Climate change is opening Arctic routes to navigation. The Northern Sea Route (North of Russia) and the North West passage (North of Canada and Alaska) offer considerable savings in sea miles for Europe – Asia trade routes. The route from Rotterdam to Yokohama could be reduced from 11,250 miles to 7,350 miles by using the Northern Sea Route. The potential is there, but it is very early days. There were forty Arctic route trading voyages in 2103 moving about one million tonnes of cargo. That compares to the 700 million tonnes moving through the Suez Canal. But the ice is receding every year, and the maritime industry has to think now about how to serve these routes safely and cleanly.

The opening of the Arctic is not just for trading routes, it also offers access to abundant natural resources including oil, gas, minerals and fish. All these opportunities call for new vessels adapted to Arctic conditions. But there are challenges.

Winter ice can reach over 2 m thickness, temperatures drop to between -40°C and -50°C, leading to difficult working conditions, it is dark for six months, there is little or no coastal infrastructure and distances from bases or ports are long. The eco system is very vulnerable, and navigation in convoy is necessary, which increases the risk of collision.

Add in difficulties of communication and it is clear that Arctic operations of any sort demand ships and offshore units specially designed for this purpose. Canada and Russia have developed their own local regulations for navigation in their waters. The “International Code of Safety for Ships in Polar Waters” (Polar Code) will be published soon by IMO and will have to be applied by designers.

Bureau Veritas has developed rules and guidance notes for operation in Arctic environments. These include a Cold notation, Polar Class Rules, guidelines for Ice class selection and rules for designing propulsion in ice.

There is a lot of innovation required to be ready as the Arctic opens. That is why Bureau Veritas has an active Arctic research and development programme which has developed its ice loads tool IceSTAR in cooperation with Saint Petersburg University. BV works within JIPs, with major shipyards, and Canadian and Russian institutes on specific issues for vessels adapted to extreme winter climates. The experience and cutting edge research which Bureau Veritas brings to Arctic development will help to open up this new frontier safely and with respect for the environment.
SDARI PUSHES GREEN LIMITS

Hu Jintao has worked as a naval architect for China’s leading design institute, Shanghai-based SDARI (Ship Design and Research Institute) for over twenty-five years, rising to President for the last eight years. He does not remember a more challenging time for Chinese shipbuilders, or for ship designers.

“The challenge today is that there is overcapacity in the Chinese shipyards, which means they face a financial struggle. At the same time owners want more and more economical ships with very low fuel consumption. That makes for a powerful squeeze. We have to squeeze more out of the ships, but pushing optimisation to the limits needs a lot of time and money. Which the yards are squeezed to pay for.”

Mr Hu sees responsive expert classification societies as a vital ally in producing the efficient designs that yards need to meet the demands of owners. “We look closely at the technical expertise and capacity of each class,” he explains. “We want to work with the right class from the very early stages of a new design. They can help us a lot to develop a good design, and save time and money while producing a safe and efficient ship.”

In the last three years SDARI has responded to the demands for eco-ships by producing first the Dolphin 57 bulk carrier design, and more recently the Green Dolphin 64 and Green Dolphin 38 designs. “We worked closely with BV on the Dolphin 57 and we recommended them as class for this series which had great success,” he says. “More than four hundred have been built, half of them to BV class. Now we have upsized that to the Green Dolphin 64, spending a lot of time on optimising the hull lines and model testing, and installing a modern engine, giving big savings in fuel per dwt. I know thirty of those have been ordered to BV class already.”

Efficiency is not just about fuel, explains Mr Hu. “The Green Dolphin 38 is an open hatch vessel with a double hull, giving great operational flexibility in addition to low consumption. The lead ship in that class is also to BV class.”

SDARI is much more than bulk carriers. Mr Hu is leading SDARI into more complex and challenging offshore designs. “Always working with good class right at the core of the project,” he says.

MOVING FAST FORWARD ON OSVs

The investment focus in the OSV market is on sophisticated vessels with deep water capabilities, with strong fleet growth reported for the offshore installation, MPSW/DSV, PSV, AHTS and accommodation vessel segments. The new generation of high-specification vessels is pushing the boundaries of the existing international regulatory framework. A typical example is the carriage of hazardous and noxious liquids in bulk, as larger amounts of increasingly complex well intervention products are needed. For towing and anchor handling stability several regulations have been developed by administrations and class societies, but a global standard has yet to be agreed.

Other regulatory challenges include the transportation of personnel by OSVs, for which there is no international regulatory framework, the application of SOLAS and SPS Code to small OSVs and the certification of complex deck equipment for offshore support operations.

In order to overcome these challenges several initiatives have been taken by IMO, IACS and class societies. BV is involved at all levels with experts taking part in the development of regulations, including harmonised towing and anchor handling stability requirements, the OSV Chemical Code and class rules for OSVs and specialised equipment.

Recently introduced class notations include SAS (Supply At Sea), which is an important feature of seismic support operations and OHS (Offshore Handling Systems), which deals with classification of deck equipment. The requirements for anchor handling vessels have been fully updated and will enter into force on 1 January 2014 under service notation anchor handling vessel. Several new class notations related to OSVs, such as offshore heavy lifting, diving support and centralised navigation equipment are presently under development.

gijsbert.de-jong@bureauveritas.com
GREEN DESIGNS ORDER BOOST

Shipyards are seeing an increasing number of new orders for new, more fuel efficient designs. Eco-ships or green designs are being ordered in significant numbers, especially bulkers and containerships. High bunker costs and low freight rates are fueling this trend. At about 600 USD/t for HFO, the fuel costs may now represent about 80 per cent of the freight rate for a typical Capesize bulk carrier. Improvements in ship design can deliver a reduction in fuel consumption of about 15 – 20 % compared to the majority of ships ordered in 2006 - 2008. Using recent electronic-controlled diesel engines with larger propellers, optimizing hull forms for the whole range of operating conditions, not just for contractual conditions as was previously the norm, and fitting energy saving devices like pre-swirl stators or rudder and propeller boss cap fins all reduce fuel use. Bureau Veritas classes a significant number of these new vessels, including the Supramax bulk carriers Crown 63 of Sinopacific in China and the first vessels of the new 38,000dwt Green Dolphin SDARI series.

Jean-François Segretain 
jean-francois.segretain@bureauveritas.com

HELICOPTER CARRIER BUILD CO-OPERATION

The joining of the two halves of Vladivostok, the first of a series of two BV-classed Mistral-type helicopter carriers for the Russian Navy, has started at STX Saint Nazaire. The aft part of the vessel was built at Baltic Shipyard, St Petersburg. It has been towed to France. There it has been joined without problems to the forward part of the vessel built at STX. A launching ceremony is set for October. With a length of 199 m and a displacement of 22,000 tonnes the Russian helicopter carriers can accommodate 16 heavy helicopters, 100 vehicles and 450 troops. They are being built under a co-operation agreement between DCNS-STX in France and the OSK group of shipyards in Russia.

Yves Legall 
yves.legall@bureauveritas.com

RISK ASSESSMENT VITAL FOR FSRU

With a demand of LNG imports increasing worldwide, Floating Storage Regasification Units (FSRUs) are becoming more and more popular in the LNG industry. These units marry the LNG carrier concept and the regasification processes. Bringing together different features required for a transportation ship and a process plant poses some problems such as deck congestion, simultaneous operation of LNG loading, process safety, gas send out availability, fire and explosion events, cryogenic spills, ship collisions, sea and meteorological conditions as well as the impact on the public and the environment of the FSRU. Set against those challenges are the relative cost and time savings available by building the FSRU in Asia rather than building a process plant ashore. These challenges can be adequately addressed by using a risk-based approach in addition to the prescriptive rules which designers and operators commit to follow. Bureau Veritas assists its clients in following a tailor-made risk-based approach throughout the entire lifecycle of the unit thanks to its comprehensive portfolio of risk, safety and reliability services, addressing design, location, maintainability and operability concerns.

Diane Ruf 
diane.ruf@bureauveritas.com

... NEWS IN BRIEF ...

- **BV new NR 592** introduces requirements for **elastic shaft alignment** on high powered ships. The ESA notation helps ensure the integrity of the structure and shaft bearings on very large vessels such as ULCS and the next generation of large LNG carriers.

- **BV new NI 403** about **Current and Tidal Turbines** gives prescriptions for the assessment of fully submerged current and tidal turbines installed on the seabed. The main developments focus on substructure, turbine and electrical installations and structural design of composite blades.

- **BV NR 570** provides requirements for **classification and certification of drilling equipment** onboard offshore rigs, defining the new class notation DRILL. These requirements cover drilling structures including the derrick or the drill tower, mud circulation systems, cementing systems, heave compensators, marine risers and risers’ tensioning systems, well control equipment and testing systems. A list of BV recognized industry standards and interpretations are also given.
NAVAL COMMITTEE FOCUSED ON ENERGY EFFICIENCY

The Naval Military Committee of Bureau Veritas met in Paris in April and focused on energy efficiency for naval ships, gathering a deep interest from the Committee members. There was also a discussion on the development of naval rules for unmanned vehicles. Updates to the Naval Ship Code for surface vessels were noted and a presentation of the new Naval Sub Code for submarines was given. The Naval Sub Code should be published in its first issue in early 2014. The committee also validated the proposal of Bureau Veritas to develop two new service notations: "Patrol vessels" for OPVs and "Amphibious ship" for amphibious assault ships accommodating landing crafts, helicopters and assault troops. The committee had the pleasure to nominate a new member: Captain Ir Azhar Jumaat from the Royal Malaysian Navy.

WORLD’S LARGEST CONTAINERSHIPS DELIVERED

The second and third containerships in the Marco Polo series have been delivered to CMA CGM. The 16,000 teu CMA CGM Alexander Von Humboldt was delivered by DSME in South Korea and named in Hamburg in presence of her godmother, Dr. Dorothee Stapelfeldt, Second Mayor of Hamburg, Mr. Olaf Scholz, Mayor of Hamburg and Mr. Jacques R. Saadé, CMA CGM Chairman and CEO.

The third vessel of the series, the CMA CGM Jules Verne, was also delivered this summer and was inaugurated by the President of the French Republic, in Marseilles. These three vessels, all 396 m long, 54 m wide with a draft of 16 m break new grounds in energy efficient containerships. They deliver the highest level of economy of scale and are fitted with a range of environmental mitigation and fuel-saving technologies.

CLOV FPSO SETS SAIL

South Korea’s DSME has delivered the CLOV FPSO to TOTAL. The BV-class FPSO will be operated offshore Angola. It is 305 m long, 61 m wide and has a production capacity of 160,000 barrels of crude oil per day and a storage capacity of 1.7 million barrels of oil. CLOV will work on site 140 km from Luanda in water depths ranging from 1,100 to 1,400 m bringing on stream four fields: Cravo, Lirio, Orquidea and Violeta.

A total of 34 subsea wells will be tied back to the CLOV FPSO unit. Through a unique processing and storage system CLOV FPSO will produce two types of oil: one with a 32 to 35° API gravity from the Oligocene reservoirs (Cravo-Lirio) and the other, more viscous, with a 20 to 30° API gravity from the Miocene reservoirs (Orquidea-Violeta). First production is expected to begin next year.

BV AND MARIC COOPERATE FOR THE BIGGEST ULCS IN CHINA

CMA CGM has placed an order for three Ultra Large Container Ships (ULCS) of 16,000 Teu at Shanghai SWS and Jiangnan Changxing yards with BV class. These are the largest container vessels ever to be built in China. The design has been developed by the Marine Design and Research Institute of China (MARIC) in cooperation with BV which performed the drawings’ approval. The vessels will have an overall length of 399m, a beam of 54 m and a draft of 16 m. Special consideration has been given to the hydro elastic aspects (whipping and springing) which are dominant for this size of ships. The hydro elastic examination has been performed with BV’s software HOMER. This review provides a higher level of safety and is mandatory according to BV Rules for ULCSs of 300m and above.