981,252 dwt and has an average age of 6.8 years, compared to the average for the world's tanker tonnage of 12.8 years. TEN is scheduled to take delivery of a further 11 newbuildings over the next three years. The resulting fleet of 39 vessels with 4,147,052 dwt will include 27 newbuildings (1997-2007) with 3,148,113 dwt.

TEN has made significant strides into the global oil transportation industry since its start up in 1993. Unlike most companies undergoing a period of rapid expansion, TEN has been able to cultivate a personal approach to its customers. This strategy is opening new doors and further increasing the market potential for the company and its investors.

"Consistency has been the name of the game for the company during a highly successful first decade. One of our original goals in creating the new tanker entity was to achieve consistent results for investors from a high quality operation that would provide customers with a reliable service, and this we have achieved," says TEN president and CEO Nik Tsakos.

TEN has achieved remarkable overall stability in revenue from its vessels, allowing for the steady increase coming from the steady expansion of the fleet. An emphasis on medium to long-term charters at fixed rates has helped it to outshine most of its competitors.

As a publicly listed company, TEN has a strong desire to continually improve its operational and financial performance. Explains Tsakos, "Our ability to provide quality service and tonnage to our growing universe of clients and our competitive cost structure are the foundation upon which we are building increasing value for our shareholders."

Organic growth

Business is going well for TEN. The Athens-based company initiated its aggressive newbuilding programme in 1997, and this has continually provided strong organic growth. This momentum continued during 2003 when the company added six newbuildings, comprised of two Aframaxes and four Panamaxes. To date, the programme has added 16 vessels to the fleet. Tsakos comments, "Our newbuildings scheduled for delivery from 2004 through 2007 total 11 vessels, with three additional vessels on option. Three of the future vessels are conventional designs, and eight are ice-classed, as are two of the three options."

Adds Tsakos, "The newbuilding programme has given us the ability to design our fleet to meet the evolving needs of our clients and to benefit from the economies of sister-ship operations. The most recent newbuilding orders have concentrated on ice-classed vessels for delivery beginning in 2005, reflecting TEN's view that petroleum transportation needs from ice-bound ports in Russia, Canada and Alaska will grow significantly in this time frame."

Tanker prospects

Tsakos and his advisors believe that worldwide consumption of oil products will increase by over 1.8 per cent in 2004, spurred on by the economic recovery in the US and, to a lesser extent, in Japan and Europe. The expected increasing demand in China and India will also factor heavily into worldwide consumption and demand. The forecast rate of growth would be among the highest for several years. Oil demand has been further supported by the need to rebuild inventories after an unusually cold winter in much of the northern hemisphere. Further, Tsakos believes the demand side of the equation is well supported by prospects for continued growth in the US, Japan and possibly Europe. Likewise, the dynamics at work in India, China and the Pacific Rim bode well for transportation requirements for petroleum and its products in the coming months and years.

"The supply side should experience modest growth in overall tanker capacity over the next several years. Limits on shipyard capacity and regulatory encouragement for early retirement of tonnage, supported by unusually high scrap values, are reasons for optimism about tanker industry prospects," says Tsakos and adds, "Growing charterer selectivity that has, and will, promote solid demand for well managed, modern tonnage, further supports these fundamentals. TEN has been encouraged by the level of charter rates in the fourth quarter of 2003 and thus far in 2004. It is reasonable to expect that the usual seasonal decline in the spring, summer and autumn could have less impact than normal in 2004."

Spot market

TEN benefited from the strong spot market for Suezmaxes and Aframaxes enjoyed during most of 2003, and the timing of its fleet additions has been most fortunate. The further fleet expansion, commencing in June this year, should also prove accretive.

"TEN expects future cost pressures from industry-wide increases in insurance rates, a soft dollar, and higher finance costs; nevertheless, firmer charter rates, benefits of increasing scale, and effective cost containment should provide the basis for continued growth in business," concludes Tsakos.

Stuart Brewer

Restis adapts for the

The Restis Group is adapting for the future. Like many Greek shipowners, the Group is looking into new areas of operation. Chief executive officer Victor S. Restis here explains why the profile of the Greek fleet is rapidly changing.

Big-spending Greek shipowners are changing the face of their industry. They splashed out a record USD 5.6 bn on newbuildings, resales and secondhand purchases in 2003 but, significantly, the nature of their deals is changing, Cruiseships, containerships, liquefied petroleum gas carriers, and now possibly LNG carriers, have come to figure prominently alongside the traditional tankers and bulk carriers.

"The environment of world shipping is changing and we have to adapt to succeed in the future," says Victor Restis. "As shipping and the world at large become more sensitive and environmentally aware, it is inevitable that a younger, safer and state-of-the-art fleet is called for. This genuine desire to improve, coupled with very low interest rates, new regulations restricting older vessels and world trade growth can be summed up as the main reasons behind Greece's appetite for modern second-hand and newbuilding tonnage."

Enterprise Shipping & Trading, the shipping arm of the Restis group, currently has 50 vessels in its fleet, which is made up of a mix of reefers, container vessels, bulk carriers and tankers. Further diversification is on the cards.

"Even from our start-up days, our company has always been identified with quality and recognised as forward thinking and an advocate of change and progress in line with the times and market environments. It is inevitable that our company will continue to expand provided the economics make sense, without ruling out diversification into new emerging energy sectors," says Restis.

Commenting on future developments in the bulk markets, Restis says "The tanker sector will be driven predominantly by the western world's desire to import refined products from further afield due to the inability to expand current refineries or build new ones. As for

future

Victor Restis says product tankers are an acknowledged target area for growth.

crude, China's amazing growth will dictate the demand for crude carriers which, USD/ton, means further expansion of the VLCC fleet."

Regarding the dry cargo markets, Restis believes the "Chinese and Indian drive to develop further, together with a general lack of newbuilding bulk carriers, should ensure a healthy dry market for some time to come – albeit with the inevitable corrections."

For Restis, the tanker market's most dynamic sector is the refined products trade. "We expect longer-haul voyages, in that refineries are getting built closer to the oil producing nations rather than the oil consuming ones, and this should also imply larger stems for USD/ton economies of scale. In terms of country development, we expect India and China to be the star performers."

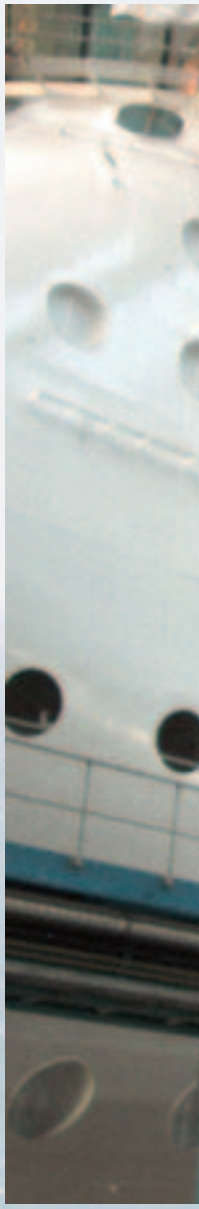
Restis believes the current newbuilding boom will continue for the foreseeable future. "With the tanker fleet rejuvenation in full swing due to the latest regulations imposing phase-out restrictions on existing vessels, it is very likely that the newbuilding drive will continue. This belief is due to the lack of berth availability prior to 2007, plus the increased demand for LNG carriers," he says.

While indicating that further fleet diversification is a possibility, the head of Enterprises Shipping & Trading has no fears of growing too big and losing focus. He says his company has been careful not to lose focus in its mission to be a leading marine-services provider to the bulk-market industries.

"We have been very meticulous in how we have integrated new business without a loss of management focus. I would note that much of our growth has come as a result of business that our customers have asked us to take on – we think that's very telling," concludes Restis.

Stuart Brewer

RCCL hoists quality flag



"We've had an close collaboration with DNV, in which we add value to each other," says Harri Kulovaara, senior vice-president and responsible for fleet operations and newbuildings in RCCL.

Every 20 minutes Royal Caribbean Cruise Lines (RCCL) hires a new employee. With a growth in capacity of 15 percent and a 15 percent turnover among its employees, the company renews 30 percent of its staff each year. This is an enormous challenge for RCCL which, with its focus on passengers, has zero tolerance for errors, defects and unwanted events.

DNV has been RCCL's class society ever since RCCL was formed in 1968, when work on the *Song of Norway* – the company's first cruise ship – was started for delivery by Finland's Wärtsilä yard in 1970. "We're talking about a successful partnership that has lasted more than 35 years," says Harri Kulovaara, senior vice-president and the person responsible for fleet operations and newbuildings in RCCL.

"We've had an close collaboration with DNV, in which we add value to each other," says Kulovaara. "We have well-defined roles. We have been able to build on our continuous collaboration with innovation and a constant push that has given us both success in this exciting and challenging market."

DNV-surveyor Torgeir Sterri views RCCL's newest ship *Jewel of the Seas* at Germany's Meyer Werft.

Photo: Magne A. Røe

Step by step measures

In just the past five years, RCCL has doubled its fleet capacity and its number of employees. That means numerous challenges for a company like RCCL, where only the best is good enough for the passengers.

"In cooperation with DNV, we have implemented logical step-by-step measures in areas such as strength, comfort and reliability. We have always learned a lot from each other," says Kulovaara.

Kulovaara is from Finland, and earned his engineering degree in Helsinki. In the past, he worked for Lloyd's Register and spent no less than 19 years working for Silja Line before joining RCCL nine years ago. He remains convinced that cruise is the world's best form of holiday.

High expectations

"According to our continuous surveys, 90 percent of our passengers say that their last cruise was just as good, or better, than their previous best holiday experience. These survey results create incredibly high expectations for us, especially in an industry that, in complexity, has been compared to operating a nuclear power plant, a hotel and a small airline company all at the same time. Remember, we have employees from 100 different nations, with no industrial experience - and there's no business school that teaches you what to do. On an annual basis, we have 2.4 million passengers, make 5,000 port calls, and have a staff of 22,000 – 24,000 when the company accepts delivery of its next ship from the Meyer Werft yard in Papenburg, Germany in April." →

Photo: Magne A. Røe

"If we are going to maintain the quality of our crews, we must have a well-defined quality programme and quality-management systems. We must have a clear structure and clear policies, and we must be sure to communicate our expectations and to measure and implement corrective actions when these prove necessary."

Holistic approach

Brand quality is Kulovaara's key word and mantra. RCCL wants to integrate all the elements of quality control into one holistic system that complies with the same principles everywhere and be consistent with the company's expectations, and ability to take corrective action.

He notes that DNV's International Maritime Safety Rating System (IMSRS) is a valuable system for RCCL. "This is one of the best tools we know of," he says. "And it helps to develop our overall management culture. IMSRS has been adapted to each ship, so that the crew themselves can recognise the developments and improvements. And it's good to see that we are constantly achieving better results. At the same time, we have new 'Eureka!' experiences all the time. We are constantly learning something, whether about fire-safety related to cleaning kitchens, or completely different issues. I don't know of any other company with which we have as close a relationship as we do with DNV. While our 35 year history with DNV began with the hardware – the vessels themselves – we have spent the last decade working with them to help manage our crew and human resources issues."

Managing risk

Kulovaara notes the major change that has taken place in the USA in relation to corporate governance, especially regarding how many regulatory authorities the company has to work with.

"A lot can also be pulled over to financial risk management," he says. "We need to manage our risks - to prevent accidents and have proactive

"Total Guest Satisfaction" is the focus and core of RCCL's compass program.

plans. To know in advance what can go wrong and to make sure it does not go wrong. When we think through these issues in advance, we have a better understanding of what we must do and not do. Among other things, we have a systematic programme based on risk studies for docking and modifying ships and for newbuildings. Here we have established an extensive collaboration with DNV. The key words here are 'What if?' New rules for newbuildings are about to be introduced and I'm convinced that we will have a positive payoff on our efforts here."

"Total Guest Satisfaction"

Kulovaara has a compass by which he and his fleet operations – including the maritime and hotel operations – are to be run. "Total Guest Satisfaction" is the focus and core of this program. Financial performance and shareholder value, employee satisfaction, safety and compliance, and personal and professional integrity are the four directions that must be balanced in order to make everything succeed.

"We have 16 key performance indicators. All the trends are constantly moving in the right direction. But we are aiming higher – we must always continue to work on integrity and quality. We are focusing on openness and being as transparent as possible. We report all incidents and near-misses – anything at all – 1,600 cases a year. This is not window-dressing," says Kulovaara. As the head of both the maritime part and hotel part of the business, Kulovaara has one team and one vision. This team, unified under one manager, has resulted in better understanding, less internal competition and a single culture. "This is about teamwork - one organisation that takes care of the entire shipboard operations. An organisation in which everyone knows where we are going."

Harald Bråthen

Finding the right

World-Wide Shipping director Andreas Sohmen-Pao highlights the challenges facing the shipping industry and the regulatory bodies

Whilst the director of World-Wide Shipping, Andreas Sohmen-Pao, is quick to recognize emerging trends in the shipping industry and remains optimistic about the future, he worries that people fail to recognize the role shipping plays in the global economy. "I believe that the industry is sometimes taken for granted. Until recently, cheap tonnage has been readily available. But today, we face a temporary shortage," he says.

Indeed, Sohmen-Pao compares current attitudes toward shipping with how most people view electricity: "You don't really think about it until there isn't enough. It's interesting to see how much attention these shortages are getting in the press, such as the UK's Financial Times, which is only now beginning to cover shipping on a regular basis."

Navigating regulations

Managing the recent increase in maritime regulations continues to be a challenge, but there are benefits, he points out. "New regulations have improved standards and raised the overall quality and safety of vessels. Companies like World-Wide and Bergesen, which are serious about improvement, welcome high standards.

"At the same time, some regulations seem to be knee-jerk reactions to short-term political issues, while others strike me as being rushed into law without careful consideration. I believe one has to look at the specific areas where legislation is being introduced, and how it's being introduced, in order to determine whether it's good or bad," he says. For example, the World-Wide Shipping director notes that the recent regulatory focus on the age of vessels assumes that older vessels lack the quality found on more recently build vessels. He argues that most people familiar with the business know that there may be some correlation between age and quality, but perhaps not as much as some of the regulators or politicians think, and not uniformly across all vessel sectors. "Gas carriers, for example, have a very different lifespan to oil tankers, and cannot be viewed in the same way," he says.

Alphabet soup

Today, the shipping industry is regulated by a complex web of international bodies, including the International Maritime Organisation (IMO), the European Union (EU), and the International Association of Classification Societies (IACS). Observing that there is a trade-off between the breadth of opinion offered within larger groups, and the responsiveness of smaller ones, Sohmen-Pao suggests: "It's good to be able to move forward in an efficient group, but it's also good to have a diversity of ideas and opinions in the regulation-forming process. I think the most important thing is how knowledgeable the regulatory group is, in order to ensure it arrives at sensible solutions. In the case of LAN (an agreement between LR, ABS and DNV to improve ship safety), I would imagine that the level of understanding of the issues is fairly high."

Sohmen-Pao adds that in the case where regulations have been formed by individual countries where a small group of politicians drive the agenda, knowledge of shipping is sometimes incomplete. "There is a danger, if an issue becomes politicised, that decisions get made based on emotions rather than on facts. I think that imposing the arbitrary cut-off dates for ships runs the risk of falling into the category of emotional legislation as opposed to fact-based legislation."

balance

"Some regulations seem to be knee-jerk reactions to short-term political issues."

Policing regulations

With so many regulations, enforcing them can be a complex process for both regulatory bodies and shipping companies alike. "Customers are an extremely important constituent, and have a lot of influence over standards given that they are the ones who can choose which suppliers to use. But it is unfortunate that our customers have had to take on the role of ultimate standard bearers for the industry, which suggests that others have not been able to perform this role adequately. Imagine if every time we flew on an aeroplane we had to go and assess the captain's ability to fly the plane, or to check the plane itself. Similarly, as corporate buyers, if we were purchasing an IBM computer system, it would be very unusual for us to have to go into the factory and check on their production line and processes. We just assume that certain quality standards are in place."

Trusting class societies

Sohmen-Pao hopes that the classification societies will be able to adequately enforce standards within the industry and that the other key players will be able to trust that process. However, he recognises that conflicts of interest exist. "Class must balance its role as partner to its customers with their obligation to enforce regulations. It is a tricky relationship. You typically talk to your lawyers or doctors openly because they are not going to turn around and play the judge. It's very hard to play the role of confidant and judge at the same time."

Nevertheless, Sohmen-Pao feels the classification societies are generally good at providing services without compromising regulations. "While there's no easy way to manage this challenge, I believe class has worked hard to find the right balance."

Stuart Brewer

GROWTH IN CHINA

With a booming economy, increased demand for raw materials and a focus on increasing its shipbuilding capacity, China is emerging as a key maritime sector. But how will the booming Chinese market affect the global shipping industry?

Like many in the maritime sector, Sohmen-Pao recognizes that rapid economic growth in China will have a long-term effect on the shipping industry, particularly in terms of demand for vessels. However, he notes that the extent to which China is driving the shipping sector may not be equal across all sectors. "While we've seen a substantial increase in imports to China in the tanker market, it has yet to have the sort of tonne-mile impact that the USA does," he says.

Favourable rates

Sohmen-Pao acknowledges that one force behind the favourable rates over the last 12 months was the increase in demand from China, but notes disruptions in Venezuela, Nigeria, bottlenecks in the Bosporus and the war in Iraq also played a role. "As long as China continues on its current growth path, the country will provide a solid underpinning for the market," he says. "But I don't believe that demand in China will be characterised by smooth, linear growth. I think we will see fluctuations along the way."

Chinese shipbuilding

"If you look at the key ingredients for shipbuilding, which are land, labour and steel, China has abundant potential in all of them," says Sohmen-Pao. "All the signs point to China becoming a dominant player on the shipbuilding scene."

For the World-Wide Group, China's emerging shipbuilding capacity offers some interesting opportunities. "In the past decade, we've had a lot of ships built in Korea because we felt we could get a good value product there, and we've ordered some vessels in Japan. We've also built ships in China - we had some tankers constructed there in the early 1990s. Our continued focus for the future will be on on obtaining the highest quality ships at the best price. China is likely to be a prime contender."

Alexander Wardwell

KOTC wants more

The Kuwait Oil Tanker Company (KOTC) is renewing its fleet. DNV is actively involved with pre-planning and specifications and will later provide class services throughout the vessels life time. But Mahmoud Abdullah of KOTC wants more. He wants class to speak up to ensure hard facts dominate the politics of tanker safety regulations.

Mahmoud Abdullah, manager of the fleet engineering & projects group of The Kuwait Oil Tanker Company (KOTC) believes class should fight for regulations that, based on facts, really improve safety at sea: "There are so many different bodies dictating rules and regulations for us, and most of these have been established by politicians with little knowledge of shipping and overly influenced by public opinion. Only class has the expertise and decades of experience of the practical implications of rules."

"In a perfect world, class would be the only party we should have to relate to. But, class must fight harder to earn a position where their voice is not only heard, but also acted upon by the ruling bodies."

"Currently there seems to be a belief in rules which is dangerous in itself. Throughout all the different regimes for tanker safety there is a tendency to regulate every single piece of machinery and technology, a process which ignores the fact that 80 percent of all accidents are due to human negligence," says Abdullah.

Shift of focus

He believes that addressing problems relating to human factors demands a re-thinking of the ways rules and regulations are drafted. The process demands reliable facts and comprehensive thinking from trustworthy parties rather than the constant add-ons that dominate today's regulations. "Class could do this, simply because they have the knowledge and the experience. But they don't seem to try," he says.

"One example is the way many politicians believe that double-hulled tankers are the solution to end all oil spills. This is just one solution to one problem, but it is being acted upon as the solution to all tanker spills. We have several double hull tankers in our fleet, built 15 years before the current debate. We have a history of building ships beyond compliance, so we are not looking for shortcuts. Like any serious tanker company, we just want a set of rules and regulations that really address the problematic issues, and does so in a way that makes it easier to manage the real problems," states Abdullah.

High standards pay off

KOTC is going to build 10 new ships in the near future. The national carrier is in a unique position to build on its strengths in a business where weakness can be severely punished. KOTC's strong financial situation is as important as the strength of its vessels' steel and welds. And of course, the two are related.

"We see a direct relation between our quality efforts in repairs and newbuilding and our bottom line," says Abdullah. "We are not like a regular management company. When we decide to build a ship, we know that we will be using the ship throughout its entire life cycle. We are not trading tankers. We make our business by building, owning

Photo: Kristian Lindøe

"Class must fight harder to earn such a position that their voice is not only heard, but has real impact," says Mahmoud Abdullah, manager of the fleet engineering & projects group of The Kuwait Oil Tanker Company

and maintaining high quality ships that transport Kuwaiti oil. That is our sole purpose."

Kuwait's reputation at stake

Being the national carrier of oil products from Kuwait has many implications. One of them is the responsibility for the reputation of Kuwait. Fully aware that 80 percent of all accidents are caused by human error, KOTC does what it can to address the impact people has on its operations.

"Sound decisions, loyalty and dedication come when good people are hand-picked, well trained and taken good care of. To really ensure consistent high quality, we have a policy of using specialised people in all positions. We use former captains and chief engineers from our own fleet as superintendents when we repair and build ships. We even have a dedicated section headed by a superintendent that only deals with coating."

The best possible ship in mind

"We believe that class is the best organisation to help us. At KOTC, we go beyond compliance, and in these efforts, what organisation is better equipped to keep abreast of new developments of rules and regulations, policies and technology?"

"However, we have recently decided that class will be included in the specifications of every ship we are planning to build. We've experienced periods when the yards decided newbuilding class. Back then, we felt that class reported to the yard and not at all to us. The yards, and indeed the class societies must take their roles and responsibilities more seriously."

Prompt, caring and hard working

Before choosing DNV class on the six biggest ships KOTC are to build, KOTC ran a survey among all their superintendents to find out which class society provided most hands-on support and concrete assistance in KOTC's efforts to build the safest, most robust and highest quality ships. "DNV scored highest, and with a good margin. Words used to describe DNV included 'prompt, caring and hard working.' Such feedback proves we have the right class on these vessels," says Abdullah.

"We feel that DNV people are with us from day one. Currently, DNV Maritime Solutions has assisted our efforts to put together specifications that take into account all the various rules and regulations that will have an impact on the new ships we are to build. In just two months, we have prepared the specifications of six different types of vessels and had these reviewed n[illegible] over before sending them out to yards," Abdullah says.

"DNV seems to take a special interest in the customer relationship."

Up to speed

"DNV seems to take a special interest in the customer relationship. DNV is particularly good at keeping us informed of changes in rules and regulations and presenting it to us in a way that gets through. Most class societies send us lots and lots of emails and papers, but there is only so much mail a man can read in one day. Therefore, we really appreciate the way our contact, DNV's country manager, Gandhi, comes to us and gives us short presentations, answering our questions when necessary, promptly and adequately. We need the right information at the right

LNG for California

According to the Australia-based energy company, BHP Billiton, Liquefied Natural Gas (LNG) may be the solution to the forecast energy shortage that threatens California and other parts of the USA. To meet this projected demand, BHP Billiton has proposed a USD 600-million project, Cabrillo Port, to bring LNG to the West Coast of the North America, as well as the rest of Southern California.

The project consists of an FSRU (a floating, storage and re-gasification unit) that will be located approximately 14 miles from the nearest point to shore, and about 21 miles from Port Hueneme and Oxnard, the nearest population and commercial centers. The Cabrillo Port project also includes a pipeline connecting the FSRU with existing pipelines on land.

Photo: Harald Bråthen

Patrick Cassidy, director of public affairs, BHP Petroleum (Americas) Inc. (left) and Stephen F. Billiot, the Houston-based vice-president and person responsible for the Cabrillo Port project with BHP Billiton LNG International Inc.

Offshore solution

"Being an oil and gas company with a tradition for offshore development, it was natural for us to think of an offshore solution," says Stephen F. Billiot, the Houston-based vice-president and person responsible for the Cabrillo Port project with BHP Billiton LNG International Inc.

"The California coast is a unique operating environment, and we knew that building a land-based LNG import terminal would be virtually impossible to advance, given the safety and environmental concerns of local and regional stakeholders," emphasises Billiot. "That's why we focused on an offshore facility, where we safely convert the liquefied gas into natural gas and pipe it ashore. We then feed it into the existing gas pipeline network – a network that Americans are more familiar with – and infrastructure that already exists. Cabrillo Port will have minimal impacts onshore."

55 percent natural gas

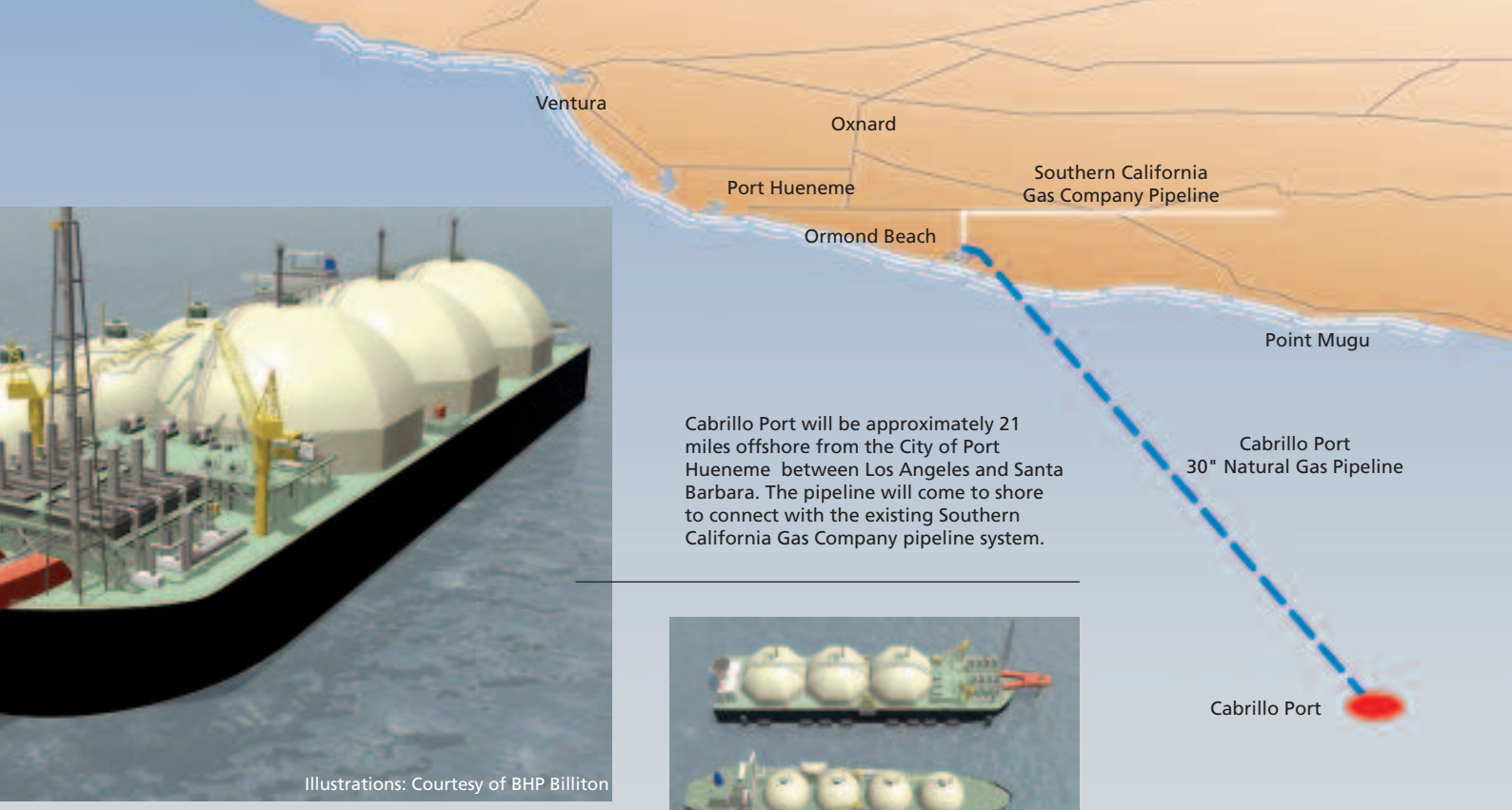
Natural gas is used by about 55 percent of American homes and in numerous commercial, institutional and industrial concerns. It comprises one-fourth of all the energy used in the United States, and Californians are the largest consumers of natural gas in the nation after Texas. One third of all the electricity used in the state is generated by natural gas, a figure that is projected to rise to nearly 40 percent by 2009, according to the California Energy Commission.

"One of our challenges is that most Americans don't know what LNG is. In that sense, we've a major information job to do," says Patrick Cassidy, director of public affairs, BHP Petroleum (Americas) Inc.

In a pamphlet produced for the project, LNG is described as follows: "Liquefied Natural Gas is simply the liquid form of natural gas. A process called liquefaction makes it possible to alter natural gas so that it can be transported as a liquid via ocean-going LNG carriers. As a liquid, LNG has substantially less volume than natural gas. One carrier load of LNG is equivalent to 600 times the volume of natural gas shipped via pipeline."

On stream in 2008?

The proposed Cabrillo Deepwater Port will be approved only after a lengthy process involving environmental reviews, public hearings and the deliberations of local jurisdictions. "We've submitted thousands of pages of extensive information in the licensing application for Cabrillo Port," says Billiot. "The studies and safety analysis



Illustrations: Courtesy of BHP Billiton

Cabrillo Port will be approximately 21 miles offshore from the City of Port Hueneme between Los Angeles and Santa Barbara. The pipeline will come to shore to connect with the existing Southern California Gas Company pipeline system.

A FSRU (a floating, storage and re-gasification unit) will be located approximately 14 miles from the nearest point to shore, and about 21 miles from Port Hueneme and Oxnard, the nearest population and commercial centers.

from DNV, which reviewed the whole project and found it to meet both operational and safety standards, form an important part of this application." LNG is a safer and cleaner burning alternative to many other fuel sources. DNV found that releases from offshore facilities in highly unlikely worst case scenarios would dissolve and become harmless before reaching onshore areas.

Both the United States Coast Guard (USCG), which is responsible for the safety of LNG facilities and carriers in US coastal waters, and other local and federal authorities will be part of this process, leading to a final approval probably in late 2004 or early 2005.

"We expect it to take three and a half years from the time the project is approved until the facility is in operation," says Billiot. "Although the approval process may seem long, we know that this is a procedure that neither can nor should be hurried. All those involved must be allowed to present their views. Many stakeholders, including numerous elected officials and respresentatives from both government and non-government organizations, are definitely positive to LNG, but the average person in the street is unfamiliar with it. Some point to earlier accidents, such as an incident during World War II, which took place when the technology and understanding were completely different. We now have an important task to inform all those affected by this project. Everyone understands that as a company, we cannot make these huge investments without at the same time making conditions safe for people, the environment and the physical facilities both onshore and offshore."

Harald Bråthen

ABOUT BHP BILLITON

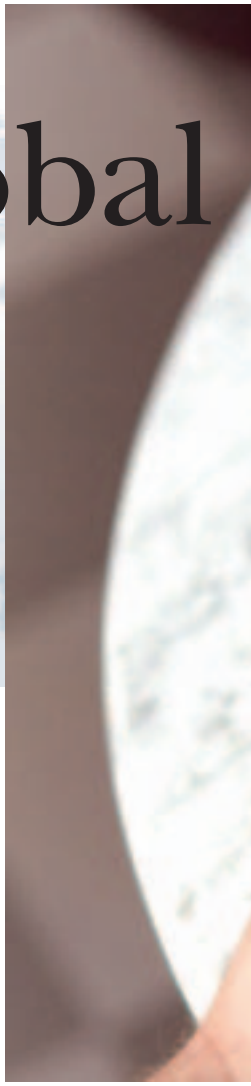
BHP Billiton is a leading natural resources company and a major supplier of minerals and energy products. Based in Melbourne, Australia, BHP Billiton is listed on the London and Australian stock exchanges and holds ADR listings on the New York Stock Exchange.

BHP Billiton is known as an environmentally responsible company and is committed to sustainable development. The company actively develops environmental programmes with a focus on establishing sustainable partnerships that foster community engagement and employee volunteerism. A major initiative in Australia includes a program with this country's largest conservation programme – Conservation Volunteers Australia – to protect and revitalise 100 of Australia's most important wetlands.

For more information about Cabrillo Port, visit the project's homepage www.lngsolutions.com

A mobile, global

Ericsson, the Swedish-based global telecom company, has identified a need to align and improve its organisation's management systems worldwide. To achieve the company's objectives for excellence, DNV's Global Customer Management service has been utilised to define and implement an Ericsson-wide certification programme based on a business-oriented assessment methodology, Risk Based Assessment.



Ericsson, the world's largest telecommunications supplier, is recovering from its losses caused by the formidable collapse in the telecom market four years ago. Since then, annual sales have been cut almost in half, from an all-time high of SEK 273 billion in 2000 to SEK 145 billion in 2002.

SonyEricsson P900

In a laborious process to regain its financial strength, Ericsson has halved its staff from 105,100 employees in 2000 to 51,600 in 2003. During the past two years, Ericsson has cut costs by SEK 500 million each week in order to balance its budget.

Halving the costs and keeping focus on the daily business and core activities at the same time has been a complicated and challenging process.

Ericsson's new business approach is to focus more on work processes instead of organisational issues. The key words are Simplicity, Clarity and Responsibility. The new approach has contributed to make Ericsson a more robust and streamlined company. More attention to efficient management and the standardisation of all work procedures at Ericsson has been given high priority.

Risk Based Assessment

When Carl-Henric Svanberg took over as the new president and chief executive officer (CEO) of Ericsson in 2003, one of his primary concerns was the company's running costs. Ericsson had a continued need of cutting operating expenses, and thereafter to generate sustainable revenues. Svanberg introduced "Operational Excellence" which is a move to increase profit. Risk Based Assessment is an approach, fitting well to Ericsson's objectives.

"Ericsson management has always focused on long-term objectives. Risk Based Assessment (RBA) is a very suitable approach to identify if our methods and systems are suitable to gain our defined objectives," says Harald Stubert, responsible for global assessment and certification in Ericsson.

SonyEricsson S700

customer

SonyEricsson
Bluetooth™ Car CAR-100

All photos courtesy of SonyEricsson

Risk Based Assessment provides an added value in a certification process. In addition to a certificate, the customer also receives feedback on key aspects of the management system which have a bearing on the achievement of operational objectives for the business. Improvement areas identified in the assessment report will therefore have direct relevance and interest at all levels of the business, including top management.

"The certification process can be expensive. In Ericsson we want more out of the process than just a certificate," says Stubert.

According to Stubert, the RBA programme is strong due to the following reasons: RBA systems are easy to account for, easy to manage and has the full support of Ericsson's leadership, since the principles of the initiative have been implemented by senior management. Stubert adds that RBA also requires a certain level of organisational maturity.

Global focus replaces decentralised approach

During the cutback process, Ericsson recognised that there had been a lack of integration in the global Ericsson Corporation. Each country office had its own certificates from regional certification authorities. Allowing the organisation to develop separate procedures has lead to cost-redundancies, thus failing to take advantage of the company's economies of scale.

The company also saw that efficient work processes needed to be established and standardised. Without this process, inefficiencies will be impossible to trace or improve. These are principles that Ericsson is seeking to implement.

"Global customers demand the same level of service, wherever they use our services. It's not acceptable to our customers if the same service is delivered in one day by one unit and in three days by another unit," says Stubert.

Until recently, Ericsson operated with 300-400 local certificates worldwide. To create a more efficient system, Ericsson's leadership requested one corporate, common, global certificate in accordance with ISO standards. →

"We have strengthened our financial position... prioritised our most valuable products and services. And we have increased our focus on customers. Our actions have created a stronger Ericsson."

Ericsson annual report

Photo: Ellen Kongsnes

SonyEricsson A3618s

Global customer

Since 1995, DNV has been one of many certification bodies working with Ericsson. At the end of 2003, Ericsson and DNV signed a frame agreement based on DNV's Global Customer Management (GCM) approach. As a result, the assessment and certification program has been extended to a global scope, aimed at consolidating all management system certification within a cohesive framework for the Ericsson Group, compatible with the company's corporate objectives.

"Being a global company itself, DNV holds an understanding of how to work and how handle the obstacles in running a global business." He says: "Consequently, DNV realised Ericsson's need of a global customer manager which is also an important reason for us to sign a frame agreement with DNV."

The global customer manager shapes DNV's service delivery to fit Ericsson's special needs and expectations. Coordination of assessments across Ericsson's truly global operations is a major task, and the Global Customer Manager works systematically and in partnership with Ericsson to integrate all units into the same structure, culture and way of thinking.

Harvesting the fruits

Today, optimism characterises the Ericsson organisation. The company now possesses a strength which makes it more fit to handle future challenges. Knowing that the most stable factor in the telecom market is the continuous changes, require a robust organisation.

"But why hasn't Ericsson done this before?"

"A consequence of growth is often more decentralised management," says Stubert. "Each unit worldwide develops its own procedures and objectives. During slumps, the management tends to exercise a greater degree of central control in order to cut costs."

Technological developments have also made improved management solutions available to synchronise Ericsson's conduct.

"The certification process can be expensive. In Ericsson we want more out of the process than just a certificate," says Harald Stubert.

SonyEricsson K700

A promising future

Today, the future looks bright, according to Ericsson's top management. In its 2003 fourth quarter report Ericsson present a sucessful turn-around, new contracts and technological achievements. It maintains a 40 percent share of the global telecom market and keep its position as the world's biggest telecom operator. With activities in 140 countries, Ericsson sees huge opportunities in its future market.

Keeping ahead of competitors in the technological development and gaining market share without organisational growth, are the two main challenges in Ericsson's crystal ball.

"This is where the DNV services come in,"says Stubert.

Ellen Kongsnes

ERICSSON HISTORY:

- Ericsson has been active worldwide since 1876.
- Lars Magnus Ericsson, who opened a telegraph equipment repair shop in 1876, was quick to envision the great potential of phones.
- Ericsson played a vital role in making 19th century Stockholm the world's most connected city.
- It has been Ericsson's firm conviction that communication is a basic human need.
- Ericsson is the only company in the world offering systems for all major mobile communication standards, actively promoting standardisation and open systems.
- Today, the company is present in more than 140 countries.
- Its headquarters are located in Stockholm, Sweden.

Noble Drilling: At the forefront

Photos: Courtesy of Noble Drilling Services inc.

The jackup rig *Noble Lynda Bossler* (named after a Noble-employee- as all their units) operating in the North Sea, became the first offshore drilling rig in the world certified to meet ISO 14001 standard.

The Driller on the *Noble Max Smith* is operating the drawworks break and is focused on the weight indicator in front of him in order to maintain an optimum weight on the drill bit.

Continuous improvement of environmental performance is the "right thing to do" at Noble Corporation. The company pioneered ISO 14001 certification among offshore drilling contractors and recently took the industry lead in creating a greenhouse gas emissions inventory for its global operations.

"We see clear benefits from being at the forefront," says Mike Cadigan, manager of health, safety, environment and quality for Noble Drilling Services, Inc. "Our internal culture makes a point of being first, not following the pack. The ISO 14001 certification initiative is one of the things that differentiates Noble from other drilling contractors."

The starting point for all of Noble's efforts is awareness, Cadigan says. "We want to contribute, in our way, to sustainability. It starts by being aware of our impact. We carry out measurements, find improvement opportunities, take corrective actions, measure again and take stock of what we've achieved. This gives us discipline and systematizes our work."

Pioneering ISO 14001 certification

In 1999, the jackup rig *Noble Lynda Bossler* operating in the North Sea became the first offshore drilling rig in the world certified to meet the ISO 14001 standard. As of year-end 2003, 38 Noble rigs, shore base operations and locations in the U.S. Gulf of Mexico, Canada, Europe, Mexico, Brazil and the Middle East/India regions had achieved ISO 14001 certification. In addition, 16 Noble rigs are certified to the IS0 9001 quality management standard. DNV has conducted the certification audits.

"By the end of 2004, we will have more than 50 rigs, offices and field support yards certified to one or more management system standards," Cadigan says.

The move toward fleetwide ISO 14001 certification was spearheaded by Cees van Diemen, district manager for The Netherlands and Denmark Region, and Gert-Jan Windhorst, Noble's health, safety and environment manager for European operations. "The Dutch and Danish governments have strict regulations," says Van Diemen. "Our environmental system procedures, which are ISO 14001 certified, exceed those requirements. Our clients appreciate that very much, since it is less costly for them to obtain drilling approvals."

In addition to the assets that are certified to ISO 14001 and ISO 9001, Noble's rigs in Brazil and Mexico are certified to the International Safety Management (ISM) Code, a safety and environmental standard administered by the International Maritime Organization (IMO).

# of enviromental performance


Photo: Courtesy of Noble Drilling Services inc.

Noble works toward continuous improvement in environmental performance as part of its ongoing efforts to secure and maintain ISO 14001 certifications. Health, safety, environment and quality (HSEQ) manager Mike Cadigan (right) and project manager Kerric Peyton, environmental management systems (EMS).

Reducing impacts on the environment

Noble is a pioneer in other efforts to reduce the impact of drilling operations on the environment. In 2003, the company completed its initial three-year baseline assessment of diesel engine emissions as a first step in managing the emission of greenhouse gases from its drilling units worldwide.

"There is considerable discussion in the scientific community about the long-term effects of greenhouse gas emissions," Cadigan points out. "Whatever the outcome of these discussions, Noble is committed to proactively managing the emission of greenhouse gases from our operations."

Noble also installed a Siemens gas analyzer on a rig engine in the Gulf of Mexico in order to measure actual baseline emissions and normalise this data against engine output. At the same time, Noble is working with major engine manufacturers to find out how to improve engine efficiency, which would reduce both fuel consumption and emissions.

Another initiative to reduce Noble's impact on the environment is a recycling program in its Gulf of Mexico Division. The recycling program is designed to minimize the amount of waste generated by Noble's offshore rigs, including paper, plastics, post consumer metals and other products.

The company segregates and bags waste offshore and donates the materials to The Arc of Iberia in New Iberia, Louisiana. At The Arc, individuals with developmental disabilities process the materials. In this way, Noble's recycling program provides a valuable community service as well as an effective and responsible method of handling waste.

Noble rigs and locations have recycled more than 1 million pounds of waste materials worldwide since 2002. The company introduced recycling to its Brazil operations in 2003 and is working with clients to expand the scope of its recycling capabilities in all areas of operations.

Supporting improvements

Noble works toward continuous improvement in environmental performance as part of its ongoing efforts to secure and maintain ISO 14001 certifications. This work has the full support of Noble chairman and chief executive officer James C. Day. Along with the company's senior management team, Day participates fully in regular meetings of Noble's Health, Safety and Environment Steering Committee.

In Noble's 2002 Sustainable Global Performance Report, Day wrote: "In most cases, the Company's health, safety and environmental efforts, the genesis for these undertakings, began decades ago. The Company has and will continue to set the standard in our sector for our focus in these critical areas. These efforts have been and will be accomplished in conjunction with providing the highest return on capital in our sector. Being a leader financially is clearly critical in that we can deliver on the commitments in the health, safety and environmental areas."

Cadigan points out that Noble is striving for sustainability in all areas of its operations. "We can easily understand the importance of reducing emissions, minimizing all types of waste and continuously improving our environmental performance," he says.

"We are also working on the important social aspects of our business, such as recruiting, hiring, training and developing people who can succeed in our culture that promotes both individual responsibility and teamwork," he says.

Noble also has an excellent safety record. "Our people have reduced the number of incidents and injuries for the past 11 consecutive years, and have outperformed the industry in safety for 24 of the last 25 years," Cadigan adds.

On key financial indicators, Noble consistently outperforms its peer group. "Our financial strength means that Noble can support initiatives and programs to ensure the safety of our people, the efficiency of our equipment and the continued growth and sustainability of the company," Cadigan concludes.

Harald Bråthen

Mero CR gains from integrated management

Mero CR is a Czech, crude oil transport company that makes use of quality, environment and safety management systems to achieve its defined goals and to gain a competitive advantage in the market.

The Czech State's oil reserves are stored outside Prague, at the Mero Central Tank Oil Facility at Nelahozeves. The reservoirs consist of fourteen tanks, operated by Mero Czech Republic AS, the state owned oil company.

Besides this strategically important task, Mero also runs the country's oil pipelines, supplying the petrochemical industry with 90 percent of its oil consumption. Seven pumping stations and about 400 km of pipelines stretching through the Czech Republic's landscape are operated from Mero's high-technology central at Nelahozeves.

High risk activity

The Nelahozeves industrial area accommodates the most inflammable and high-risk installations in the Czech Republic. Situated behind roadblocks, barbed wire and security guards, the facility represents a strong contrast to the Czech capital and its cultural atmosphere, only 50 km away. Mero tank farm's closest neighbour is Kaučuk Kralupy, part of Unipetrol, the state-owned petrochemical holding company.

In 2001, Czech authorities decided to enlarge the Mero tank farm in Nelahozeves with the addition of four more tanks. The expansion programme is close to completion, with three tanks ready to be commissioned. The fourth tank, with a capacity of 125,000 m^3, is ready for hydrostatic tests. All welded joints were inspected by DNV.

Running Mero's business involves huge risks relating to fire in particular and environmental and safety-issues in general. Mero has defined fire, oil spillage from pipelines and financial risk as the most significant risk factors.

Integrated management systems

Managing risk is vital to Mero in its efforts to become one of the best oil transport companies in the world. In order to handle its complex risk reality, the company has one dedicated person responsible for each type of risk in business operations.

In addition, Mero has invested a lot of money in the Czech Republic's Integrated Emergency System specifically to manage fire risk. In a swap agreement between Unipetrol and Mero, a fire brigade, two pipeline monitors and water cannons are now available for use by both companies.

Mero is certified by DNV in accordance with the ISO 9001 quality management system standard, ISO 14001 environmental management system standard and OHSAS 18001 occupational health and safety management systems standard. The management systems work as one integrated unity.

"DNV's integrated management system services are of great value," says Milan Bednarik, Mero's representative for the integrated system of management. "The range of services DNV can provide is important to us," he says.

The risks facing Mero are cross-linked. Quality affects safety, in the same way as fire will affect the environment and the customer. Therefore, handling the three management system certifications as a whole and not individually has been essential to Mero in its effort to manage its risk scenario.

"Price and quality were of vital importance when we chose DNV as our certification body," says Václav Franc, Mero's chief executive officer. "We are a demanding customer."

Photo: With courtesy of Mero

Mero Central Tank Oil Facility's state oil reserves are located at Nelahozeves, about 50 km from Prague. Situated behind roadblocks, barbed wires and security guards, the facility represents a strong contrast to the Czech capital and its cultural atmosphere. Mero's headquarters are located in between Prague and Nelahozeves, in Kralupy, about 40 km outside Prague, in very modern facilities.

Photo: Ellen Kongsnes

In 2003, Mero received the National Quality Award, handed over by the Czech prime minister. From the left, Václav Franc, Mero's Chief executive manager, CEO and Milan Bednarik, Mero's representative for the integrated system of management.

Risk Based Assessment

Recently, Mero decided to implement a Risk Based Assessment programme which can help measure a company's management system against its specific business goals and risks. Risk Based Assessment (RBA) is a new assessment system used to plan, execute and report from an audit.

While measuring compliance against external standards, RBA analyses to what extent a particular businesses management system is tailored to the company's specified needs and business environment.

Mero has high expectations for its RBA programme. Indeed, the company has already put a great deal of effort into this process, and many believe Mero's programme can benefit other companies which already possess experience with management systems.

"Certificates are good, but improvement is better."

Václav Franc, Mero's CEO

"Since the foundation of Mero ten years ago, the company has invested more than USD 500 million in safety, technology and modernisation," says Václav Franc.

It was governmental requirements related to the handling of risk which led to the partnership between Mero and DNV in 2000. While the company had a risk management system in place as early as 1996, the issue became a top priority in 2000.

Ellen Kongsnes

MERO CZECH REPUBLIC

- State-owned
- Founded in 1994, after the country separated from Slovakia
- Main activities: pipelines and storage
- 125 employees
- Approx. 400 km of oil pipelines

MERO CR CENTRAL TANK OIL FACILITY AT NELAHOZEVES:

- Total capacity: 1.5 million m^3
- Constructed with double walls to prevent leakages
- Inside diameter: 80 metres, Height: 25 metres
- Tank wall thickness: 34 mm at the bottom and 8 mm at the top
- The tanks are equipped with a floating roof

BSP teams with DNV on innovative repair project

"The epoxy sleeve repair method has proven successful and provides us with a good option for cost-effective pipeline repairs in the future," says Naren Ramaiah, head of Brunei Shell Petroleum's engineering pipeline division.

Maximum reliability and a high level of availability were vital factors in Brunei Shell Petroleum's decision to carry out the "world's first" repair of large subsea riser bends without production shutdown. DNV was responsible for development engineering, testing and qualification of the repair project.

The Champion field in BSP is the major oil producer in Brunei. The subsea-pipeline network in the field gathers about 100kbd of oil which is transported via a 85 km long, 508 mm diameter Main Oil Line (MOL) crossing over two riser platforms to Seria Crude Oil Terminal. The 25-year-old MOL is a critical asset, and as such must be maintained in good condition. It has been inspected three times - in 1997, 2001 and 2002 - using intelligent pigging techniques.

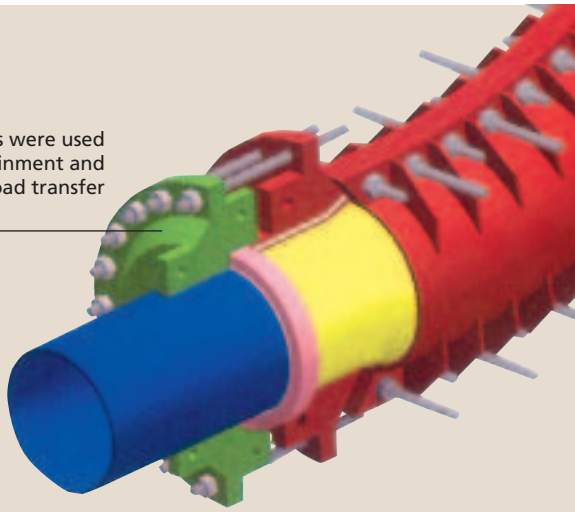
"These inspections revealed internal corrosion in the entire pipeline. Of particular concern was the suspected corrosion in the riser bends, which prompted further localised inspection. Subsea Incotest and Ultrasonic inspections performed in July 2002 confirmed severe internal corrosion defects to the extent of an 8 mm reduction of wall thickness - or about 62 percent wall loss. The defects were assessed the pipeline was declared not 'Fit For Purpose'. Since then, the pipeline has been down-rated and operated under variation, with contingency procedures in place," says Naren Ramaiah, head of Brunei Shell Petroleum's (BSP) pipeline engineering division.

Customised solution

"Several conventional repair methods to replace the bends, such as using hot-tap by-pass, smart flanges and smart plugs, were studied. These methods were promptly rejected as they required the pipeline to be shut down for a minimum of 20 days, incurring a very large production deferment that would adversely affect production targets."

Ramaiah says reputable pipeline repair companies were reluctant to provide a customised solution as they were busy with their standard products The BSP pipeline engineers therefore went back to the drawing board and started from scratch. Repair by means of clamps is the best known non-shutdown option. Standard available repair clamps were mainly limited to straight sections of pipeline, with only a few small sizes for bends due to the design constraints. Thus a new subsea epoxy grouted sleeve repair was conceptualised, designed to contain the leak by providing a bolted sleeve, with loads transferred by the annulus filled with epoxy grout.

The 2 half sleeves, weighing 6 tons and 5 m in length, were supported on an A Frame prior to installation



PTFE and Graphite Seals were used for leak containment and Epoxy grout for load transfer

Ramaiah explains, "Epoxy grouted sleeve repair is a mature technology for above-water repairs of external corrosion defects, but it has not been widely applied under water and has never been used for subsea 'bend' repairs with internal corrosion. As the internal corrosion is expected to continue, the design challenge was to factor in further anticipated wall corrosion. The other challenge was to exactly fit the sleeve to provide leak proof seals and also to transfer the fully corroded riser loads to the sleeve."

For internal corrosion metal consumption, a carbon steel "wear" plate, which was fabricated to match the bend profile, was fixed on the defect location using underwater epoxy putty and fibreglass tape. The wear plate installation was utilized as the interim repair.

Innovative approach

"Precise knowledge of the existing subsea bend geometry was essential for the design, so divers using specially designed jigs took measurements of the bends," says Ramaiah.

Riser flexibility analysis determined the end loads acting on the bend, which included pressure, temperature, pipeline expansion, platform deflection and hydrodynamic loads on the riser. Finite Element Analysis techniques were used to perform stress analysis to determine suitable wall thickness for the epoxy grouted sleeve and the sealing flanges. The design of end and longitudinal seals required a series of tests to be conducted for the selection of the deal material and configuration.

Commenting on DNV's role in the project, Chia Meng Teck says, "We were approached by CorroShield to provide a solution to repair two risers making use of their proprietary epoxy grout and FRP wrap. Unlike most pipeline and riser sleeve repairs, this was to be carried out on riser bends with internal corrosion. The concept of epoxy grouted sleeve with 'wear plate' repair was presented to BSP in competition with other repair methods.

The repair concept was selected as the best opption and the contract was awarded to CorroShield, a Malaysian company, through Joffren Omar, a Brunei contractor with extensive experience working with BSP, to coordinate and manage the repair work."

According to BSP surveys, this repair technology was a "first" in the world for a large diameter and radius subsea bend. Design validation was conducted by a full scale mock test for verification of strength and constructability. The mock test was performed in a special tank fabricated for the purpose and successfully held the required test pressure of 108 bar.

The subsea bends repair was carried out by divers specially trained for the purpose. All the installation procedures were practised on the deck before diving. Manoeuvring the 5-metre-long, 6-ton sleeves into position was a difficult task. Rigging was done from the helideck and subsea tug wires were winched to bring the clamp into position. The installation aids and live MOL were padded with rubber and soft rope to make the MOL resistant to accidental impact.

The complete installation took over a month owing to adverse weather conditions, and involved around 200 hours of diving time. The whole project was safely and successfully completed without the need for a shutdown.

"Successfully implementing a challenging project of this magnitude, which took eight months from design development to completion, is a great achievement," says Ramaiah. "This work could not have been done without the full commitment of the internal project teams, CorroSheild, Joffren Omar and DNV. We firmly believe this repair method provides us with an economical option for future repairs."

Stuart Brewer

EFQM and DNV to collaborate on responsible corporate citizenship

A handshake between Alain de Dommartin (left) chief executive officer of EFQM, and Miklos Konkoly-Thege, president and chief executive officer of DNV, seals the partnership agreement.

A partnership between DNV and EFQM aimed at promoting responsible corporate citizenship was recently announced in Paris. Alain de Dommartin, chief executive officer of EFQM, and Miklos Konkoly-Thege, president and chief executive officer of Det Norske Veritas (DNV), signed a memorandum of understanding aimed at promoting responsible corporate citizenship through the effective use of leading-edge management practices.

There are over 30,000 organisations which use the EFQM Excellence Model to improve their business. The EFQM Excellence Model is reviewed and developed to meet industry needs as well as to incorporate the latest management trends. DNV will contribute by working with EFQM to develop a framework on risk management based on the EFQM Excellence Model.

"We see many synergy opportunities in this partnership," says Miklos Konkoly-Thege. He is supported by EFQM's Alain de Dommartin, who believes that risk management is a key element in today's business. "We believe that this partnership will further enhance the knowledge and resources for those who are trying to improve their business," He says.

DNV and EFQM recognise that their organisations share similar goals and that their resources and competencies are complementary. DNV and EFQM are both independent network-based foundations with a global reach. Both are committed to changing managerial behaviour while promoting good business practices, taking into account social, economic and environmental issues.

DNV secures major contract for the Royal Australian Navy

12 Royal Australian Navy patrol boats ordered to DNV Class

DNV Australia has signed a contract with Austal Ships in Fremantle, Western Australia, to build the next generation of patrol boats for the Royal Australian Navy (RAN).

Work will commence in April 2004 with delivery of the first boat scheduled for February 2005 and the remaining boats delivered through to April 2007.

The boats are 56.8m overall length, 7.95m breadth and 5.0m depth with a maximum speed of 25 knots. Power is supplied by 2 x 16V4000 series engines from MTU.

Concept illustration: Austal Ships

According to Michael Fletcher, DNV Maritime's regional manager for Australia and New Zealand, this is a major breakthrough contract for DNV Australia and the RAN firmly establishes DNV's credentials in the local naval scene. It is also the culmination of many years of close cooperation with the project's respective partners, Austal Ships and RAN.

DNVPS appoints new managing director

Per Holmvang has succeeded Rex Lim as the managing director of DNV Petroleum Services following the latter's recent retirement.

Holmvang, 49, joined DNVPS as a research scientist in 1985 and was the regional manager for Scandinavia and the Nordic countries before taking up his latest appointment.

With an MSc. in physical chemistry, Holmvang is actively involved in industry-level initiatives, including the study of heavy fuel oil ignition and combustion properties, development of new test methods for marine fuels, determination of fuel contaminants and the capping of sulphur content in bunkers.

Holmvang is also a frequent speaker at international marine conferences and a representative of ship operators' interests in working groups organised by the ISO, CIMAC, Marine Environment Protection Committee (MEPC) and the Institute of Petroleum.

Per Holmvang (far right) seen here with Capt. Rahul Choudhuri, DNVPS regional manager for Asia Pacific & Australasia and Dr Siew Fah Tsai, DNVPS Singapore laboratory manager.

Quality certificates awarded to Ferrari and Maserati

DNV has awarded ISO 9001:2000 certificates to the Italian luxury car manufacturers Ferrari and Maserati. During the recent Quality, Purchasing and Technology Ferrari and Maserati Convention, DNV officially delivered the ISO 9001:2000 certificates to representatives of Ferrari and Maserati. The Convention was held in December at the Maranello Ferrari plant.

DNV's institutional relation manager in South Europe, Leonardo Omodeo Zorini, and DNV Italy's North-West district manager, Nicola Privato, handed over the certificates.

Both certificates cover design, manufacture, sale and after-sale of GT cars. Both companies have a long tradition for quality. Ferrari received its initial Quality Management System Certification in 1996, while Maserati received theirs in 2000.

As a result of the production process improvement, there has been a sensible reduction of waste, pollution and non-profitable activities. The emphasis on improvement and innovation also led Ferrari and Maserati to implement Environmental Management Systems certified by DNV in 2001 and 2003, respectively.

"The achievement of becoming certified to the ISO 9001:2000 standard confirms their intention to further raise the quality standard for both companies," says Leonardo Omodeo Zorini in DNV Certification.

From left to right: Quality manager Ferrari and Masarati, Cecchi Probo and Ferrari and Maserati general manager, Felisa Amedeo. From DNV: District manager, Nicola Privato and head of department, Leonardo Omodeo- Zorini.

DNV accredited by UN Climate Change Panel

DNV is the first company to be accredited by the UN Climate Change Panel to validate projects undertaken by companies based in industrialised countries which invest in climate change initiatives in the developing world. The accreditation consolidates DNV's strong position in the international climate change arena.

Facing the severe consequences of global warming, the UN Climate Change Panel was established to manage climate change issues. The so-called flexible mechanisms of the Kyoto Protocol provide for transferable credits from greenhouse gas emission reduction projects.

One of these is the Clean Development Mechanism (CDM). This mechanism allows industrialised countries, or companies based in industrialised countries, to receive credits for financing reduced emission projects in developing countries. In this way, developing countries gain a new source of financing their sustainable development, whereas companies in industrialised countries can supplement their commitments to reduce emissions at home.

The CDM Executive Board, appointed by the participating members of the UN Framework Convention of Climate Change (UNFCCC), yesterday accredited DNV for validation of climate change projects. Validation is a mandatory assessment of the design of a project against defined requirements, conducted by an independent verifier. DNV is the first and (so far) the only company accredited for validation services related to renewable energy, energy efficiency and landfill gas capture projects.

"The accreditation marks an important milestone in DNV's efforts to become a world leading provider of climate change services," says Einar Telnes, technical director in DNV. DNV has developed methodologies to secure credible audits, and is already accredited under both the Californian Climate Action Registry in the US and the UK Emissions Trading Scheme.

Stefano Crea, global food manager in DNV Certification.

DNV listed as private control body

DNV Certification has been recognized as a private control body for three quality mark food standards. The three quality marks released by the European Community intend to protect products that are linked to a specific region, such as Parma ham, Feta cheese or specific olive oils or beers. The marks give consumers confidence in product authenticity.

Three quality marks

The license was granted to DNV last December by the Italian Ministry for Agriculture and Forestry. At the same time, DNV was added to the official list of private control bodies for three quality mark standards:

PDO (Protected Designation of Origin)
Covers foods that are produced, processed, and prepared in a given geographical area using recognised regional expertise.

PGI (Protected Geographical Indication)
Mark given to products where the geographical link must occur in at least one of the stages of production, processing, or preparation.

TSG (Traditional Speciality Guaranteed)
This mark does not refer to the origin of the product, but highlights traditional character, either in composition or in the means of production.

Ensuring product quality in the European Community

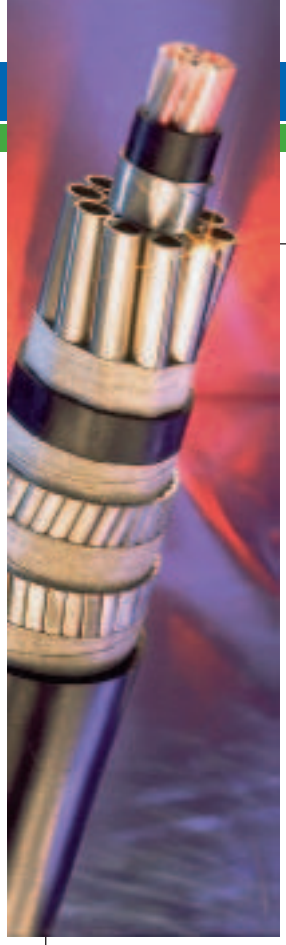
The three quality marks were introduced by the European Community in 1992 with the intention of protecting the local products within the community to:

- Encourage diverse agricultural production
- Protect product names from misuse and imitation
- Inform customers about a products' specific character

Italian offer only

At present, DNV only offers this service in Italy. An expansion to other European countries is possible in the near future. Many food associations and food protection consortiums have already shown interest in the marks.

"We're confident we will be able to combine the DNV name with some of the most typical and well-known Italian foods, an effort we have already had some success with," says Stefano Crea, global food manager in DNV Certification.



DNV set to prepare umbilical guidelines

Working with suppliers and oil companies, two of Norway's leading manufacturers of umbilicals, Nexans and Kværner Oil Products, have started an initiative to prepare an umbilical manual with DNV.

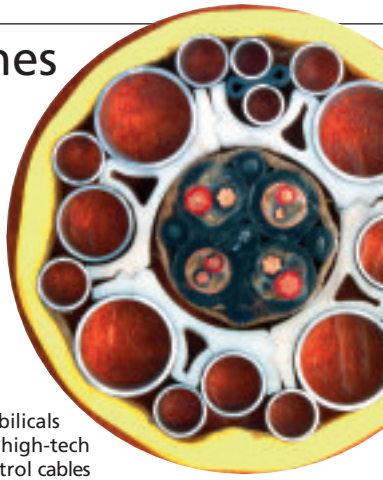
Over the past few years, DNV has carried out many projects involving utility umbilicals, including design verification, materials technology and full-scale testing. While API and ISO have developed the standards that are most frequently used today, DNV does not consider itself to be in competition with these organisations.

Recommended Practice

"The existing regulations in this field are not perfect," says Kim Mørk, head of the Technology Services Section. "Our intention is to fill in the missing specifications and standards pieces, using the joint experience gained during the JIP." DNV intends to issue a Recommended Practice, designed as a supplement to the existing standards. The JIP team has been asked to contribute with both economic funding and its experience relating to the manufacture and operation of umbilicals.

An important market

According to Kim Mørk, the rapidly growing umbilical market is an attractive market for DNV to play a more active role in. "The umbilical work group is a tool towards achieving this target," he says. "DNV's strategy is to double its activity in the umbilical market by the end of 2005 compared to its position in 2003". Nexans and Kværner Oilfield Products currently control 40 percent of the umbilical market.



Umbilicals are high-tech control cables where electrical and optical signals, together with control fluids and produced fluids, are transferred between sub-sea installations and the facilities at sea level. For existing and future sub-sea oil and gas applications, umbilicals are one of the most critical components of the control systems.

Photo: Courtesy of KOP and Nexans

DNV secures Conoco pipework contract

DNV Technology Services in Aberdeen has recently won a pipework integrity contract with Conoco Limited to provide services at the company's Humber Refinery in eastern England. The project completes the inspection of all Humber Refinery piping systems (16,000 in total) within four months.

"This project is based on the API 570 Piping Inspection Code," says project manager Donald Payne. "The project involves the inspection of all Humber Refinery piping systems that have not been inspected by other programmes since 2001, in order to add to confidence in the condition of the refinery's pipework and provide baseline data for use in the RBM programme."

DNV provides an integrated service to Conoco, including project and integrity engineers from its own resources and other services. The current workforce is made up of 78 full-time personnel on-site and 10 part-timers off-site.

"DNV provides project and integrity engineers, plus inspectors, rope access technicians, scaffolders and laggers sub-contracted by DNV. The use of rope access technicians to remove lagging instead of conventional scaffolding, accompanied by rope access ultrasonic technicians, has resulted in considerable cost savings," says Payne.

Kvitebjørn. Photo: Courtesy of Statoil

DNV provides pipeline inspection services to Statoil

DNV Technology Services has been awarded a worldwide frame contract with Statoil. The contract covers inspection services for offshore pipelaying and the follow-up of components for the next two years, with one-year options to extend the contract.

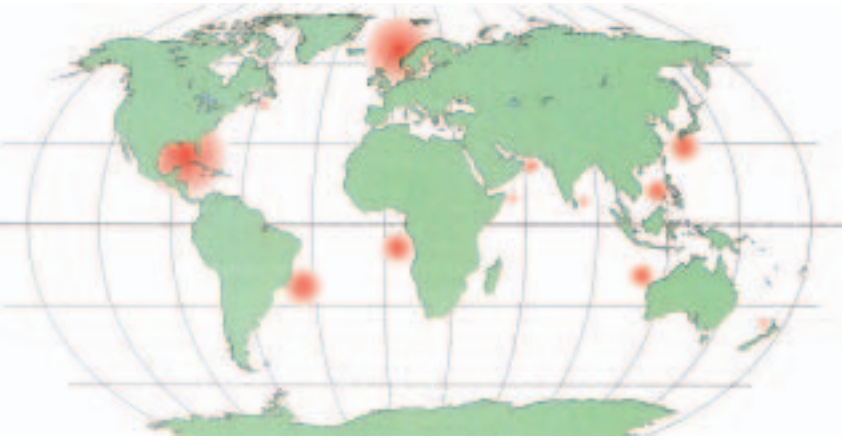
The contract awarded covers two areas; inspection services offshore and inspection services for the onshore components.

After receiving bids from many large international companies, Statoil selected DNV as one of two suppliers based on DNV's experience and cutting-edge knowledge of pipeline technology. Since the contract includes both the offshore and component aspects it may expand DNV's involvement with Statoil, when only offshore installations were covered.

"Now we will also be involved in the follow-up of components, worldwide," says project manager Ove Høiland. "Over the next two years, Statoil will have a very high level of activity in this segment." Høiland adds that DNV's main goal for this contract is to give the client the best possible quality and flexibility.

DNV will be in part responsible for laying the Kvitebjørn pipeline, a role which involves the same services now included in the frame contract. From now on projects like this will be covered by the frame agreement. The work at Kvitebjørn has already started and is scheduled for completion by the end of May.

Mexican standoff: Is PEMEX ready for increased foreign investment?



Hot spots: The US Gulf of Mexico remains the world´s largest single offshore market.

Today, Mexico's state owned oil company Petróleos de México (PEMEX) has full responsibility for exploration, production and distribution of the nation's oil and gas. Yet due to the pressures of the global marketplace and recommendations from the World Bank which encouraged foreign investment, Mexico's oil industry is expected to change.

In a recent article published in *Energy Pulse*, Jeremy Martin, The Director of the Energy Program at the Institute of the Americas, says that he believes that the Mexican oil industry is at a critical juncture for the economy of the country. "While Mexico has for some time seen important results and growth … critical issues remain to be dealt with if Mexico is to truly consummate the positive potential of recent years."

One third of the federal income

The energy sector plays an important role in the Mexican national economy. It provides about 30 percent of the gross national product, but represents eight percent of the total Mexican exports. When it comes to federal income and total investment, the figures are much higher. The energy sector provides 37 percent of the federal income and 56 percent of its yearly budget on energy related investment.

Mexico recently lowered its reserve estimate to 20 billion barrels from 60 billion barrels originally forecasted. With the same production as last year, the reserve life will be a disturbingly short - only 13.7 years. Mexican authorities have already taken action to revise upwards this estimated reserve life and have established a growth strategy to achieve 100 percent replacement, offsetting production with new reserves addition by 2006.

To help achieve this goal, greatly increased drilling activities are expected to take place offshore Mexico in the months and years to come. This effort will require increased foreign investment, a strategy that has already been embraced by PEMEX. "PEMEX has implemented a new strategy of hiring specialized companies to perform a wide variety of service under a new type of contract," says Martin. "The Multiple Services Contracts were first issued in 2003. They indicate a step in a new direction even if they do not grant exclusive exploration or production rights or ownership of oil and gas for the foreign companies."

High expectations

In mid 2001 only five drilling rigs were operating on the shelf. Today some 40 rigs are drilling regularly and another 15 to 20 units are likely to start drilling by mid 2004. Approximately 140 – 250 offshore wells are expected to be drilled per year through 2006 to offset production declines and increase production to the desired level.

Analysts have high expectations for new discoveries. Mexico's deepwater areas are relatively unexplored. The northern part of the Mexican shelf has seen less than 10 percent well penetrations so far compared to the other side of the border – the US Western Gulf of Mexico. Considering the geology of the region, the Northern Mexico offshore region is clearly a favourable option at this point in time.

Achieving the goals set by PEMEX will be challenging and require a significant increase in drilling activity and capital spending compared to prior years. However, PEMEX has indicated they are committed to growth, and most analysts are confident that the company will manage this change successfully.

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