

ClassNK

MAGAZINE

66TH EDITION

- *In the vanguard of LNG innovation*
- *Attention to detail vital in China*
- *ECDIS advice in the Philippines*
- *Ship recycling and global issues*



bringing out the best in maritime

Welcome to the 66th edition of ClassNK Magazine.

This edition comes at an important time, one in which the industry is undergoing great change. This change comes in many forms: a constantly changing market, the introduction of ever more stringent international conventions and developments such as the merger of DNV and GL. Rest assured, however, our policy of providing excellent services and our commitment to the maritime industry will not change.

We will continue to offer services of uncompromising quality while teaming up with industry partners to research and develop innovative technology for the benefit of the entire maritime community. Just as our dedication to excellence has earned us the top spot for classification societies in the past, we are confident that it will lead us there again.

“ *Against a constantly changing backdrop, ClassNK’s purpose remains firm* ”

In the pages of this magazine, we will introduce some of ClassNK’s efforts to this end, as well as provide a look into some of the projects we are conducting with our valued partners and clients. As we touched upon our European activities in our previous edition, in ClassNK Magazine 66th Edition we have given particular focus to our efforts in Asia.



Against a constantly changing backdrop, ClassNK’s purpose remains firm. As the pages of this magazine will attest to, whether it is through our endeavors related to alternative fuels, support for implementation of the newest conventions, or proactive participation in the research and development of groundbreaking technology, we will continue forward with our dedication to bringing out the best in the industry.

I sincerely hope you enjoy this edition of ClassNK Magazine.

Noboru Ueda
Chairman and President of ClassNK

ClassNK

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ClassNK

what's in store for LNG?

The emergence of liquefied natural gas as a marine fuel is the latest demand boost for an energy source whose prospects have been exciting forecasters for a decade. ClassNK is in the technical vanguard, pushing into new territory on LNG carrier design.

As emissions regulations tighten and other fuels prove harder to secure, LNG's availability and low environmental impact mark the energy source out as vital ingredient in the power market mix for the long term. That demand has consequences for the ships designed to carry out its transportation.

'Standard' specifications for LNG carriers are once more taking a leap, from storage capacities of 155,000m³ per ship to 170,000m³. While only 8% of the operational fleet offer 170,000m³, around 85% of the ships on order are of this size.

Again, the duties of the LNG carriers of tomorrow will be more demanding than has been the case to date, as demand rises, gas recovery pushes on into harsher environments, and more remote locations require greater flexibility in floating loading options.

Remaining at the forefront of technological development in the specialized LNG transportation sector is thus a key strategic goal for ClassNK, demanding close working relationships with the innovators of the industry.

Continuous cover

Mitsubishi Heavy Industries, Ltd. (MHI) has received orders for the newly developed "Sayaendo," a 155,000-m³ next-generation Moss-type LNG carrier.

Sayaendo retains the reliable configuration and sloshing

resistance of spherical tanks. However, in conventional Moss-type LNG carriers, the upper half of the spherical tanks above the ship's deck is covered by a semi-spherical dome and the lower half under the deck is supported by a cylindrical skirt structure. In contrast, the *Sayaendo* configuration employs a continuous cover to house all tanks entirely. Its integration in the hull reinforces the ship's overall structural strength while reducing weight.

After receiving an order for two ships in October 2011, to date MHI has received orders for seven *Sayaendo* series carriers in total, with the latest placed in June 2013.

The *Sayaendo* concept has quickly established itself as a force in LNG transportation, not least due to 'eco' credentials that stem from MHI's latest ultra steam turbine plant (UST). The UST achieves higher thermal efficiency than conventional steam turbines through a reheating cycle. The continuous cover also improves aerodynamics by substantially reducing longitudinal wind force, which serves as a drag on the ship's propulsion, contributing to reduced fuel consumption during actual operations at sea.

Together, hull form optimization with the weight reduction and improvements in propulsion performance will achieve a more than 20% reduction in fuel consumption compared with conventional steam turbine-driven ships.

In this case, too, one of the project's central objectives has been the reduction in boil-off rate (BOR) caused by

heat ingress into the LNG storage tanks. MHI reports that the thickness of the spherical tank's thermal insulation can be altered to optimize BOR according to operational requirements. Instead of a typical BOR of 0.15%/d achieved in conventional LNG carriers, the *Sayaendo* is capable of 0.080%/d, below even the 0.10%/d recently adopted as the accepted industry standard for 'low boil-off rate'.

Comprehensive fatigue strength evaluations on *Sayaendo*, the first ship constructed with continuous tank cover, has been performed and it has been verified as possessing sufficient fatigue strength. ClassNK anticipates that its design, which advances Moss-type LNG carriers and considers the environment, will become a milestone for future LNG carriers, and it will prove beneficial to the industry.

Room to grow

Kawasaki Heavy Industries, Ltd. (KHI) has addressed the development of Moss-type LNG carrier with enlarged cargo tanks.

KHI has developed a vessel that possesses cargo tanks of 177,000m³ capacity, part of KHI's series of vessels ranked as the world's largest Moss-type LNG carriers. The first vessel of this type was delivered in 2011, and the second in 2013. As the vessel has inherited the features of Kawasaki's 147,000m³ LNG carrier, including high propulsive performance and a conventional hull size, it is able to enter the world's primary LNG terminals, combined with its ability to carry significantly more LNG with its larger cargo tanks.

This ship is equipped with an advanced reheat steam turbine plant in the main engine for the first time. Dubbed the Kawasaki URA Plant, the turbine plant employs a reheating cycle to return the steam used in the high pressure turbine to the boiler, where it is reheated and sent into the intermediate pressure turbine. This allows high thermal efficiency to be achieved, with fuel consumption improving by 15% compared to conventional steam turbine plants.

Aiming for a further capacity increase in this class of LNG carrier, KHI has also completed development of a

182,000m³-type vessel that utilizes stretched construction. In addition, KHI is currently building its first LNG carrier of new Panamax size—164,700m³—the largest size of Moss-type LNG carrier that can navigate the new Panama channel (which is presently under construction). This is also its first LNG carrier achieving the lowest BOR of 0.08%/d.

Flexible approach

Gaztransport & Technigaz (GTT) has developed a ground-breaking membrane-type cargo containment system called Mark III Flex.

In June, GTT Chief Executive Berterottière received ClassNK Approval in Principle of GTT Mark III Flex from Tetsuya Kinoshita, Managing Director, ClassNK.

Mark III Flex offers an increase in the insulation strength by increasing the panel foam density which provides higher compressive strength. Bond strength has also been improved, through the application of polyurethane glues and latest bonding procedures.

The 'Flex' part of the solution centers on the foam density, which can be increased from 130kg/m³ to 210kg/m³, depending on the performance requirements envisaged for the LNG carrier.

At higher foam density, the insulation thickness can be increased to up to 400mm in order to compensate for lower thermal performance. If, however, foam density remains at the standard 130kg/m³, the increased insulation thickness acts to provide a lower boil off rate.

The approval marked the formal conclusion of an exhaustive review by ClassNK of GTT technical documents, issued after an extensive justification program covering strength and fatigue tests, bending and impact tests, and also Finite Element Model analyses, materials qualification and a large scale mock-up.

Mr Berterottière described the formal recognition as "an additional milestone in the relationship between our companies and beyond, with the whole Japanese LNG community".

fuel with a future

ClassNK is taking a leading role in bringing the potential of liquefied natural gas as a fuel to reality in mainstream shipboard applications.

Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL) restricts fuel sulphur content to 0.1% in Emissions Control Areas from January 2015. Globally, sulphur content in marine fuels is scheduled to be limited to 0.5% from 2020, depending on an IMO assessment of low sulphur fuel availability due completion in 2018.

Meeting such restrictions is understandably an industry preoccupation. Liquefied natural gas (LNG) is increasingly worthy of consideration as a marine fuel, given the scarcity of distillates, and cost and size concerns over alternative exhaust gas scrubbing technology.

LNG's environmental attractions have long been clear: when burnt as a ship fuel, its SO₂ and particulate emissions are negligible, while NO_x emissions are around 10-20% of the equivalent heavy fuel oil (HFO) burn. Even in the case of CO₂, burning LNG generates 25% less greenhouse gas emissions. LNG is also easier to use as a marine fuel than other gases.

The price of the HFO predominantly used by ship engines is expected to rise, but is perhaps most notorious for its volatility. While by no means cheap, natural gas by comparison offers the attraction of price fluctuations within a fairly predictable band.

Respected consultant Poten & Partners has estimated global consumption of LNG as a marine fuel reaching 8.5m tonnes by 2025. Other studies, using different modelling, have suggested that consumption will have reached three times that level within the same period.

Four stroke marine engines with the capability to burn HFO and gas (dual fuel) are widespread in the offshore support vessel industry in North Europe. There are also



around 50 deep sea LNG carriers with dual fuel four-stroke engines currently in operation, with additional vessels of this type on order.

Small coastal vessels including a number of North European ferries are also powered by LNG alone, with use of the fuel expected to increase in the near future.

On top of the simple inertia created by a standing fleet running on HFO, shipping's well documented conservatism makes it resistant to a wholesale transition to mainstream LNG fuelling. After all, building a new ship that runs solely on gas requires an upfront investment exceeding that required for a conventional ship. Another basic stumbling block is the lack of available LNG bunkering infrastructure; yet another is the fact that the rules for use of LNG as a marine fuel are yet to be finalized.

Japan's Ministry of Land, Infrastructure and Transport (MLIT) has fast-tracked technological development and safety in LNG-fuelled ships as a strategic target for shipbuilding starting one year ago.

The Ministry's over-arching strategy has also been reflected in detailed supporting work from ClassNK, which has emerged both in practical proposals to convert design goals into realities and in a leading role on LNG fuelling standards for the Japanese delegation at the International Maritime Organization (IMO).

The IMO has developed the International Code of Safety for ships using gases or other low flash-point fuels (IGF Code) to govern safety aspects of the application of gases or other low flash point fuels for propulsion and auxiliary purposes.

Supported by ClassNK, Japan's IMO delegation holds key positions in the relevant IMO committees promoting the international standardization of fuel storage and handling onboard gas-powered ships, as well as developing safety assessment procedures covering the assessment of hardware used for high pressure fuel gas supply, roll-over and inspection.

“ It is essential that all of the relevant practical regulations are established as soon as possible ”

Exemplary of the leading role taken by ClassNK on the issue have been its latest guidelines covering requirements for the design of LNG-fuelled ships, which draw on NK's experience and expertise to provide an informed interpretation of the current draft of the IGF Code. The guidelines provide comprehensive information on key design features including bunkering, hull structure, fire safety, and explosion prevention measures.

“One of our most important missions as a classification society is to help ensure the safety of shipping as the industry looks to ways in which it can reduce its carbon footprint,” says ClassNK Chairman and President Noboru Ueda. He adds: “These new guidelines have been compiled based on our vast array of technical expertise and experience. We hope to provide practical guidance for shipyards, manufacturers, owners, managers, and operators looking to prepare their fleets for a safer, greener future.”

Koichi Nishifuji, ClassNK Manager of Natural Resources and Energy Department, says ClassNK “continuously strives” to contribute to the sector, based on its wide experience in the LNG carrier technology sector. He outlines a range of ClassNK further research and development underpinning ClassNK's contribution on LNG-fuelled ships.

These include:

- ◆ Practical use of LNG as a fuel for ocean going ships
- ◆ Practical use of LNG as a fuel for tugs
- ◆ Risk assessment for high pressure systems feeding into two stroke dual fuel engines
- ◆ Deck arrangements for LNG storage using prismatic type B fuel tanks
- ◆ Feasibility study into LNG fuel tank types and materials in general

Mr Nishifuji suggests that there is a clear need for urgency in developing globally acceptable standards on the use of LNG as a fuel. “Giving special consideration to ships operating in limited areas will contribute to the adoption of LNG as a fuel, but it is essential that all of the relevant practical regulations are established as soon as possible,” he says.

“There are also pressing matters on the technical agenda. The basic shipboard LNG technology is already established, while the infrastructure required for bunkering will be deployed progressively – fuel supply by bunker ships to larger vessels looks practical, for example.

However, challenges remain. Tank capacities need to be increased, for example, to take into account the fact that LNG requires twice the capacity for storage to achieve an equivalent calorific value as HFO. As well as presenting a handling issue, this will have an impact on cargo capacity and on gross tonnage. As far as safety is concerned, in addition to existing procedures around handling gas, fuel tank position, and segregation and dimensions all need to be carefully scrutinized.

“It is clear that the cost of the associated technology needs to be reduced, its reliability in day-to-day operations must be enhanced, and shipboard systems must be made more compact,” says Mr Nishifuji.

“There is also a need to enhance training that is specific to new LNG storage and fuelling operations onboard. It is possible that crew numbers will have to increase, but what is certain is that standard procedures need to be established onboard for the crew that are acceptable around the world.”

looking ahead in China

ClassNK has developed a particularly close working relationship with Aoxing Shipmanagement (Shanghai) Ltd and the cooperation is set to continue for many more years.

Aoxing Shipmanagement (Shanghai) Ltd, the technical operating subsidiary of Sinochem Shipping, China's leading shipping company which provides liquid chemical products' transportation and ship management services for deep sea and domestic shipping, started its cooperation with ClassNK in 2000.

"Since then we have furthered our relationship in terms of technical consultation, ship surveys and project cooperation," says Aoxing Shipmanagement (Shanghai) Ltd General Manager Zhu Wu.

"In particular, ClassNK has proven experience of chemical tankers, particularly for clad steel, and should we have any problem with strength, stress and force our immediate course of action is to consult them.

"But, of course, ClassNK's cooperation with the Chinese group goes further and encompasses a number of key areas," says Captain Zhu. "Over the course of the last two years ClassNK and Sinochem have produced a number of particularly useful technical roadshows and workshops on key topics including ballast water management, ventilation systems and pressure/vacuum valves and, in so doing, have enabled shipowners and operators to keep abreast of the latest technical information.

"With regard to the road shows and workshops undertaken with ClassNK, I have been most impressed with the focus and attention to detail on ballast water treatment and also on the newly

adopted requirements for cargo tank pressure valves to comply with the test criterion for Apparatus Group IIA IIB IIC.

"Each of the workshops was held in our Shanghai office. We highly appreciated the main content and guidelines discussed and concluded during the road shows and workshops and we have and will continue to integrate these into our practical management working practices. Sinochem and ClassNK are currently planning specific joint training initiatives—I hope these will happen in the future."

Aoxing Ship Management (Shanghai) Ltd manages 40 Sinochem tankers and employs 15 masters and 14 chief engineers for the purpose. The fleet has experienced appreciable expansion, particularly since 2006, in line with its strategic goal to expand its size, established a sound ship management system and become a reliable and competitive service provider for companies looking to transport bulk chemicals by sea.

Sinochem Shipping was established in 1994 as Hainan Sinochem Shipping and registered in Hainan Province. Having started with three small tankers and maintained this scale until 2001, the fleet has expanded substantially and now comprises 63 tankers. Sinochem Shipping has also established two joint venture companies, focusing on short sea operations through Sinochem-STOLT and on chemical tanker trade in the Australia-New Zealand market through Dorval SC Tankers. The venture with Sinochem-STOLT dates to March 2005 and to March 2012 with Dorval SC Tankers.



FACT FILE

◆ **Name:** Zhu Wu

◆ **Age:** 45

◆ **Education:** Shanghai Maritime University
September 1985 to July 1989

◆ **Working experience:**
Chemical tanker master - April 2001 to March 2009
DPA of Aoxing - November 2003 to February 2006
DGM of Aoxing - March 2006 to February 2007
GM of Aoxing - February 2007 to February 2010
GM of Aoxing - August 2012 onwards



Sinochem-STOLT operates 11 vessels, all under the Chinese flag and focusing on domestic trading, while Dorval SC Tankers, with 13 owned or operated vessels, is engaged in deep sea trading.

The establishment of the first joint venture, Shanghai Sinochem-Stolt Shipping Company, dates back almost a decade. "We did not encounter any appreciable legislative obstacles which impeded the establishment of the joint venture though communication and consultation with the pertinent government authorities in advance of the process contributed greatly to everything running smoothly.

"During the initial stage of our fleet expansion we ordered and acquired newly built ships before acquiring a number of secondhand vessels. Each of the owned/operated vessels is an oil/chemical tanker ranging in size from 3,500dwt to 45,000dwt, allowing us to offer a host of flexible logistical solutions our customers," says Captain Zhu.

Sinochem-Stolt is predominantly engaged in domestic trading with renowned customers including BASF, the world's leading chemical company and oil majors BP and Shell. Dorval SC Tankers focuses mainly on ocean routes between the Far East, Australia and New Zealand.

"We have a 51% stake in Shanghai Sinochem-Stolt Shipping Company, with our representative assuming the role of General Manager, and a similarly-sized holding in Dorval SC Tankers where our representative has the title Deputy General Manager," says Captain Zhu.

"The most important aspect of my role as General Manager of Aoxing Ship Management (Shanghai) Ltd, in my perspective, is to ensure the overall performance of the entire fleet to satisfy the established key performance indicators, which consist of safety performance, environment protection performance, vetting inspection performance and customer satisfaction performance.

"My aim, as General Manager, is to establish competent, reliable and dedicated shore-based ship management teams, which constitute the cornerstone for our further development by sustainable means. Furthermore, the General Manager's role is to proactively implement the role as trainer or coach, to instill the entire management concept to all employees and monitor the extent of their compliance."

Aoxing Ship Management (Shanghai) Ltd currently comprises five departments – Marine, Technical, Crewing Safety, Quality Assurance and Purchasing, employing a total of 56 staff including 12 former master mariners and 12 former chief engineers as marine and technical superintendents.

"I am not sure whether ClassNK was the first of the major Japanese companies to enter the maritime industry in China," says Captain Zhu, "but I am sure they have been, and remain to be, one of the pioneers penetrating the market.

"I expect Aoxing Ship Management (Shanghai) Ltd to develop into a more professional, competent, reliable and cost-effective technical operator in the next ten years and, having set the solid foundation for cooperation with ClassNK, I am convinced the relationship will be enhanced further as we expand our fleet."



industry partnership: going green in Singapore

ClassNK's commitment to supporting global maritime industry Research and Development (R&D) is particularly strong in Singapore.

ClassNK is an active participant in the Maritime and Port Authority of Singapore's (MPA) Maritime Singapore Green Initiative, which seeks to reduce the environmental impact of shipping and related activities and to promote clean and environmentally-friendly shipping in Singapore. The MPA pledged to invest S\$100 million over a five-year period in the Maritime Singapore Green Initiative. ClassNK is also a signatory to the Maritime Singapore Green Pledge, where organizations come together to pledge their commitment to promote clean and green shipping in Singapore.

Noboru Ueda, ClassNK Chairman and President, is a member of the Singapore Maritime Institute (SMI)'s 16-member International Advisory Panel that provides strategic input and guidance for SMI in the areas of maritime research and development (R&D) and manpower development. In particular, the Society supported the SMI secretariat's survey of R&D facilities in Japan and it subsequently joined a joint industry project with the National University of Singapore, Petronas Carigail Sdn Bhd, Tata Steel and others in R&D on the static and fatigue strength on steel offshore platforms of tubular joints reinforced with ultra-high performance grout.

In addition, ClassNK is collaborating with the Energy Research Institute at Nanyang Technological University on the development of the Zero Emission Desulphurisation Process for Maritime Applications (ZEDSMart). The project is partially supported by MPA through its Maritime Innovation and Technology (MINT) Fund. In addition, ClassNK is collaborating with the Institute of High Performance Computing (IHPC) on analyzing fatigue phenomena in the maritime sector.

The second phase of the Joint Industry Project on *Static and Fatigue Strength of Tubular Joints Reinforced with Ultra-High Performance Grout* for steel offshore platforms started in January 2013 and is scheduled to be completed in December 2014. The purpose of the project, led by Professor Yoo Sang Choo of National University of Singapore, is to develop appropriate formulations for joints subjected to brace tension or compression, with associated investigations into chord stress effect, and verify the behaviour and joint formulations with experimental tests and numerical parametric studies.

Structural integrity assessment of steel offshore platforms requires cost-effective and efficient engineering solutions

to strengthen and repair the critical structural components. With increasing emphasis placed on the safety of offshore platforms during operation and under extreme environmental conditions, reinforcement schemes of the critical tubular joints through a reliable engineering approach become increasingly important to prevent fatigue crack initiation under cyclic loads and to avoid ultimate failure under over-loading conditions.

With the development of ultra-high strength grout (with compressive strength up to 200 MPa) suitable for underwater applications, grouting of the circular hollow section (CHS) joint demonstrates, among other existing reinforcing schemes, significant potential in enhancing the ultimate strength and fatigue performance of the joint based on the experimental and numerical investigations conducted in Structural Engineering Laboratories in National University of Singapore.

The results from Phase 1 of the Joint Industry Project show that the presence of high strength grout enhances the radial stiffness of the CHS chord member and therefore increases the rigidity of the CHS joint. In addition, the presence of the grout improves the ultimate strength of the CHS joint by reducing the chord wall bending adjacent to the brace-to-chord intersection.

The Phase 1 results also show significant improvement in stress distribution and therefore a reduction in the measured stress concentration factor (SCF) and strain concentration factor (SNCF) that point to possible enhanced fatigue performance of these grouted tubular joints. Large scale specimens are being readied for fatigue tests to be started for Phase 2 of the Joint Industry Project.

The ZEDSMart project started in January 2013 and will run until July 2015. ClassNK has contributed a 1.5-MW marine engine to the pilot project for testing of the system and economic analysis.

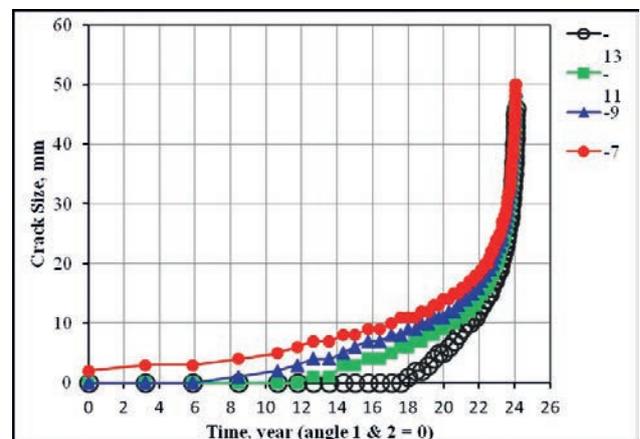
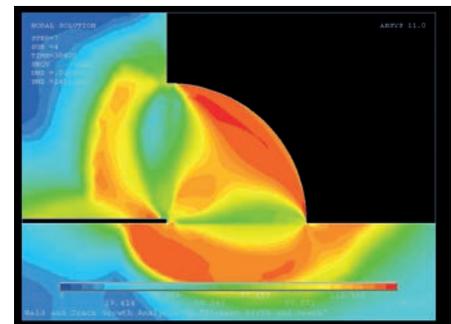
ZEDSMart uses a proprietary non-flammable, non-toxic and liquid solvent capable of removing SO₂ efficiently in the flue gas. Unlike seawater, in the ZEDSMart, the SO₂ is then collected and stored on board for further conversion to valuable products. As the solvent used in the process has a higher SO₂ adsorption capacity, equipment of smaller scale is needed resulting in lower pumping costs incurred. Since the process involves a regeneration step, minimal solvent losses are expected. The space required to install the equipment for further desulphurisation is also likely to be comparable to that of the seawater scrubbing. In addition, there is a potential to commercialize the

concentrated SO₂ product by adopting ZEDSMart.

The project analyzing fatigue-related failure for structures in the maritime sector started in October 2011 and was due to run until October 2013.

The Institute of High Performance Computing (IHPC), an A*STAR research institute, has presented a proposal for the establishment of a consortium between the Institute and leading global classification societies. This is centered mainly around the research work package focusing on the study of the fatigue sensitivity of welded joints in marine and offshore structures due to parametric variation. Leveraging on a first-principle fracture mechanics-based methodology developed by the institute, the proposed research aims to provide insights into how parametric variation in welds such as misalignment can affect fatigue life of maritime structures.

The Institute is also proposing to organize technical seminars and workshops for consortium members to complement the research work. The aim is to build close ties with industrial counterparts and use the consortium as a platform for long-term collaboration in tackling challenging fatigue reliability problems.



Distribution of weld induced residual stress in a characteristic weld joint and the determination of fatigue life as function of the welding parameters



Major incentives to ship owners

The Maritime Singapore Green Initiative is a comprehensive package introduced by the Maritime and Port Authority of Singapore (MPA) that comprises the Green Ship Programme, Green Port Programme and Green Technology Programme. Specifically, the Green Ship Programme offers major incentives to ship owners who adopt energy efficient ship designs that reduce fuel consumption and carbon dioxide emissions.

The Green Ship Programme enables Singapore-flagged vessels which have been registered on or after July 1 2011 and go beyond the requirements of the International Maritime Organization's (IMO) Energy Efficiency Design Index to enjoy a 50% reduction on the Initial Registration Fees under both the normal registration and the Block Transfer Scheme during the registration of the ship.

In addition, a 20% rebate on Annual Tonnage Tax payable every year is available until the ship ceases to exceed the requirements of the IMO's Energy Efficiency Design Index.

Existing ships which utilize energy efficient ship designs that meet the requirements for the Green Ship Programme can also take part in this programme, but will only enjoy the 20% rebate on Annual Tonnage Tax payable every year until the ship ceases to exceed the requirements of the IMO's Energy Efficiency Design Index reference lines.

Ships that qualify for the Green Ship Programme are giv-

en a "Green Certificate" issued by MPA. The certificate is also given to the company owning the qualifying ship. A new award category, "SRS Green Ship of the Year", was also introduced at the beginning of 2013.

In order to qualify for the Green Ship Programme, ship owners have to submit a copy of their International Energy Efficiency certificate or pre-verification report as proof that the attained Energy Efficiency Design Index of the ship exceeds the International Maritime Organization's requirements on Energy Efficiency Design Index for that particular ship type and size at the time when the financial incentives are to be applied.

If the pre-verification report is not ready at the time of provisional registration, ship owners have to inform the Singapore Registry of Ships in writing at the point of provisional registration of the intention to participate in the Green Ship Programme.

The pre-verification report will then need to be submitted within one month of provisional registration. Existing ship owners who have made major modifications to make their ships green and wish to enjoy the 20% rebate on Annual Tonnage Tax must provide the International Energy Efficiency Certificate at least two months before the Annual Tonnage Tax due date. There is no pro-rated rebate if documentation is not submitted on time.

In April this year companies were offered further incentives to adopt environmentally-friendly shipping practices. Lui Tuck Yew, Minister for Transport of Singapore, an-



nounced enhancements to all three programmes under the Maritime Singapore Green Initiative.

For the Green Ship Programme, this comprised a 25% reduction of Initial Registration Fees and a 20% rebate on Annual Tonnage Tax, in addition to the current 50% reduction on Initial Registration Fees and 20% rebate on Annual Tonnage Tax, for ships that exceeded the IMO's Energy Efficiency Design Index. Singapore-flagged ships which adopted both energy efficient ship designs and approved SO₂ scrubber technology that exceeded the IMO's requirements would enjoy a 75% reduction of their Initial Registration Fees and 40% rebate on their Annual Tonnage Tax.

Under the Green Port Programme, the port dues reduction for ocean-going vessels that burn clean fuels or use approved abatement technology throughout their entire stay in the Port of Singapore were increased from 15% to 25%. A new tier of port dues reductions of 15% were also introduced for ocean-going vessels that burn clean fuels or use approved abatement technology only while at berth.

The Minister also revealed that the grant limit under the Green Technology Programme would be increased from S\$2 million to S\$3 million for qualifying projects that could achieve more than 10% reduction in emission levels.

Under the umbrella of the Maritime Singapore Green Initiative, the Maritime Singapore Green Pledge was also introduced. It is an invitation to maritime companies to affirm their commitment towards greener shipping practices.

At the inaugural Maritime Singapore Green Pledge signing ceremony in April 2011, 12 organizations came together to pledge their commitment to promote and support clean and green shipping in Singapore. They were: BP Singapore Pte Limited, Jurong Port Pte Ltd, Keppel Offshore & Marine, Maersk Line – Asia Pacific Region, Maritime and Port Authority of Singapore, Neptune Orient Lines Limited, Ocean Tankers (Pte) Ltd, Pacific International Lines (Pte) Ltd, PSA Corporation Ltd, Sembcorp Marine, Shell Marine Products and Singapore Shipping Association.

In January 2012, ClassNK was one of 15 additional organizations including Masterbulk Pte Ltd, NYK Bulkship (Asia) Pte Ltd, NYK Group South Asia Pte Ltd, ST Shipping & Transport Pte Ltd, Tolani Shipping (Singapore) Pte Ltd, Wallenius Wilhelmsen Logistics AS (Singapore Branch) and others to sign the Green Pledge.

A further 13 organizations signed the agreement in October 2012, including ABB Private Limited, AET Shipmanagement (Singapore), British Marine (Asia) Private Limited, BW Maritime, Evergas, Hamburg Süd Hong Kong Limited, Hong Lam Marine, Hanjin Shipping, IMC Industrial Group, MTM Ship Management Private Limited, Norgas Carriers Private Limited, Ultrabulk Shipholding (Singapore) Private Limited and Wan Hai Lines.

To date, 40 companies (including ClassNK and MPA) have signed the Maritime Singapore Green Pledge, endeavoring to work toward cleaner shipping in Singapore.

wind of change

Japan's offshore wind energy's transformation from potential to reality is receiving dedicated support from ClassNK.

Popular backing for energy sources other than nuclear surged in Japan after the 2011 Fukushima Daiichi power plant disaster – an event whose consequences are still unfolding. A Feed-in Tariff (FIT) incentive scheme for purchasing all renewable energies at a fixed price followed quickly in July 2012.

Japan has approved 22.4 gigawatts (GW) of new renewable energy capacity since the Ministry of Economy, Trade and Industry activated. The Ministry says new renewable energy facilities equivalent to 2.08 GW came into operation in fiscal year 2012 in Japan – worth two nuclear reactors.

Japan's Prime Minister Shinzo Abe recently reached into his economic quiver to pull out a "third arrow" of policy that included a ¥30 trillion (US\$302 billion) pledge over the next decade for power-related investment including encouragement for renewable energy development.

The Ministry of the Environment (MOE) released the results of a study on the introduction of renewable energies on April 21, 2011 on the potential of renewable energies such as photovoltaic power (non-residential), wind power (onshore and offshore), small and medium-scale hydroelectric power, and geothermal power. The results suggest an extremely large potential for wind power generation. Taking various limiting factors for energy utilization into consideration, the Introduction Potential of the wind power is 280 GW onshore and 1,600 GW offshore.

To date, wind power generation facilities in Japan have also mainly been established onshore, with a total capacity having reached approximately 2.6 GW by the end of 2012. However, costs have been increasing as

larger wind power generation equipment has proved increasingly incompatible with Japan's basic scarcity of flat places for construction.

Consequently, the growth of offshore wind energy utilizing the long coast line unique to Japan in conjunction with conventional onshore wind energy is highly expected to facilitate the adoption of wind power generation in the future, especially given Japan's place as the sixth largest exclusive economic sea zone in the world.

Two types of support structures are used in the offshore installation of wind power generation facilities: floating type and seabed foundation type structures. It is considered that the seabed foundation type structure has a cost advantage up to around 50 meters of water depth. However, as Japan has small sea areas with shallow seabed which is suitable for supporting seabed foundation type structures, expectations for floating type have been heightened.

In these circumstances, classification societies have critical contributions to make to the technical, regulatory and certification environment for offshore wind energy in Japan. This is particularly so in the case of floating structures, given that Japan's Ship Safety Law applying to floating wind turbines constructed on or after April 23 2012 is excluded from the Building Standards Act.

ClassNK conducts classification surveys as an "authorized organization" under the Ship Safety Law and accordingly published the Guideline to Floating Offshore Wind Power Generation Facilities on July 27 2012. This Guideline applies mainly to floating structures, mooring equipment, and towers of the floating type offshore wind power generation facilities.



The Guideline also serves as a reasonable standard for floating type offshore wind power generation facilities, describing the processes from design, inspection during manufacturing, and right up to the periodical inspection after the start of operation based on the ClassNK Rules for Offshore Structures and the IEC 61400-3. In Japan today, some demonstration projects for floating type offshore wind are underway in accordance with the guideline.

In addition to floating type offshore wind, ClassNK recognized the crucial role its technical expertise would play in delivering wind as a viable power option long before the Fukushima incident. After preliminary work in 2010, the Society established a separate Wind Turbine Division by July 2011 to provide certification services for wind power generation facilities and related support structures. Today, the division offers a portfolio of services for wind turbine development, including structural safety reviews, certification, research and development, and the co-operative work for the development of international standards.

In framing its approach using conditions in Japan as its starting point, ClassNK believes it has been able to build on IEC standards and develop expertise rooted in an 'Asian' perspective. In December 2011, for example, ClassNK introduced a certification service based on industry standards specified by the Japan Small Wind Turbines Association. The industry standards were created based on the JIS C 1400-2 standard, which is identical to IEC relevant standard, and with reference to standards of other associations in the US and UK but with the consideration given to the particular wind conditions and installation environment in Japan.

The Society provided its first certification for small wind turbines at the end of June 2012. The Society also carries out reviews on various types of small wind turbines.

Increasingly, the perspective from Japan is becoming a key part of the industry dialogue. Japan has submitted a draft of new standards that take into account the impact of typhoons to the IEC, for example. Again, ClassNK plans to develop certification under the IEC standards for domestic projects covering large-sized offshore wind farms.



Fukushima future: 2MW offshore floating wind turbine generation facility

With ClassNK also now a full participant in the Japan Electrical Manufacturers' Association committee charged with responding to international regulations on wind turbine equipment, the Society's role in the fast-developing sector is likely only to broaden. Already, for example, it is working on a new analysis program aimed at enhanced safety in floating offshore wind power generation facilities, alongside universities, operators, and related industries.

And, with an eye to the future, ClassNK now funds a *Course for Creating Next-Generation Offshore Wind Power Generation Systems* at the Institute of Engineering Innovation of the University of Tokyo. The research course is dedicated to developing an advanced offshore wind power generation system suitable for the natural environmental conditions prevalent in Japan.



certification services

In January 2012, ClassNK certified the 'K' Line Maritime Academy (Philippines)

ECDIS training course as an ECDIS training course satisfying the model set by the International Maritime Organization.

In order to facilitate fleet expansion, securing able seafarers has become an urgent issue for all shipping companies. And, to cultivate such able seafarers it is necessary to improve the quality of available education and training institutions.

With the Manila Amendments to the STCW Convention, these institutions are in the process of updating their training programmes. The most significant change for the shipping industry stemming from the Manila Amendments is the enforcement of Electronic Chart Display Information System (ECDIS) training. The Convention will come into force fully on January 1 2017, but Port State Control (PSC) has already implemented inspections regarding ECDIS training.

In order to comply with PSC, which has implemented ECDIS in advance it is necessary for shipping companies to enroll their seafarers in a training programme that reliably satisfies all requirements of the Convention.

“Accordingly, we at ClassNK began certifications for training programmes based upon model courses that satisfy the Convention requirements, says ClassNK Executive Vice President Koichi Fujiwara. “With flag states needing more time to implement ECDIS training, this prompt training programme certification service, which maintains ClassNK’s expertise, is highly trusted by not only shipping companies but also by ECDIS manufacturers and has received numerous certification applications from training institu-

tions in the world’s major seafarer providing countries.

“In this way, with the change of times, not only PSC, but also shippers including oil majors are being required to draw up training programs that carry out education and training for seafarers along global standards. ClassNK’s Certification of Maritime Education and Training is an effective solution to this need.”

The Philippines is a major source of seafarers and certification is an obvious boost to the industry and NK’s Certification of Maritime Education and Training has been lauded for two reasons. The first is that ClassNK has received representative authority for ECDIS training program certification by Liberia and the Marshall Islands. The second is that the Society provides swift audits by highly specialized auditors on the premise of obtaining ISO9001 quality management certification.

ClassNK is highly respected in the Philippines for other reasons. First, all the Society’s auditors have received seamen’s competency certificates. In addition, even after audits have concluded, NK provides each training institution with the latest information regarding maritime education and training, and aims to constantly maintain communication in order to swiftly respond to future updates to training.





“With flag states needing more time to implement ECDIS training, this prompt training program certification service, which maintains ClassNK’s expertise, is highly trusted”

Are there any specific elements of the ‘K’ Line course and learning and operational features which stand head and shoulders above those of other companies? According to a spokesman for ‘K’ Line Maritime Academy (Philippines), the company’s education and training emphasizes the actual use of shipboard machineries, navigational equipment and instruments.

KLMA Phils takes pride in its advanced and state-of-the-art training facilities which include a ship’s main engine, a main engine maneuvering simulator, a full mission bridge simulator, a full mission engine room simulator, an ECDIS and bridge station, a Liquefied Natural Gas (LNG) Cargo Handling Simulator, a Boiler Combustion Simulator, a GMDSS simulator, Refrigeration and Air Conditioning Equipment, a Galley laboratory, an electrical laboratory and technical workshop facilities for gas and electric welding and lathe machine operations, and Machinery, Equipment and Teaching Aids for simulation of Dangers and Hazards onboard.

KLMA Phils is also packed with modern and well-equipped lecture rooms.

NK’s action has also had a major impact on ‘K’ Line’s reputation in the Philippines. According to the spokesman, “ClassNK certification of our Quality Management System under ISO 9001-2008 Seafarers Training as well as the Certificates of Maritime Education & Training Registration for (1) Operational Use of ECDIS (IMO Model course 1.27) in January 2012 and (2) Ship Simulator and Bridge Teamwork (IMO Model course 1.22) in September 2012 has contributed greatly to strengthening the safety and efficiency of the navigation of the ‘K’ Line Fleet. Third party accreditation such as ClassNK Certification has meant that our training programs meet the highest level of globally standardized training.”

And asked whether NK plans to certify other ECDIS courses in other countries, a representative of the Society’s Certification Services Department says: “In terms of

ClassNK’s Certification of Maritime Education and Training, we do not only offer ECDIS training program certification, but a wide variety of other services as well. These include Bridge Resource Management training and Engine Room Resource Management training certification based on the Manila Amendments to the STCW Convention, as well as simulator system certification for ship-handling simulators, engine room simulators, and GMDSS simulators and the NK Training Course for Maritime Instructors, an on-site training service available anywhere throughout the world.

“ClassNK has proactively expanded these services to cover not only Asia, but also Europe’s major seafarer providing countries such as Croatia, Bulgaria, and Romania. In addition, we will participate in international discussions at the IMO regarding training certification for offshore seafarers as well as training certification for the STCW Convention, which is anticipated to be amended, and will swiftly respond to these developments.”

EXPANSION IN EUROPE AS OWNERS TRANSFER VESSELS TO CLASSNK

ClassNK is to open new offices in Bergen, Würzburg and Helsinki, with further offices planned in Ukraine and Sweden. The addition of the offices represents a 25% increase in the size of ClassNK's network in Europe, an expansion made necessary by the growing number of European owners who are classing their vessels with the Society. The announcement was made at a special signing ceremony during the Nor-Shipping exhibition in Lillestrøm, which commemorated the official transfer of three existing bulk carriers from Orion Bulklers GmbH & Co KG, two bulk carrier newbuildings from Johann M. K. Blumenthal GmbH & Co KG, one existing tanker from Medallion Reederei GmbH and five bulk carriers from Norway's Stove Rederi AS to the ClassNK register. Speaking at the ceremony, ClassNK Chairman and President Noboru Ueda said: "As we welcome these vessels to the ClassNK family we promise to continue our efforts to better support the growth and development of the maritime industry here in Europe and provide even better service to owners and operators throughout the maritime community."

ClassNK Chairman and President Noboru Ueda welcomes owners to the Society's register



SPEED TRIAL ANALYSIS SOFTWARE PRIMESHIP-GREEN/PSTA

ClassNK has developed the PrimeShip-GREEN/PSTA (Progressive Speed Trial Analysis) software to help shipyards comply with the Amendment to MARPOL Annex VI making calculation of a vessel's Energy Efficiency Design Index (EEDI) mandatory. The software analyzes the results from speed trials and calculates a ship's speed in calm sea conditions. The Amendment to MARPOL Annex VI enforces mandatory EEDI calculation and EEDI regulation values for vessels contracted from January 1 2013 onwards. When calculating EEDI, external factors such as the wind, waves, tides, shallow waters, and displacement during speed trials can be corrected to allow for higher accuracy when determining a ship's speed in calm sea conditions. PrimeShip-GREEN/PSTA is provided to shipyards free of charge.

NYK LINE AND MITSUI O.S.K. LINES VESSELS TO USE ARCHIVE CENTER STORAGE SERVICE

ClassNK has reached a preliminary agreement with NYK Line and Mitsui O.S.K. Lines regarding the use of the ClassNK Archive Center's As-built Drawings Storage Service (ADSS) for all kinds of ships. The agreement follows consultation with NYK and Mitsui O.S.K. as well as Mitsubishi Heavy Industries and Imabari Shipbuilding, the builders of the three vessels that will utilize the service. These vessels include the NYK Lines owned 95,000dwt bulk carrier *Elegant Salute* built at Imabari Shipbuilding's Marugame Corporate Headquarters, the Mitsui O.S.K. Lines operated *Jozen*, a 95,000dwt bulk carrier also built at Imabari Shipbuilding and the Mitsui O.S.K. Lines owned *Horaisan*, a 300,000dwt VLCC built at Mitsubishi Heavy Industries' Nagasaki shipyard. The ClassNK Archive Center utilizes IBM Japan's cloud computing technology. Earlier this year, ClassNK provided the world's first storage service for electronic ship drawings that is not limited to specific ship types ahead of the application of the standards. The three vessels will be the first to use this service.

CLASSNK CHAIRMAN AND PRESIDENT NOBORU UEDA HONORED AT SEATRADE ASIA AWARDS

ClassNK Chairman and President Noboru Ueda was honored with the Seatrade Lifetime Achievement Award at the Seatrade Asia Awards in Hong Kong in recognition of his outstanding contribution to the development of the maritime sector in Asia. Speaking on the occasion, Mr Ueda commented: "As Chairman and President of ClassNK, it has been my mission to ensure that our Classification Society would make a positive and lasting impact on the maritime industry. I am deeply honored to receive this award, a symbol that we have achieved some small part of this goal." ClassNK was also recognized with the Classification Society Award and the Technical Innovation Award, the third consecutive year ClassNK has taken the Classification Society Award.

ClassNK Chairman and President Noboru Ueda receives the prestigious Lifetime Achievement Award



VERSION 7 FOR CSR

ClassNK has released the latest versions of IACS Common Structural Rules (CSR) structural assessment software. Both the PrimeShip-HULL (Rules) CSR and PrimeShip-HULL (DSA)/CSR software packages have been updated. PrimeShip-HULL (Rules) CSR is software designed to perform structural evaluations using the scantling formulae defined in the CSR, while PrimeShip-HULL(DSA)/CSR is software designed to perform the direct calculations defined in the CSR. The updates for both packages reflect feedback from the users of the software to include new functions and strengthen existing features to improve usability, and help make design work more efficient.

AMENDMENTS TO RULES FOR STEEL SHIPS

ClassNK has released the latest versions of its Rules and Guidance for the Survey and Construction of Steel Ships. Among amendments is the establishment of the Rules for the Inspection and Registration of Maritime Labour Systems. Shipowners can now apply to ClassNK and request inspections of their Maritime Labour Systems conducted in accordance with the amendment.

SEATRADE AWARD FOR IRON ORE GUIDELINES

ClassNK's *Guidelines for the Safe Carriage of Nickel Ore (Second Edition)* secured the coveted Safety at Sea Award from Seatrade earlier this year. Iron ore has been labelled "the world's most dangerous cargo" by INTERCARGO. The award recognized the vital work done on methods to prevent the liquefaction of nickel ore cargoes, and the world's first design standards for building *Specially Constructed Cargo Ships* for transporting iron ore. ClassNK Chairman and President Noboru Ueda attended the ceremony at London's Guildhall, accepting the Award in front of more than 350 attendees from throughout the global maritime industry. The *Guidelines* have already secured the Safety Award at the Lloyd's List Global Awards 2012 and the Technical Innovation Award at the Seatrade Sri Lanka Ports, Trade and Logistics Awards 2013.





under scrutiny

Total Solution for Ship Recycling

ClassNK is assisting the maritime industry in the smooth implementation of the Ship Recycling Convention.

The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 takes the “from the cradle to the grave” approach to achieve safer and greener ship recycling.

The ship shall have on board an Inventory of Hazardous Materials (IHM) describing the location and the approximate quantity of the ship’s hazardous materials. IHMs shall be developed at the delivery in principle and maintained during the ship’s operation until the end of its life.

At the recycling stage, the ship recycling facility shall develop a Ship Recycling Plan (SRP) by utilizing IHM information to decide how to manage the types and amounts of hazardous materials.

As a prerequisite, the ship recycling facility shall prepare a Ship Recycling

Facility Plan (SRFP) providing information regarding the system to ensure workers’ safety and other requirements of the convention. The IHM, SRP, and SRFP documents will convert the convention aim into a solid form.

At the moment, it is difficult to predict when the Hong Kong Convention will enter into force. This entrance into force will follow ratification by 15 states, representing 40% of the gross tonnage of the world’s merchant shipping and 3% of the combined maximum annual ships recycling volume during the preceding 10 years.

Meanwhile, new EU regulation regarding ship recycling is expected to come into force, probably within 2013. The ideas of IHM, SRP, and SRFP also appear in this EU regulation. In particular, the IHM will be enforced not only for EU flag ships, but also for ships calling ports in EU territory.

ClassNK has assembled a task force consisting of various professionals in the Society and continued its activities to provide a total solution for ship recycling. Its efforts aim at enabling the industry to prepare the necessary documentation.

The first target was the IHM. ClassNK has accumulated knowledge and expertise regarding this document through its trial IHM development for both newbuildings and ships in operation during 2008-2009.

At the construction stage, the shipbuilder shall collect hazardous material information pertaining to machinery, equipment and other items installed on board, and organize them in the IHM. Correspondence between the shipbuilder and the supplier should be conducted in order to create the prescribed forms, Materials Declaration (MD) and Supplier’s Declaration of Conformity.



In order to minimize the industry's burden in handling a vast amount of such documents for thousands of products, ClassNK launched a cloud-based system for IHM development and maintenance in 2011. The software *PrimeShip-GREEN/SRM* assists with the easy exchange of MD/SDoC in the supply chain and generates the IHM automatically. It is set to become the *de facto* standard for the IHM as more than 1,800 organizations and around 3,000 users had registered it as of August 2013.

As for existing ships in operation, the convention permits an alternative method to develop IHM because of difficulty in tracing information for aged ships. In these instances, instead of MD/SDoC collection, Experts are preparing the IHM based on documents and onboard checks. ClassNK's subsidiary company, ClassNK Consulting Service Co Ltd, has built a trained team of Experts, providing shipowners with a total solution for the IHM development process.

The Hong Kong convention and EU regulation grant a grace period of five years for existing ships' IHM af-

ter respective applications. However, once this time has elapsed, demands for Experts may rise sharply. In order to avoid any future inconvenience, ClassNK recommends IHM development beforehand, and has provided the industry with reliable solutions, including software for newbuildings and Expert services for ships in operation.

In addition, in its capacity as a classification society, ClassNK has issued over 300 statements for developed IHMs to certify their compliance with the convention. Upon the convention's coming into force, these statements will be re-written into conventional certificates.

As a number of ships have become ready for the convention, the readiness of ship recycling facilities is also essential. After acquiring the successful outcomes of trials for SRFP/SRP, now ClassNK Consulting Service Co Ltd offers advice and analytical services for ship recycling facilities to prepare SRFPs. In December 2012, ClassNK issued the world's first statement of compliance to Zhongxin Shipbreaking & Steel Co Ltd in China after verifying the company's SRFP. Another

Chinese facility, Dalian Shipbuilding Industry Marine Service Co Ltd, also received a statement of compliance in September 2013.

Numerous ship recycling facilities have shown interest in third-party certification as an indication of their quality and competitiveness, thus several SRFP projects are currently on-going. In addition to the SRFP, ClassNK Consulting Service Co., Ltd are able to support SRP preparation.

Compliance with the convention is sometimes a hard task for ship recycling facilities as it requires further improvements, while it is not clear when the convention will be enforced. In the international arena, ClassNK is proactively presenting the efforts of advanced ship recycling facilities so that their endeavours will be properly recognized and nations will move closer to ratification of the convention.

Keeping the aim of the Hong Kong Convention for better ship recycling in mind, ClassNK will continue to propose practical solutions to implement the regulations smoothly and assist all parties concerned.

Q&A with ClassNK: a look inside the IMO

ClassNK answers questions regarding its involvement in the latest developments at the International Maritime Organization.



◆ **May we have an update regarding the technical measures for the energy efficiency of vessels?**

We have made updates regarding the energy efficiency of vessels available on the ClassNK website. The items corresponding to the updates covered at MEPC65 are introduced in ClassNK Technical Information TEC-954 and 955, and related updates are featured in TEC-956.

◆ **What are the developments regarding the implementation of the Ballast Water Management Convention?**

At MEPC 64, Japan, Hong Kong, China, and South Korea gave a report regarding the proportion of ships with ballast water treatment systems installed, and it was made clear that this proportion was extremely low. As a task related to the smooth implementation of the Ballast Water Management Convention, an IMO Correspondence Group led by Japan created an IMO Assembly resolution regarding the rescheduling of the fixed obligatory date, as there had been concern regarding the concentration of installation work for ballast water treatment systems. This resolution is planned for discussion at the 28th session of the IMO Assembly.

◆ **What has Japan's role been throughout the NO_x Tier III regulations?**

Japan obtained the understanding of industry bodies and proposed the NO_x Tier III regulations, which were adopted at MEPC 58 in 2008. A proposal at MEPC65 to postpone these regulations for five years (past 2016, the year for the

original implementation plan) was approved and the convention amendment proposal will be discussed at MEPC66. Japan is proactively cooperating in order to support a 2016 implementation, as was scheduled at the beginning. Japanese factories are currently developing engines in preparation for the NO_x Tier III regulations, aiming for a 2016 start.

◆ **Concerning IMO discussions on the recovery of persons distressed at sea, what roles have ClassNK and the Japanese government played?**

At IMO MEPC65, the Japanese government presented a sample of plans and process documents regarding the recovery of persons distressed at sea. According to SOLAS Convention Chapter III Regulation 17-1, adopted at MSC91 (November, 2012), the possession of plans and manuals regarding the recovery of persons distressed at sea will become mandatory from July, 2014.

◆ **How was ClassNK involved in the process of creating this sample format?**

In terms of background for these plans and process documents, ClassNK believed that creating and distributing a sample format would aid in the creation of these manuals for each ship, ClassNK created a sample format while conducting hearings for shipowners and then distributed the information through the Japanese government.

This topic was also referenced on page 18 of ClassNK Magazine 65th Edition, in the article "in focus."

in focus



Xue Ruijun

ClassNK Academy courses have this year been scheduled throughout Asia and notably in China ahead of the agenda-setting Marintec exhibition and conference in Shanghai in December.

ClassNK has been running its series of Academy courses in China since December 2011. The courses are held in seven major locations in China and while the general requirements of Chinese industry are broadly similar to those of other countries from the technical standpoint, the courses are conducted in Chinese at the request of customers for ease of understanding.

In April this year ClassNK launched an Academy in Dalian followed by similar launches in Fuzhou in May and in Nanjing in June where senior ClassNK executives each gave detailed presentations. The Dalian programme focused on machinery damage, material and welding and attendees, when asked how ClassNK might make the courses more suitable to their needs, responded positively with suggestions including conducting the Academy course more often.

The major topics addressed at the Fuzhou Academy were machinery damage and port state control, where a presentation on PSC performance by Shao Jianfeng, Manager of the Guangzhou Branch Office, was illustrated with detention statistics, typical examples of deficiencies and measures to prevent detention.

In Nanjing, Xue Ruijun, General Manager of ClassNK's Training Center at the Society's China headquarters in Shanghai, spoke about machinery damage; Chen Ming, Manager of the Shanghai Branch Office gave a presentation on welding and material and Mr Xue closed the event with a detailed analysis of the Maritime Labour Convention, 2006, its background, characteristics, structure and impending enforcement.

Attendees again reacted positively, with a particular suggestion that case studies would make issues easier to understand.

The series of courses is currently divided into new building, ships in service and ship management categories and covers classification societies and statutory issues, classification surveys during construction (hull) and also classification surveys during construction (machinery and

electrical), material and welding, port state control, safety equipment and safety radio, damage to machinery and also damage to hull, cargo gear and, with regard to ship management, ISM internal audit.

"The safety equipment and safety radio, classification surveys during construction (hull) and classification surveys during construction (machinery and electrical) courses are most popular among our customers in China," says Mr Xue.

"Power Point material for all Academy courses is continuously updated by the Head Office in order to meet new requirements, and we translate this into Chinese. Our senior, experienced Chinese surveyors, who have passed the ClassNK Academy training course at Head Office, deliver the courses to our customers. Each surveyor has worked in the Chinese maritime sector for more than 15 years and is familiar with specific Chinese requirements."

How does ClassNK tailor the courses to specific needs for those entering the industry in China and for experienced personnel?

"We decide the academy course based on requests and previous feedback from customers in advance of each scheduled Academy," says Mr Xue. "The aim of our Academy course is to support our customers to train their young technical staff."

In addition to its regular programme, does ClassNK meet requests for individual tutoring and course programmes in China?

"Yes," says Mr Xue. "We conduct individual Academy courses based on customer requests in addition to scheduled Academy courses."

The agenda for 2014 has yet to be finalized as annual plans are created from customer feedback at the end of the year. Once a plan has been formulated it goes before staff at Head Office for consultation prior to being implemented, says Mr Xue.

As maritime needs grow, ClassNK has solutions.

As the world's economy grows and changes, the maritime industry is faced with ever greater challenges. With roughly 20% of the world's merchant fleet under class, we understand the requirements for the future of safe shipping, and we're working to develop new tools and technologies to meet the changing needs of the maritime industry. Learn more about our efforts to advance maritime safety and protect the marine environment at www.classnk.or.jp

Global Authority in Maritime Standards

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