Service Delivers Best-in-Class Value

In meetings with leaders in the marine and offshore industries around the world, I’ve noticed a recurring theme – in today’s competitive environment, owners and operators need a class society that will actively work with them and provide world class service. Throughout the history of ABS, our focus has been on superior service delivery, and the way ABS employees provide service to our clients has been our key differentiator. This best-in-class value lays a strong foundation for our future as a leading provider of classification services to the marine and offshore industries.

It is exciting to look at the road ahead, but it also is important to recognize milestones along the way that are only possible because of our commitment to service. I am proud to share that the ABS-classed fleet recently surpassed 200 million gross tons. ABS is the second class society to ever reach this milestone. These achievements demonstrate that the men and women of ABS continue to be trusted to provide the practical solutions and best-in-class service expected by owners and operators around the world.

On the offshore side, we continue to hold the leadership position for classing exploration and production units, with the majority existing fleet market share of 74 percent and 46 percent, respectively. In the past decade, the number of drillships in the ABS fleet has more than doubled. Currently, 52 of the 77 drillships on order are set to be ABS class.

Independent Port State Control regimes are giving ABS high marks for performance. In July, the Paris MOU identified ABS as “the best performing RO [Recognized Organization] over the period 2010-2012.” Furthermore, the Tokyo MOU in the Asia-Pacific Region and the United States Coast Guard have also placed ABS in their top tier for Port State Control performance.

Proof of our commitment to service is also illustrated by recognition from industry organizations. During ShipTek 2013 in Dubai, ABS was recognized with its third consecutive Marine BizTV International Maritime Award for “Best Classification Society.” This honor specifically recognizes our commitment to safety, quality, social and environmental responsibility and our diligent effort in enhancing the training and development of personnel.

Today, ABS is making significant investments in the future of our organization in a number of ways. We are proactively investing in research and development and securing industry partnerships to develop the technologies that will be vital to the industries we serve. By transitioning computational fluid dynamics into practical design tools, we are able to analyze system performance and asset optimization. Our goal is to identify practical solutions that address the real world challenges faced by industry every single day.

One notable newbuilding project has embraced the Integrated Software Quality Management (ISQM) offering from ABS to validate software installations and improve transparency between systems. With the increasing use of computer-based controls, software integrity and its ability to successfully communicate with the other systems on the unit while performing its tasks in an expected manner is of primary importance and directly impacts safety.

ABS is also increasing our investment in our workforce to strengthen the ability to respond quickly and capably to the needs of the marine and offshore industries. This includes establishing specialized organizations focused on the unique characteristics of expanding markets. Earlier in the year, we formed the Operational and Environmental Performance (OEP) team to help industry assess the energy efficiency and fuel consumption of new and existing vessels. The response this new service has been tremendous and we are continuing to expand the team in order to meet the growing needs of the maritime industry. The recently formed Global Gas Solutions team is another group of specialists dedicated to support industry through the entire life cycle of any gas project, including projects that are exploring the use of LNG as fuel.

In today’s ever-changing environment, it is important to the marine and offshore industries to have a classification society looking towards the future. Here at ABS we are not resting on our laurels, rather we are embracing the future in order to continue to provide the best-in-class service our clients, members and industry have come to expect. Our hope is that by approaching each business relationship in a collaborative manner that many more successes are in-store for both ABS and our clients around the world.
James Watson Joins ABS

ABS is continuing to add to its leadership in the offshore sector with the addition of James A. Watson, Director of the Bureau of Safety and Environmental Enforcement (BSEE), who joined ABS on 2 September as President and Chief Operating Officer of the Americas Division. In his new role at ABS, Watson will have administrative and operational responsibility for activity in North, South and Central America and the Caribbean.

As Director of BSEE, Watson was responsible for promoting safety, protecting the environment and conserving resources through the regulatory oversight and enforcement of offshore operations on the US Outer Continental Shelf (OCS). Watson also served as the US Coast Guard’s Director of Prevention Policy for Marine Safety, Security and Stewardship, where his responsibilities included commercial vessel safety and security, ports and cargo safety and security and maritime investigations. He was designated the Federal On-Scene Coordinator for the government-wide response to the Macondo oil spill in the Gulf of Mexico in June 2010.

“The Coast Guard, BSEE and ABS have similar missions of promoting safety and protecting the environment, so Watson’s background makes him uniquely qualified for this position,” says ABS Chairman and CEO Christopher J. Wiernicki in announcing the new appointment. “Watson’s understanding of the critical safety issues the offshore sector is facing today will enable him to enhance the level of service we are able to provide to both government and industry.”

Watson took over from Robert Gilman, who has returned to the ABS Group (ABSG) of Companies as Senior Vice President and Head of Technical Inspections within the ABS affiliated company, ABSG Consulting. By bringing Watson into the management team, ABS adds valuable depth and breadth of experience that solidifies the foundation for growth in the organization’s offshore sector.

Watson graduated in 1978 from the US Coast Guard Academy with a Bachelor of Science degree in Marine Engineering and holds Master of Science degrees from the University of Michigan in Mechanical Engineering and Naval Architecture in addition to a Master’s degree in Strategic Studies from the Industrial College of the Armed Forces.

ABS Exceeds 200 Million Gross Tons

ABS reached a significant milestone recently when its registered fleet surpassed 200 million gross tons. The total represents approximately 12,000 vessels from 105 flag States registered with ABS. With nearly 70 percent of all vessels aged ten years or less, ABS has one of the youngest fleets.

ABS Chairman and CEO Christopher J. Wiernicki explains that a key factor in the expansion has been ABS’ leadership position in the new vessel orderbook, which comes from direct cooperation with the marine and offshore industries.

“This important milestone is a reflection of the value our clients place on best-in-class service,” Wiernicki says. “Over the past decade, we have made strategic investments in research and technology, workforce development and training programs to meet the evolving needs of our clients worldwide.”

Two of the most looming challenges are energy and performance optimization and the need to meet increasing environmental regulations. “ABS has committed resources to addressing these issues and is working alongside some of the very best organizations in the marine and offshore industries to find solutions,” Wiernicki says, noting that this spirit of cooperation is what allows ABS to continue to be a leader in the classification industry.

“We are committed to providing quality services that leverage innovative thinking,” Wiernicki explains. “Our goal is to help the industry construct and operate maritime and offshore assets in a safe, efficient and environmentally responsible manner, and the recent growth of our fleet demonstrates that we are meeting that goal.”

Since 2000, ABS has doubled the tonnage of its registered fleet. More than 21 percent of new vessels on order are set for ABS class, which is the largest percentage of any classification society in the world. ABS currently holds the number one orderbook owner share in Greece and builder share in Korea, China, Brazil, Taiwan, Singapore, India and the United States.
World’s Largest Containership Enters Service

The ABS-classed Maersk Mc-Kinney Moller (MMM) officially entered service in June 2013. The first of the Maersk Line Triple-E series, the MMM is the largest containership in operation with a length of 400 m, a beam of 59 m, a draft of 14.5 m and a deadweight of 165,000 metric tons.

ABS’ scope of work included assisting with design development, facilitating hazard identification workshops with Maersk and providing experienced surveyors from the AP Moller Maersk Odense Steel Shipyard in Denmark to work on this project at the Daewoo Shipbuilding and Marine Engineering Co., Ltd. yard in Okpo, South Korea.

Wei-Biao (Bill) Shi, Vice President of Engineering, ABS Greater China Division, who oversaw project execution and provided technical oversight, says the experience gained during the plan review and new construction survey will directly impact the ABS rule development process, keeping ABS Rules and standards ahead of the technology curve.

“Because the MMM is the largest containership ever built and designed, ABS augmented plan review with additional engineering analyses,” Shi says. “The scope of services included additional features that are unique to container carriers of this magnitude. Engineers from ABS Technology, the Busan Engineering office and ABS Pacific Division, Singapore Administration coordinated plan review activities closely to provide smooth service delivery.”

Shi explains that some of the additional work applied to the plan review included full ship dynamic

Bill Shi

Mark Corsetti
loading analysis, spectral-based fatigue analysis, global vibration analysis, slamming analysis, whipping analysis and springing analysis.

Although the construction process was not remarkably different from that for a smaller containership, the engineering team conducting the work had to take into account the sheer size of the vessel.

According to ABS Denmark Country Manager Mark Corsetti, “What was different was primarily a matter of scale, with many more tests and trials, more extensive analysis for seakeeping characteristics, more intensive planning for the large number of components and the need to take into account more providers in the vendor coordination process. We deployed our best talents from ABS engineering and technology for the project team, which consists of structural engineers and machinery engineers of many disciplines.”

The name Triple-E denotes the three critical design principles of this vessel series: economy of scale, energy efficiency and environmentally improved. The Triple-E vessels are designed for the Asia to North Europe shipping route, which is considered the busiest and longest in the world and one where economies of scale and fuel efficiency will be most valuable. According to Maersk, the size and capacity of these vessels will help significantly reduce energy consumption and lower CO₂ emissions.

The Triple-E vessels are larger than any other vessel currently on the water. The 18,000 TEU capacity of the vessels represent a significant increase over the current 15,500 TEU capacity of the Maersk E-class ships.

The main differences between the Triple-E and Maersk’s E-class vessels are two ultra-long stroke engines, two four-blade propellers instead of the six-blade larger propeller, an innovative efficient shape, and an advanced waste heat recovery system capable of saving up to 10 percent of main engine power.

The MMM completed its maiden voyage in June, but ABS’ work is far from finished. ABS engineers and surveyors will continue to work on additional vessels in the Triple-E series in the coming months, and Corsetti is looking forward to the challenge. “We’ll continue to provide at least the same level of service delivery for the remainder of the Triple-E and to apply the lessons learned as additional vessels enter operational service to improve our processes and efficiency.”

**FACTS AT A GLANCE:**

**Triple-E – The World’s Largest Ship**

| **Length** | 400 m |
| **Beam (breadth)** | 59 m |
| **Draft** | 14.5 m |
| **Deadweight** | 165,000 metric tons |
| **Reefer container capacity** | 600 |
| **Top speed** | 23 knots |
| **Height above baseline** | 73 m |
The positive long-term outlook for natural gas drives investment decisions for many in the marine and offshore industries. Analysts say as many as 350 million metric tons of development per year already have been proposed – which would more than double current capacity by 2025. As this sector grows, companies will be looking to ABS for guidance. Recognizing this emerging need led ABS to form the ABS Global Gas Solutions Team to assist clients in navigating liquefied natural gas (LNG) and liquefied petroleum gas (LPG) projects.

“The LNG landscape is changing rapidly,” says ABS Chairman and CEO Christopher J. Wiernicki, “and we recognize the value we can deliver by focusing our LNG resources to better serve what we have identified as a significant and dynamic market sector.”

Patrick Janssens will lead this organization as Vice President for Global Gas Solutions. Janssens formerly served as ABS Vice President for LNG with responsibility for projects in Europe and Asia. Before joining ABS, he was Senior Vice President of Technology at FLEX LNG where he focused on the development of floating LNG liquefaction projects. Janssens also was Chief Technical Officer at Exmar, where he oversaw the development of the world’s first LNG regasification vessels and many newbuilding projects with major shipyards worldwide.

“With its diverse maritime market, increasing gas production, and stricter emission requirements, the United States will be a primary focus of our team in the near term,” says Janssens. “To help clients navigate the unique characteristics and requirements of the US, we are assembling a team of professionals with the technical and market experience needed to help owners, shipyards and manufacturers successfully develop US gas projects.”

Joining Janssens in the newly formed Gas Solutions team, Roy Bleiberg, formerly Director of Engineering for ABS Americas, assumed the new role of Director of US Gas Development, while Kurt Larsen was named as Director of US Gas Operations and Performance.

The US-based team of ABS gas specialists brings together an extensive knowledge of LNG floating structures and systems, gas fuel systems and equipment and regulatory and statutory requirements. Drawing on its global experience, the team will assist clients with specification reviews, risk and hazard assessments, bunkering suitability reviews and new construction project management and training.
As a first step in its ‘repowering initiative,’ Horizon Lines, Inc. plans to convert the power plants on two of its Jones-Act steam turbine cargo vessels serving the Hawaii and Puerto Rico trade lines to modern dual diesel and LNG engines. The 801-ft vessels, Horizon Reliance and Horizon Spirit, will receive new notations following verification that the converted vessels have met the requirements laid out in the Guide for Propulsion and Auxiliary Systems for Gas Fueled Ships. Conversion work is tentatively scheduled to begin on the first vessel in January 2015, with both ships to be completed late in the year or early 2016.

According to Horizon Lines, the goal of the conversion is to lower emissions and reduce fuel consumption. New regulations require vessels operating within the North American Emission Control Area (ECA) of 200 nautical miles of the US, Canada, Puerto Rico and the Virgin Islands to meet a strict sulfur emissions limit of 1 percent. By 2015, the limit will drop to no more than 0.10 percent, requiring shipowners and operators to identify fuel options that meet the strict sulfur requirements.

“Most of the companies we work with that have gas-fueled ships have a two-fold interest in pursuing LNG as a fuel solution,” explains Roy Bleiberg, ABS Director, US Gas Development. “On one side of the issue, companies must comply with the ECA requirements and are interested in operating the ‘greenest ship’ possible. These companies are working with industry partners to be proactive in that respect by choosing the cleanest-burning fuels.” The other part of it is cost, he says.

Owners and operators have several options for addressing exhaust emissions requirements, including burning ECA-compliant blends of marine distillates and ultra-low-sulfur fuels and using exhaust gas scrubber systems. A longer-term solution to meeting these requirements is using LNG as a clean fuel source, which can improve environmental stewardship and reduce fuel costs over the ship’s lifetime.

“If it’s short-term, say a five or ten-year period, it would make sense to burn ultra-low sulfur fuels or to implement technologies that aid in reducing emissions,” Bleiberg says. “But companies looking even further out, such as Horizon Lines, are identifying longer-term value in LNG.”

Horizon Lines’ conversion project includes removing of the steam propulsion systems and repowering with the dual fuel main engines and supporting components, including installing of the LNG storage tanks.

According to Bleiberg, ABS is assisting the company on compliance with the US Coast Guard (USCG) requirements.

“We’re also making them aware of some of the lessons learned along the way from some of our other projects and some of the items that are different between what our Guide requires and what the USCG will require,” Bleiberg says.

“Horizon Lines is serious about improving their fleet and the issue of fuel efficiency. And the company has done its due diligence, thinking about what is the best way forward,” he adds. “Companies like Horizon Lines are coming to the conclusion that the use of LNG addresses a lot of challenges with regard to emissions, and at the same time, it’s probably the most cost-effective solution.”
Swire Pacific Offshore Earns MLC Certification

Singapore-based Swire Pacific Offshore (SPO) has joined the ranks of companies that have received certification to the International Labour Organization’s Maritime Labour Convention, 2006 (ILO MLC) ahead of the convention’s entry into force in August 2013. This convention addresses seafarers’ rights to decent work conditions on a wide range of subjects, consolidating and updating more than 68 international maritime sector labor standards adopted over the past 80 years.

SPO, a prominent owner and operator headquartered in Singapore, worked with ABS to verify that its offshore support vessel Pacific Worker meets the ILO MLC requirements. This vessel is the first in the SPO fleet to receive certification.

“This project started months ahead of the Convention’s entry into force with SPO’s top management dedicating a team of individuals who understand all of the requirements,” says Eugene Low, ABS Management Systems Certification Manager in Singapore.

Working with the SPO team, ABS conducted a gap analysis to determine what was missing in SPO’s existing management system. The analysis helped determine which labor-related procedures and practices SPO needed to implement to comply with the Convention. Subsequently, the appropriate declarations of compliance, which SPO must establish for each vessel, were submitted to ABS for review and approval before being sent to the vessels for implementation.

ILO MLC applies to all ships trading commercially and internationally, those that are 500 gt or heavier are required to receive certification. The convention will require companies to have a labor management system that provides all seafarers with a safe and secure workplace; fair terms of employment; decent working and living conditions on board ship; and clear rights to health protection, medical care and other social security protection.

As the ILO MLC contains a “no more favorable treatment clause,” ships of countries that have ratified the convention will not be placed at a competitive disadvantage against ships flying flags of countries that have not ratified the convention. According to Low, this means there will be a level playing field for countries and shipowners that are committed to providing decent working and living conditions for seafarers.

Consequences for companies that do not obtain MLC certification for required vessels include restrictions imposed by flag States (or port States). The lack of certification also could affect the company’s standing or become a barrier to trade.

According to Low, now that the ILO MLC has become effective, SPO and other companies that already have earned certification will be required to verify that they have a system in place to allow them to continue to implement the requirements.
Offshore wind is one of the fastest growing marine market sectors, and the scale of the projects is expanding. Unprecedented growth has created increasing demand for both manufacturing capacity and installation resources. Recognizing that the industry not only needs more offshore wind farm installation vessels, but vessels with more capabilities, UK-based Seajacks International made the decision to expand its fleet.

In late second quarter 2013, Seajacks signed a contract with Samsung Heavy Industries in Korea to build the Seajacks Scylla, the world’s largest and most advanced offshore wind farm installation vessel, and selected ABS to class the new unit.

The Seajacks Scylla is based on the Gusto MSC NG14000X design, which was developed for offshore wind turbine installation and oil and gas markets to enable fully loaded voyages to installation sites and to manage deeper water. Like other NG-14000X rigs, the new unit will have heavy loading and heavy lifting capacity.

The new Seajacks jackup will have more than 8,000 metric tons of available variable deck load and more than 5,000 sq. m of usable deck space and will be equipped with a 1,500-metric-ton leg-encircling crane. It will be capable of speeds greater than 12 knots and will be outfitted with 105-m legs that will give the rig the ability to install components in water depths to 65 m.

The jackup also will be capable of meeting the installation needs of jumbo-monopiles, jackets and turbines of future wind farms in deeper waters and further from shore. These features will allow the Seajacks Scylla to meet the demands associated with working UK Round 3, Scottish territorial waters and the growing North West European markets.

ABS will class the installation vessel with requested notations that include the Wind IMR notation, which applies to offshore wind turbine installation units; ACCU, which applies to automatic centralized control unmanned units; DPS-2 for dynamic positioning capability; and CRC, denoting crane register certificate.

The ABS-classed SEAJACKS SCYLLA is the world’s largest and most advanced offshore wind farm installation vessel.
New Portal Improves Functionality

Customer service sometimes takes the shape of product enhancement. When a client can choose among providers, the award usually goes to the company that makes it easiest to do business.

According to ABS Vice President and Chief of Staff Paul Karam, the recently launched update to the My Eagle customer interface portal improves ease of use for ABS clients. “The changes will make it easier to access key operational and design review information and to better use the information in our databases,” he says.

More usable dashboards are one of the primary upgrades. The enhanced Construct dashboard now displays a simple, high-level view of the plan review data associated with each vessel or project. This information is identified by vessel name or shipyard/hull number and can be sorted based on any number of variables, Karam says. “The end result is that the new dashboard provides quick access to ABS Eagle Engineering Manager, where you can review the drawings and comments for your project and quickly track and respond to required action.”

A new graphic interface on the improved Operate dashboard shows the survey status for all vessels, allowing vessels to be sorted by a number of characteristics, “a feature,” Karam explains, “that allows clients to drill down on pending survey action to include a new column for findings and certificates.”

The goal of the new Operate dashboard is simplicity. “You now will be just one click away from accessing in-depth class and statutory particulars through ABS Eagle Survey Manager,” he says, noting that the addition of a vessel planning page helps with fleet management by displaying a consolidated view of overdue surveys and findings as well as expiring certificates.

There are also improvements to the Access dashboard where user feedback has been applied to reorganize the dashboard for better functionality. “Account administrators will continue to select the information for each user to access,” Karam explains, noting that granting access only to relevant information mitigates data overload for users.

Changing the dashboards means users will have to familiarize themselves with the improvements in order to get the best value, Karam says. “I recommend opening the Resources and Help dashboard when you access the updated My Eagle portal because from this dashboard, you can find information on each section of the portal as well as tutorials that will help you to navigate the improved My Eagle.”

This is the first step in tailoring ABS software to improve communication, Karam says. “There is always room for improvement – with mobility being at the top of the list – so we are hoping users will provide feedback that can be used to guide future development.”

By clicking on the feedback tab in the top right corner of the My Eagle portal, users can easily share comments and suggestions for improvement. “The primary objective,” Karam says, “is to provide the best and most efficient tools for our clients.”

Questions about the updated My Eagle portal can be sent to ABSEagle@eagle.org.
Regulatory policies and economic conditions continue to rapidly change. As a result, the marine industry is tackling new operational challenges and finding ways to comply with environmental and energy efficiency standards around the globe without sacrificing operational efficiency.

As a service to industry, the Operational Environmental Performance (OEP) team and ABS Technology recently developed and released an advisory for Ship Energy Efficiency Measures to assist shipowners and designers in overcoming the challenges of rising fuel costs and increasing environmental regulation. “The advisory provides a broad overview of technical and operational measures to improve the energy efficiency of ships at the newbuild stage and while in service,” says Jan de Kat, ABS Director of Energy Efficiency.

“There are two major factors that spurred the development for this advisory,” says Tom Kirk, ABS Director, Environmental Performance. “First, environmental regulations are driving the need to reduce emissions. Second, since fuel has become such an important and expensive cost of operations, shipowners and operators are trying to find ways to reduce their energy consumption and optimize their existing energy management systems.”

The advisory provides guidance for a wide range of options being promoted to improve vessel efficiency, reduce fuel consumption and lower emissions. Subjects covered in the document include hull and propeller optimization, energy-saving devices, structural optimization, performance monitoring and voyage planning, machinery technology and fuel efficiency for ships in service. According to de Kat, because energy efficient operations can be achieved by addressing a combination of measures, it was important that the advisory illustrate each option.

“We evaluated where energy is lost and came up with an advisory that defines principle areas of energy loss,” Kirk says. “The advisory doesn’t attempt to highlight one specific approach over another, nor does it attempt to give any indication of what will be the most highly adopted technology. It just presents the basic physics of the problem and explains how to recover some of these energy losses.”

According to Kirk, although the advisory was written for ships, there is relevant information that can be used for offshore assets as well. ABS is investigating offshore performance optimization at the Global Performance Center in Singapore, which the organization launched in early 2013.

“We will continue to refine all of the options and available technologies for energy efficiency,” Kirk says. “As regulations and technology mature, ABS will look at the currency of information and adjust so the guidance ABS offers the industry continues to meet industry needs.”

When ABS released its SafeHull-branded technology to industry 20 years ago, it ignited a real revolution in design, engineering and standards development, the effects of which continue to be felt throughout the maritime world today.

SafeHull’s legacy to industry has three parts: classification (applying new philosophy and technology to classification structural Rules); design (applying a new integrated engineering approach to predicting loads and structural response in a seaway); and operations (improving ship structural safety at sea).

For classification, SafeHull showed the way to develop new Rules based on a new understanding of the behavior of hull structures at sea, including the ability to evaluate yielding, fatigue, buckling, ultimate strength and other possible failure modes.

For the industry, SafeHull brought a true understanding of the behavior of ship structures at sea, based on sound engineering principles that gave naval architects around the world a method and a technology for figuring out how to make new vessel designs come to life and perform as intended.

Before SafeHull, both the classification and design sectors were chained to the past in terms of what they could do to advance hull structures. Throughout history, structural design and strength evaluation were based primarily on traditional empirical or semi-empirical formulations for loads and strength, which were modified according to service experience. This approach did not take advantage of the latest engineering principles and technologies, nor was it applicable to new, larger and more complex ship designs.

ABS changed all that and led the industry into the future. Using advances in computational methods in such areas as hydrodynamics, seakeeping and finite element analyses, ABS developed the maritime industry’s first-ever means of realistically predicting the behavior of marine structures in response to dynamic loads at sea.

A full DLA analysis can take several months; so as part of this process, ABS developed an ‘abbreviated’ version of DLA able to run on a personal computer, and focused only on a vessel’s cargo area (the ‘cargo block’, or 0.4L portion of the ship). This significantly reduced the time required for the analysis, enabling application of the new criteria to become part of the day-to-day design process. The new criteria and the associated analytical tools — including the industry’s first simplified fatigue screening tool — were combined into a new product named SafeHull.

Far more than just software, SafeHull combined the restated Rules criteria, including associated analysis tools, plus the software to apply them.
This brought a real revolution to the maritime industry.

SafeHull not only assessed designs according to ABS Rules, it also accurately predicted where fatigue and other structural problems would develop as the structures aged. Its unique analytical capabilities made SafeHull far more than just a means of checking designs against class Rules. SafeHull emerged as a totally new kind of tool that designers could use to realistically assess the strength of a structure, relative to the necessary class acceptance criteria, throughout the evolution of the design.

SafeHull technology encouraged innovation throughout the maritime world and fundamentally changed the way industry approaches hull structural design.

“Before SafeHull, the industry depended on experience-based, semi-empirical structural criteria that were not well understood and, as a result, had developed Rules that were overly conservative in some areas and not conservative enough in others,” Grove says. “SafeHull not only helped ship structural design evolve into a rational process over the last 20 years, but, because we explicitly defined and documented everything when we restated the Rules, has also helped ABS make rational, informed amendments to its criteria as the industry and ABS evolve over time.”

For this reason, although SafeHull technology is now 20 years old it is not just part of the past, but continues to be a building block of the future. The SafeHull brand is no longer used for oil tankers and bulk carriers, having been superseded by the common structural rules (CSR) for those vessel types, but lives on in the classification of containerships and LNG carriers. SafeHull technology also has evolved into such new developments as the ABS Rules for ship-shaped floating production installations (FPSOs), drillships and floating liquefied gas terminals.

Most significantly, SafeHull technology is at the core of the CSR. Without SafeHull – specifically, the ‘net ship’ concept and the abbreviated version of DLA – the CSR would not be what it is. Therefore, it is no exaggeration to say that SafeHull, along with its predecessor technologies developed by ABS, made possible modern hull structural design and engineering as they are known today.

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SAFEHULL MILESTONES

- First time class Rules were based on engineering first principles
- SafeHull incorporated industry’s first-ever screening tool for fatigue
- First use of the ‘net ship’ concept in any class Rules
- First time a two-step engineering approach – initial scantling evaluation and total strength assessment – was used in class Rules
- First comprehensive software suite that integrated hydrodynamics software results with finite element analysis
- First time class Rules were developed for double hull tankers (SafeHull for Oil Tankers)
- For the first time, class Rules addressed structural inadequacies of bulk carrier designs (SafeHull for Bulk Carriers)
- Many SafeHull bulk carrier requirements became IACS Unified Requirements and then were adopted into SOLAS Chapter XII
- SafeHull technology is at the core of the common structural rules
A safety-focused employee awareness program and the introduction of an advanced safety management system are just a few of the ABS safety programs that have reduced workplace related injuries over the past year.

“It is our responsibility as a safety-dedicated organization to provide our employees with the resources they need to complete their work as safely as possible,” ABS Vice President, Occupational Health and Safety (OH&S) John McDonald says. “By introducing new initiatives this year, we will continue to strengthen our safety culture across the organization.”

In early 2013, OH&S launched the Take 5 safety program after an analysis of safety incident reports revealed that most incidents were caused by a lack of situational awareness. What began last year as an employee engagement initiative encouraging everyone to follow the Always Be Safe credo has since evolved into a larger safety awareness program.

“The goal of the Take 5 initiative is to keep employees aware of hazards in their work area and remind them that if performing a task poses a risk, hazards should be mitigated before the work is begun,” ABS Health and Safety Engineer Richshalla Papillion says.

ABS launched a new online safety management system in mid-2013 to improve global incident reporting that allows OH&S to track and trend near-misses and incidents to better identify areas in need of improvement. According to Papillion, another of the major benefits is that the system allows reporting outside the ABS network.

“Individuals can create reports even without ABS network access,” Papillion says. “This feature alone will increase the number of reports we receive and is especially valuable to contractors without access to an ABS computer.”

The new system can generate up-to-date global reports and because all of the information related to a specific incident is stored within the system, users can track related changes and actions items. In short, the systems helps OH&S better understand leading health and safety issues.

“The new system is more sophisticated than its predecessor,” Papillion says. “It will significantly increase our ability of trending and analysis of the incident reports we receive.

The results of these efforts are already apparent. ABS experienced a 25 percent decrease in work-related injuries between 2011 and 2012, with a 50 percent reduction of lost-time cases.

“Investing in safety programs such as these is a way for us to remind employees how safety complements the quality of the work we do,” McDonald says. “These safety programs will continue to evolve as we identify the types of health and safety challenges our employees face.”
ABS Researches Nanotechnology

Work continues at ABS on the next generation of research and development (R&D) programs, which today include disciplines that are new to oil and gas operations. According to ABS Director, Shared Technology, James Bond, ABS is looking into a broad range of technologies that can be applied to marine and offshore operational challenges.

“Class has embraced emerging technology programs – typically designed to service technology scenarios ten years beyond the average client’s own horizon,” Bond says. “This has led to more investment and greater cooperation with stakeholders on pioneering joint development projects (JDPs).”

As ABS made the decision to expand its R&D efforts, it became apparent that there was value in more closely evaluating emerging technologies that were not part of the traditional research program. The decision to look into nanotechnology resulted in a JDP being pursued with George Washington University, where a research team is profiling nanotechnologies in an effort to develop and test icephobic coatings to mitigate ice accretion.

“By profiling the surface at the nanoscale, researchers can modify the contact angle for water droplets so they don’t adhere,” Bond says, “which means the droplets will not wet a treated surface.” The value of this technology is that it could reduce the risk of ice buildup in Arctic conditions.

The goal of the JDP is to develop a testing standard to evaluate icephobic coating performance that includes ice adhesion, abrasion resistance, durability, and UV resistance. “It is a trickier problem than it appears,” Bond explains, “in part because there are so many variables.”

If researchers can overcome the challenges, this nanotechnology solution has the potential to expand the operational window of Arctic operations and to improve operational safety.

Deciding to focus on coatings was not an easy decision according to Bond. “In making its final selection, ABS evaluated 16 nanotechnology projects in the disciplines of energy efficiency, subsea, and offshore technology.”

The potential scope for applying these new technologies is broad, but research is in the early stages, and additional funding will be required to further the field of study. While it is impossible to guess when research will bear fruit in the form of applicable technology, there is no question that continued investment will be vital to success. As industry moves into frontier areas, new technologies will have to be developed to close the gaps.

“Cooperative research efforts will be critical to developing the solutions the industry needs,” Bond says. “ABS will continue to playing a part in finding the answers.”

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<td>Bouncing Water</td>
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Understanding the need to identify technical solutions related to corrosion control in offshore and marine environments, ABS recently supported Prof. Helen Verstraelen as part of a special joint committee convened for her doctoral thesis defense on ballast tank corrosion on board merchant vessels at the Antwerp Maritime Academy (AMA). Verstraelen is the AMA’s third Doctor of Nautical Science since its transformation into a separate academic research unit with postgraduate academic degrees in 2006.

In 2007, Capt. Dr. Kris De Baere, together with Dr. Verstraelen and Dr. Geert Potters, began a multi-year in situ PhD study focused on corrosion parameters in the ballast tanks of more than 150 ships, gathered without applying any selection criteria. An average corrosion rate, which is useful for improving planned maintenance, was determined by means of simple statistical regression. Since 2010, the AMAs Nautical Science unit has focused on the influence of steel quality on corrosion rates.

Building on the preceding program, Verstraelen and her colleagues conducted research involving a combination of scientific fields, including physics, chemistry, electrochemistry, economics, statistics and metallurgy; lab tests; and field data about steel quality in relation to ballast tank corrosion. Providing a different approach to her thesis, she focused on metallurgy, metallurgy and electrochemistry to analyze the factors that influence corrosion rates.

“My background is in Nautical Sciences; so none of these fields was my specialty, but after immersing myself in the literature and consulting with field experts, I experienced a ‘Eureka!’ moment when all of the pieces finally came together,” Verstraelen explains. “Collectively, we discovered that there were really new and significant elements in the work that could be of interest to the maritime industry.”

ABS Principal Engineer of Shared Technology Chao Wei, one of Verstraelen’s thesis examination board members, attended her PhD defense in early 2013 as an international defense committee member. “Helen’s thesis work provides valuable insight,” he says. “The AMAs efforts are a significant contribution to the area of corrosion control in ballast tanks – which is the principle parameter by which owners determine whether or not to take a ship out of service.”

The general corrosion rate of standard construction steel in normal atmospheric conditions is approximately 0.1 mm per year, according to De Baere, who served as Verstraelen’s PhD advisor. “In a humid, hot and saline environment, the corrosion rate increases rapidly, and when considering local pitting corrosion, the rates become alarming,” he explains.

“Today’s ships are mainly constructed out of grade A or AH steel, which are not particularly corrosion resistant,” De Baere says. “Traditionally one tried to tackle the corrosion problem through a combination of epoxy coatings and sacrificial anodes, both of which are generating acceptable results if conscientiously applied, installed and maintained.”

For the next ‘chapter,’ De Baere says, his team is focusing on a following line of research concentrated on making ballast tank coatings lifetime-lasting, with minimal to no maintenance required.

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“With our continued research in the area of corrosion control, we hope to make shipping safer, environmentally friendlier and economically more advantageous,” he says.
Verifying Floating Installations in the GOM

Analysts at International Maritime Associates have estimated a total of $11 billion in new orders for the floating production sector. The current order backlog comprises 72 floating production units, of which 40 are floating production, storage and offloading (FPSO) units.

With the demand for more complex offshore facilities at a record high, the USCG recently released a Policy Letter to provide guidance for regulatory compliance for floating offshore installation (FOI) and FPSO projects on the US Outer Continental Shelf. The Policy Letter identifies three optional classification services to assist with compliance.

While the Policy Letter establishes alternative standards for the certification of FOI and FPSO design and equipment, the USCG confirmed that existing policies and procedures are still in place. The standing delegation of authority from the USCG to ABS maintains that ABS remains the only classification society authorized to act on behalf of the USCG.

The organization has classed 93 percent of existing floating installations in the Gulf of Mexico and more than 40 percent of the existing FPSO fleet worldwide. Other class societies working with the USCG to verify that floating installations comply with the applicable national and international standards are required to submit drawings to the USCG for final approval; USCG inspectors are responsible for fabrication and installation inspection at the field.

According to ABS Offshore Manager Luiz Feijo, the Policy Letter sets down a clear path that includes class as the basis for compliance. “Classification societies work closely with industry and regulators, including the USCG, to provide design and equipment standards for floating installations,” he explains.

“The USCG does not have technical requirements specifically tailored to FOIs or FPSOs; so determining the compliance matrix is normally challenging and can vary depending on hull shape,” Feijo says. “Class societies, on the other hand, have developed specific requirements for each type of facility, which are based on experience and sound engineering practices.”

The Policy Letter uses concept-specific requirements from class rules as a baseline, and it identifies additional requirements related to lifesaving, firefighting and fire-extinguishing equipment and electrical and piping systems. It also incorporates other recognized industry standards as part of the compliance framework.

In addition to the Policy Letter, the USCG will continue to consider requests for alternative design and equipment standards on a case-by-case basis. According to its disclaimer, while the guidance contained in the document can assist the industry, public, USCG and other federal and state regulators in applying statutory and regulatory requirements, the guidance is not a substitute for the applicable legal requirements, nor is it a regulation.

“The USCG considers that this alternate compliance format provides a level of safety comparable to or greater than that provided in the regulations,” Feijo says, noting that ABS can assist owners and operators with complying with USCG standards and obtaining the A1 FOI or other applicable notation.

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As offshore operations change, the approach to safety has to keep step. The ABS Guidance Notes on Accidental Load Analysis and Design for Offshore Structures are a case in point. Released earlier this year, this document reflects a departure from the traditional approach to developing guidelines for offshore safety.

According to ABS Director of Marine Technology Christina Wang, what is different about ABS’ approach to developing these Guidance Notes is that the traditional method of assessing accident-induced loading on a structure is prescriptive. “The issue with this traditional method,” Wang explains, “is that prescriptive criteria can give rise to a ‘one-size-fits-all’ mentality.”

The change in approach ABS took in developing this document reflects the recognition over the past ten years or so that risk-based procedures can support – and in some cases replace – a prescriptive approach to addressing risk.

The new Guidance Notes provide an overview of the process for identifying and assessing a variety of accidental loading scenarios that offshore oil and gas facilities can experience. While conventional design criteria typically take into account such variables as wind, wave, current and weather conditions, these criteria do not include guidance on assessing design integrity under the accidental loads of impact from moving vessels, dropped objects, fire or blast hazards.

Although the team involved in developing the document recognizes that a very wide range of potential accidents exists, it focused on key events that can affect the structural integrity and performance of the facility in developing the Guidance Notes. The same conceptual process can be used with other accidental loading scenarios.

The accidental loading scenario evaluation process is structured in accordance with a risk assessment where initial hazard identification defines potential accidents that can occur to the facility during its life – from installation to decommissioning. Then, the risk exposure is developed based on the likelihood and consequence of each event. The process is idealized as three distinct activities: developing an accidental hazard risk assessment plan, performing a preliminary risk assessment and carrying out a detailed risk assessment if warranted.

It is important to recognize that the newly released ABS Guidance Notes are not intended to serve as a design or assessment standard, Wang says, but to highlight the primary activities relating to accidental loading assessment to promote more efficient and safer facility design and operation.

The emphasis is on minimizing health and safety, environment and facility risks. “Companies can adapt the methodologies provided to a particular offshore installation or mobile offshore drilling unit while considering the accidental structural loads that it might experience,” Wang says.

ABS is the first classification society to use a stepped risk-based approach to provide comprehensive guidance within a single guide for assessing the structural consequences of a collision, dropped objects, fire and blast loads on offshore structures. ☞

Guidance Notes Address Structural Integrity

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A new focus on improving health, safety, performance and productivity on board ships and offshore assets has resulted in the publication of a new Guide that features specialized ergonomic notations. The Guide for Ergonomic Notations was developed to help ABS clients and the wider industry to work towards best practices in ergonomics that are in step with regulations such as the ILO Maritime Labour Convention (ILO MLC).

The Guide features four notations, Ergonomic Topsides Design (ERGO TOP), Ergonomic Enclosed Space Design (ERGO ES), Ergonomic Valves Design (ERGO VALVE) and Ergonomic Maintenance Design (ERGO MAINT).

According to Kevin McSweeney, ABS Manager, Safety and Human Factors, ergonomics is a scientific discipline concerned with understanding interactions between humans and other elements of a system and is a profession that applies theory, principles, data and methods to design with the goal of optimizing human well-being and overall system performance.

Owners and operators in the marine and offshore sectors are increasingly interested in improving occupational safety, he says.

“In talking to owners and operators and reviewing injury and close-call data, we found that many of the problems crews experience in their day-to-day work are ergonomics-related; so we knew there were issues that could be addressed by these notations,” he explains. “Improving health and safety is a good way to increase performance and productivity which ultimately, can have an impact on the bottom line.”

The notations are relatively straightforward in content. ERGO TOP assesses access compatibility between crew and topside structures, including external stairs, ramps, ladders, platforms and other topside structures associated with crew mobility and task performance. ERGO ES covers compatibility inside the skin of the vessel below the main deck of either a ship or offshore structure.

ERGO VALVE considers access, orientation, and use of operating and maintenance valves with regard to accessibility and ease of identification and use. ERGO MAINT is directed at access and use of maintenance locations (spaces, platforms and access aids) with regard to maintenance safety and ease of accessibility.

The ILO MLC, which came into force in August 2013, puts in place a requirement for the owner or operator to provide healthy and safe working conditions for the crew. Together with the various ABS Guides for habitability, the ergonomic notations fulfil many of the ILO MLC requirements by improving the safety and physical design of work spaces.

To drive better ergonomics in the shipbuilding process, ABS also recently completed a joint development project (JDP) with Samsung Heavy Industries of South Korea to identify practicable ergonomic criteria for maritime assets. The JDP also served as a foundation for augmenting ABS’ suite of ergonomic and safety guidance and the yard’s in-house human factors design guide.

As the benefits of ergonomic design become better understood, McSweeney says, the potential exists to extend the discipline further.

“Looking down the road, I see these notations as just the first four of perhaps many more,” he says. “There are other ergonomics topics that could be addressed, and ultimately, there could be an Ergo Ship notation for a vessel that achieves all the ABS ergonomic and habitability requirements. That’s the vision, but it’s down the road as yet.”
Recently Released ABS Rules & Guides

ABS Rules and Guides are available for purchase and/or free download directly from the website at www.eagle.org. Subscribe on-line to receive email notifications when new publications or notices are available. The following listing reflects Rules and Guides Updates from 1 May 2013 to 10 September 2013.

RECENT PUBLICATIONS

NEW Guide for Enhanced Fire Protection Arrangements, September 2013 (Pub 202)
ABS developed this Guide to introduce optional enhanced fire protection notations for the accommodation areas, machinery spaces, cargo areas and industrial areas for marine vessels and offshore installations. This publication is available for download or print on demand.

NEW Guide for Certification of Maritime Education Facilities and Training Courses (G-CMET), September 2013 (Pub 203)
This Guide contains the ABS requirements for the certification of facilities that provide maritime education and their training programs for the marine and offshore industries. The training certification extends to privately operated academies and/or State-sponsored training facilities. This publication is available for download or print on demand.

UPDATE Guidance Notes on the Application of Ergonomics to Marine Systems, August 2013 (Pub 86)
ABS developed the Guidance Notes to be used in concert with human-system interface design processes. This publication contains ergonomic data and principles for improving personnel performance and safety and reducing human error. Although compliance is not required, ABS encourages designers, owners and operators to consider adopting this guidance where feasible. This publication is available for free download or print on demand.

UPDATE Guide for the Class Notation Coating Performance Standard (CPS), June 2013 (Pub 153)
This Guide is applicable for protective coatings in dedicated seawater ballast tanks of all types of ships of not less than 500 gross tonnage and double-side skin spaces arranged in bulk carriers. For issuance of the CPS notation, ABS Type Approval is required. This publication is available for download or print on demand.

NEW Guide for Building and Classing Wind Farm Support Craft, June 2013 (Pub 200)
This Guide contains the requirements for such vessels specifically fitted with equipment for maintaining and repairing facilities in offshore wind farms, as well as transporting industrial personnel between a shore-based facility and offshore wind farms. This publication is available for download or print on demand.

NEW Guide for Ergonomic Notations, June 2013 (Pub 201)
This Guide contains the criteria for four new ergonomic notations for selected working areas on vessels classed with ABS. These notations include topsides design, enclosed space design (e.g., on or below the main deck on the interior of the vessel), design for valve access and use, and design for operability and maintainability. This publication is available for download or print on demand.

Recent Updates to ABS Rules & Guides

NOTICES & CORRIGENDA – GENERIC RULES

Part 1 Rules for Conditions of Classification (2013)
• Rule Change Notice 2, July 2013

Part 1 Rules for Conditions of Classification – Offshore Units and Structures (2012)
• Rule Change Notice 5, July 2013

Part 2 Rules for Materials and Welding (2013)
• Rule Change Notice 1, July 2013
• Corrigenda, July 2013

Part 7 Rules for Survey After Construction (2013)
• Rule Change Notice 1, July 2013
• Corrigenda, July 2013

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### Recent Updates to ABS Rules & Guides

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The need for advanced seafarer training is becoming critical for owners and operators with crews who work in demanding marine and offshore markets. Because the quality of these programs is so important, ABS is launching a certification service to accredit learning programs and facilities that provide maritime education and training, using the recently published ABS Guide for Certification of Maritime Education Facilities and Training Courses, which outlines criteria for acceptance, certification and monitoring of maritime training and education.

“As seafaring becomes more about comprehension and compliance, quality training plays a vital role in equipping seafarers to face the changing environment of regulations and technology,” ABS Director of Learning Development Graham Marshall says. “A certification program can verify that seafarer training programs are of comparable quality, meet industry and regulatory standards, and promote good industry practices.”

The ABS certification program takes into account the IMO Standards for Training and Certification of Watchkeeping (STCW) and other applicable national and flag state requirements as well as industry guidelines such as Intertanko’s Tanker Officer Training Standards (TOTS), the Society of International Gas Tanker and Terminal Operators (SITGTO) Competency Standards for LNG Ship Seafarers; and the Offshore Petroleum Industry Training Organization (OPITO) standards.

ABS Pacific Division Learning Manager Amar Hanspal, who helped author the Guide, says seafarer competency has become a very pressing concern in both industries. “The need of the hour is not just to provide seafarers or offshore crew but to provide competent personnel,” he says. “Using this Guide and obtaining certification through this program offers an opportunity for a school or training facility to prove it has met a standard verified by an independent third party.”

The certification service covers training courses for marine shore-based or shipboard application, as well as those for the offshore sector. Academies and training centers can be run partially or completely by a State or can be managed privately by shipowners, ship managers, offshore companies, or crewing and manning operators that are recruiting and training seafarers.

“ABS Academy has released a Guide for Certification of Maritime Education Facilities and Training Courses outlining the ABS requirements for certification to assist operators of training facilities. The Guide is available for free download on the ABS website at www.eagle.org under the ABS Academy section.

For more information about the Certification of Maritime Training course, email ABSTrainingCertification@eagle.org.

The certification process begins when a facility submits training course details and instructor/examiner qualifications to ABS, where documents are reviewed and assessed and the program is audited and verified. This allows reviewers to confirm that a training facility and the courses are in compliance with the Guide for Certification of Maritime Education Facilities and Training Courses. A facility that meets the requirements will be issued a three-year certificate of compliance that is subject to annual verification.

ABS Europe Division Learning Manager Lefteris Karaminas says the value of this program is that it goes beyond education and training procedures in a quality management system. “ABS certification verifies that a learning program, including the learning objectives, training material, instructors’ and examiners’ qualifications and management system are aligned with applicable standards.”

ABS Academy Launches Certification for Training Facilities
Here is little need to ask whether a ship management company is interested in fuel-efficient operations. No longer solely driven by commercial needs, the shipping industry also must comply with regulatory requirements and industry standards. As shipowners and operators continually search for ways to navigate increasingly regulated environments, training courses are critical to successful operations.

To further technical expertise within the marine sector, the ABS Academy launched a training course titled “Ship Energy Management for Fuel Efficient Operations” in mid-2013. Lefteris Karaminas, ABS Europe Division Learning Manager and Mike Servos, Vessel Performance Engineer, conducted the training course in Athens, Greece.

“Having anticipated the need for such training, we conducted several in-house interactive exploratory seminars and client questionnaires to help us define a course syllabus that included workshops,” Karaminas says. “Several clients provided their input, which helped us create a course focused on ship energy management and fuel efficiency.”

According to Karaminas and Servos, the goal was to develop a training course that moves beyond standard awareness information.

“For ship management companies actively following, developing or implementing ISO Standard 50001: Energy Management Systems, the Technical Plan-Do-Check-Act (PDCA) cycle brings challenges that require solutions at a quantitative level,” Servos says. “This course introduces techniques and processes that can be used to determine energy efficiency improvements for a vessel’s operations, maintenance, and equipment.” ABS has provided training to leading ship management companies, including Scorpio, Minerva and Seaworld.

During the course, trainees use interactive case studies to identify fuel savings opportunities onboard a typical merchant vessel. According to the instructors, shipboard measurements have to be not only properly conducted but also properly evaluated if a shipping company is to continue making the right decisions for hull/machinery maintenance and operations. “The aim of this training course is to fill the knowledge gap with the view to improve the operator’s ship service decision support system,” Servos explains.

Those attending the course should have a basic naval architecture, marine engineering or chief engineering background, although some exercises also can be carried out by other disciplines.

“Compared to the benefits ship owners could gain through implementation during operation in-service, this training course can be considered a true investment,” says Karaminas.
Recognizing that complex power train designs present challenges for onboard electrical engineers, ABS has partnered with GasLog LNG Services to develop a training program that answers this industry need.

ABS Academy and GasLog have created a course that addresses ship electrical and electronic systems to help electro-technical officers understand and master new technology. The course, which was developed in cooperation with members of MARINELIVE network, addresses major electrical and electronic engineering issues at an introductory, supplementary and refresher level. Ship managers who take the course will be able to apply key information in their day-to-day work to prepare them to contend with the most recent advancements in ship technology.

According to ABS Europe Division Learning Manager Lefteris Karaminas, the decision to develop the course was straightforward. “The electrical engineering discipline has become really important for ship managers and operators,” he says. “This is especially true for seafarers who operate the latest high-specification LNG carriers with dual-fuel electric propulsion and ship types already using electro-technical expertise, such as cruise liners, passenger vessels, mobile offshore drilling units, offshore support vessels and other vessels with dynamic positioning systems.”

In addition to meeting an industry need, the course offers a way to meet a new training requirement that came into force on 1 January 2012. The International Maritime Organization adopted major revisions to the Standards of Training and Certification of Watchkeepers (STCW) Convention and its associated Code in June 2010. Beginning last year, the amendments, known as the Manila Amendments to the STCW Convention and Code, went into effect, changing the global standards for training and certifying seafarers operating technologically advanced ships.

“Seafarers holding STCW certificates issued prior to 1 January 2012 will have to meet the new requirements – including new refresher training – for their certificates to be revalidated beyond 1 January 2017,” Karaminas says. “Although some Administrations may decide to implement the new standards...”
earlier than others,” he adds, “employers and certificate-issuing Administrations should advise about any new training that must be undertaken.”

With the present course curriculum complete, ABS is looking for additional applications. “The course content is now being considered for extension to the highly demanding passenger ship sector, where electrical engineering is at its most demanding level,” Karaminas says. “We urge operators to consider this course for both their electro-technical officers and shore-based electrical superintendents.”

Typical arrangement of a 440 V switchboard

**Major electrical competences defined in STCW:**

- Monitoring the operation, safe use maintenance and repair of electrical, electronic and control systems
- Monitoring operation maintenance and repair of the automatic control systems for propulsion and auxiliary machinery
- Operating generators and distribution systems
- Operating and maintaining power systems greater than 1,000 volts
- Operating computers and computer networks on ships
- Maintaining and repairing bridge navigation equipment and ship communication systems
- Maintaining and repairing the electrical, electronic and control systems of deck machinery and cargo-handling equipment and hotel equipment safety systems
- Using hand tools, electrical and electronic measurement equipment for fault finding, maintenance and repair operations
client training

ABS developed a series of training modules with topics ranging from LNG as fuel ship propulsion, ship arrangement and fuel containment methods to existing standards, regulations and review processes for gas fueled ships, to provide better understanding of the key market drivers and requirements related to this optional fuel.

“Most recently the marine industry has seen growing interest in application of dual-fuel and single-gas fuel engine technology as a possible solution to meet emissions control area fuel sulfur content requirements and to find a better economic alternative,” says ABS Western US District Manager Shadd Williams.

According to Williams, the course provides insight based on ABS’ long-standing relationship working closely with industry and the USCG on LNG developments. “We sought to leverage ABS’ extensive experience with LNG in-house and industry experts to convey practical insights into the technology with its application to vessels as a fuel. We chose the US Pacific Northwest region because of the large number of owners and operators servicing the US and Canadian West Coast ports and Alaska.”

Several presentations focused on the LNG regulatory environment, underscoring ABS’ membership in a number of subcommittees convened to develop international requirements for LNG carriers, including the International Code of Safety for Gas-Fuelled Ships and LNG as ship fuel infrastructure, and the organization’s more than 50 years of experience with LNG technology.

“ABS is committed to sharing its knowledge with existing and new clients to keep them knowledgeable about LNG’s growing role in the energy equation as well as new regulations related to gas fueled ships as these developments evolve,” Williams says.

supplemental to the ABS Guide for Propulsion and Auxiliary Systems for Gas Fueled Ships, ABS recently conducted a two-day series of training seminars in New Orleans, Louisiana, and Seattle, Washington, to educate shipowners, operators and personnel about the role of classification societies with LNG as fuel developments across the globe.

“With the shipping industry facing rising fuel costs combined with impending regulations aimed at reducing exhaust gas emissions, many of our clients were requesting advice or alternatives for meeting the MARPOL Annex VI emission requirements,” says ABS Central US District Manager Brian Barton. The ABS Liquefied Gas Carriers seminars build on an individual training session developed as part of a new construction program. The technical training courses were offered to individuals who operate, build or develop LNG fueled vessels.

“LNG fueled marine propulsion systems are finding favor as an economically viable and longer-term technology solution, and ABS saw an opportunity to continue its external training initiatives by tailoring a course for the specific use in smaller craft servicing the US Gulf of Mexico, Great Lakes, and coastal and inland waterways,” he explains.

ABS Debuts LNG as Fuel Seminars

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ABS Membership Plaques

Peter Cowling, Director, Wallem (UK) Ltd., receives an ABS membership plaque from Karel Van Campenhout, ABS Europe Division Senior Vice President, Operations.

Tatiana Petalas, Owner, Carras (Hellas) SA, receives an ABS membership plaque from Vassilios Kroustallis, ABS Regional Vice President, Eastern Europe.

Eric Kleess, ABS Pacific Division President and COO, presents an ABS membership plaque to Captain Khoo Chin Yew, Managing Director, Orkim Sdn Bhd as Thomas Tan, ABS Regional Vice President, South Pacific looks on.

Darren Leskoski, ABS Regional Vice President, Central China, presents an ABS membership plaque to David Luan, Executive Director and Chief Operating Officer of China Rongsheng Heavy Industries Group Holdings Ltd.

Captain Rajalingam a/l Subramaniam, Vice President, Fleet Management Services, MISC, receives an ABS membership plaque from Eric Kleess, ABS Pacific Division President and COO.

Lau Soo Moi, Director, Marine Division, Sealink, receives an ABS membership plaque from Pedro Santos, Manager, Maritime Services for ABS Consulting.
Leong Seng Keat, Executive Director, Nam Cheong, receives an ABS membership plaque from Pedro Santos, Manager, Maritime Services for ABS Consulting.

Eric Kleess, ABS Pacific Division President and COO, presents an ABS membership plaque to Tuan Haji Sidqi Ahmad Said, Managing Director, Borcos Shipping.

Richard Pride, ABS Greater China Division President and COO, presents an ABS membership plaque to Dr. Wang Qi, President, Shanghai Waigaoqiao Shipbuilding Co., Ltd.

M. Adthisaya Ganesan, Senior General Manager, MISC, receives an ABS membership plaque from Eric Kleess, ABS Pacific Division President and COO.

Available for iPhone and iPad, the ABS DIRECTORY app provides addresses and contact information for ABS’ global network of offices. Download for free from iTunes.
ABS has once again been recognized for its service delivery in the Middle East. At the Sixth Annual International Maritime Awards, ABS received Marine BizTV’s ‘Best Classification Society’ award at a reception dinner following the ShipTek 2013 conference in Dubai, United Arab Emirates (UAE). More than 500 attendees from the maritime industry were present at the reception.

The occasion marked the third consecutive time the organization has received this recognition. ABS was named best classification society in 2010 and 2011; the event was not held in 2012.

“Owners throughout the region have great confidence in ABS,” says Joe Brincat, ABS Regional Vice President, Middle East, pointing to the many new orders that have been placed requesting ABS class and the transfer of approximately 1.34 mGT of vessels from other IACS members to ABS in 2012 as evidence. “In fact, ABS has the largest presence of any classification society within the Middle East region’s offshore sector, with 100 percent of the market share at several of the most prominent shipyards,” Brincat says. Part of the reason ABS has the full share of the work, he explains, is that the ABS survey team offers a broad range of offshore support capabilities and services, including guidance for diving systems and FPSO conversions.

“This award is an acknowledgement of our contributions in the Middle East region and reflects the hard work and dedication of our surveyors, engineers and supporting staff, who are contributing to ongoing regulatory and technology developments,” he says.

According to Brincat, every self-elevating drilling unit and semisubmersible drilling unit in the UAE has been built to ABS class. “We have been the class society of choice for various other self-elevating units built in accordance with the ABS Guide for Building and Classing Mobile Offshore Units, and we are working on the first ever tanker conversions for the modular capture vessels project at Drydocks World Dubai,” he says.

With so many offshore units in the region, Brincat continues, the new ABS Guidance Notes on Accidental Load Analysis and Design for Offshore Structures are being well received. “ABS is the first class society to release such comprehensive guidance and the first to use risk-based assessment techniques,” he says, noting that ABS also has been the chosen recognized organization for carrying out ILO Maritime Labour Convention audits and manual reviews.

ABS has maintained offices throughout the Middle East for more than 35 years. With a regional classed fleet currently undergoing significant expansion, the organization maintains the largest survey team of any class society in the region and recently inaugurated a new office in Fujairah, UAE, to increase operational efficiency. Another milestone was reached in 2012 with the opening of an expanded engineering office in Dubai.

“Our standards of excellence in the Middle East and our international contributions toward the development of a more efficient marine and offshore industry distinguish ABS as a leader in class services for this crucial energy market,” Brincat says.
ABS has increased its support of students at the National University of Singapore (NUS) through a new ABS Scholarship initiative for the Faculty of Engineering. Two scholarships will provide financial support over five years to civil and mechanical engineering students specializing in offshore engineering and offshore oil and gas technology.

Each year, one civil engineering and one mechanical engineering student will be awarded S$10,000 (US$7,900) to cover educational expenses during the final three semesters or year of study. These scholarships are indicative of ABS’ longstanding commitment to supporting students who are pursuing engineering degrees in disciplines that are valuable to the industry.

“ABS recognizes Singapore’s academic research as a primary driver of the region’s development into a significant offshore energy hub, and we are proud of our partnership with the National University of Singapore,” says ABS Chairman and CEO Christopher J. Wiernicki. “It is important to ABS to support the next generation of offshore engineers.”

With more than 55 years of history, the NUS Faculty of Engineering is committed to grooming ‘engineer leaders’ with a global perspective and advancing technology through high-impact research. The faculty has contributed substantially to the rapid industrial and economic growth of Singapore as well as to the nation’s knowledge-based economy.

“We are honored that ABS has provided such significant support for offshore engineering at the NUS Faculty of Engineering,” says NUS Faculty of Engineering Dean, Professor Chan Eng Soon. Offshore engineering is one of Singapore’s leading industries, and the Faculty takes pride in nurturing engineer leaders in this field. I am certain the future of the industry remains bright, driven by the global increase in energy demand in many emerging markets, and that our students will provide the specialized skillsets needed as offshore technology advances.”

*Industry site visits, such as this field trip to Sembcorp Marine in Singapore, constitute an important component of the curriculum for civil engineering students at NUS. (Photos courtesy of National University of Singapore)*
As part of its initiative to address Singapore’s growth, ABS created the Singapore Offshore Technology Center seven years ago to support research and development efforts in Southeast Asia through partnerships with local industry, government and academia. In April 2013, the name of the center was changed to Singapore Innovation and Research Center (SIRC) to reflect its role beyond the offshore oil and gas industry. Researchers at this facility are collaborating with academic institutions, including NUS, in new areas of marine and offshore research with the goal of developing innovative solutions to critical technical issues that affect global oil and gas operations.

ABS Scholarships Develop Future Leaders

One of the ways ABS shows its commitment to the marine and offshore industries is by providing financial assistance to students pursuing careers in these disciplines.

ABS provides scholarships at more than 70 educational institutions around the world. Students from universities such as Memorial University in Canada, the University of Michigan, the Norwegian University of Science and Technology and Shanghai Maritime University have received financial support through the ABS’ scholarship program.

Two of the most recent awards went to students at the University of Tokyo in Japan and the Technical University of Denmark (DTU).

Ryuici Toda, a student in the Department of Systems Innovation in the School of Engineering at the University of Tokyo, was the 2013 winner of the ABS Best Thesis Award.

Junichi Sato, a student in the Department of Ocean Technology, Policy and Environment at the University of Tokyo, won the ABS Best Thesis Award in 2013.

DTU student Ingrid Marie Vincent Andersen, a doctoral candidate at the Technical University of Denmark, accepts an ABS scholarship from Europe Division President Kirsi Tikka.
Engineers at ABS are working on a range of research and development (R&D) projects that cover a broad spectrum of industry segments from renewables, to subsea, to moorings and risers, to nanotechnology. With the continuing expansion of research activity, the organization has begun to look for avenues that can be used to share the results of its work.

Earlier this year, engineers took advantage of the 2013 Offshore Technology Conference (OTC) in Houston to host a presentation series that provided attendees with the chance to meet with ABS specialists about R&D work that is leading to innovative solutions to offshore challenges.

ABS Managing Principal Engineer Qing Yu kicked off the presentation series, sharing the results of research ABS carried out for the US Bureau of Safety and Environmental Enforcement (BSEE). The project on advances in floating offshore wind installations was one of a series of BSEE awards to ABS targeting research on renewable energy.

ABS Consulting Risk Director Cris DeWitt explained the advantages of Hardware-in-the-Loop (HIL) Testing, which can help identify onboard software and control system defects and expedite the process of executing solutions. DeWitt hosted a separate segment that included an overview of Controls Systems Cybersecurity and offered information that can be used to protect assets from software virus threats.

Herbert-ABS President Hendrick Bruhns discussed Offshore Load Management Program developments and integration with salvage response, which was followed by a joint presentation addressing ABS operations in Mexico. ABS Marine Services Senior Engineer Juan Paz and ABS Marine Services Regional Manager Terry Hickey talked about improving asset maintenance and reliability, drawing on ABS’ Mexico projects to illustrate key points.

With a presence in Brazil for 65 years, ABS has seen a lot of changes, including the upsurge in investment resulting from recent offshore pre-salt discoveries. With all of the activity in Brazil, ABS Local Content Manager Thereza Moreira provided an inside look at local content requirements in Brazil along with tips on how to meet them.

The final subject in the presentation series addressed the challenges of subsea communications. ABS Managing Senior Principal Engineer Milton Korn talked about the state of the industry and the obstacles that need to be overcome to allow widespread subsea development. A summary of Korn’s comments is featured on pages 26 and 27 of the August/September issue of UT2 magazine [http://issuu.com/ut-2_publication].
Newly Classed Vessels and Recent Contracts

NYK HELIOS, a 13,200 teu containership, NIBS, FL 25, SH, SH-DLA, BWT+, ENVIRO, GP, SHCM, built by Samsung H I for Newcontainer No. 62 (Marshall Islands) Shipping Inc.

1 February 2013 to 30 June 2013
Newly Classed Vessels and Facilities

**TANKERS**

ARDMORE SEAVALENT, 29,996 gt / 49,998 dwt, VEC-L, TCM, AB-CM, BWE, CSR, RES, built by SPP Shipbuilding for Fitzroy Shipco

ASPROUDA, 42,225 gt / 74,011 dwt, VEC-L, TCM, AB-CM, BWE, CSR, RES, built by SPP Shipbuilding for Asprouda Ltd.


BOSTON, 166,093 gt / 320,000 dwt, NBL, VEC-L, TCM, AB-CM, CSR, ENVIRO, GP, SPMA, built by New Times Shipbuilding for Rontor Ltd.

COLORADO, 81,341 gt / 158,614 dwt, VEC, TCM, AB-CM, CSR, ENVIRO, GP, built by Samsung H I for Diamond S Shipping

DALIAN, 166,093 gt / 299,981 dwt, NBL, VEC-L, TCM, AB-CM, CSR, ENVIRO, GP, SPMA, built by New Times Shipbuilding for Image Trading S.A.

EAGLE VANCOUVER, 161,974 gt / 320,299 dwt, NBLES, VEC, TCM, AB-CM, BWT+, CSR, ENVIRO, GP, SPMA, built by Daewoo Shipbuilding & Marine Engineering for AET Inc. Ltd.

EAGLE VARNA, 161,974 gt / 320,299 dwt, NBLES, VEC, TCM, AB-CM, BWT+, CSR, ENVIRO, GP, SPMA, built by Daewoo Shipbuilding & Marine Engineering for AET Inc. Ltd.

EUROVISION, 81,314 gt / 157,802 dwt, VEC-L, TCM, AB-CM, CSR, ENVIRO, GP, built by Sungdong Shipbuilding & Marine Engineering for Rascover Trading Corp.

FLORIDA, 29,242 gt / 46,000 dwt, VEC, SH, SHCM, built by Aker Philadelphia Shipyard for Crowley Tankers

HAWASSA, 26,827 gt / 42,190 dwt, VEC, AB-CM, CSR, SPMA, built by CSC Jinlii Shipyard for Ethiopian Shipping & Logistics Services Enterprise

KOURION, 29,930 gt / 50,209 dwt, VEC-L, TCM, AB-CM, BWE, CSR, ES, RES, built by SPP Shipbuilding for Kourion Shipping

MARETA, 61,332 gt / 115,795 dwt, NIBS, VEC-L, TCM, AB-CM, CSR, ES, built by Samsung H I for Olympian Dionysus Owners

NAVE RIGEL, 42,341 gt / 74,673 dwt, VEC, TCM, AB-CM, BWT, CSR, ENVIRO, GP, built by Sungdong Shipbuilding & Marine Engineering for Tinos Shipping

ODESSA, 85,436 gt / 149,999 dwt, VEC-L, TCM, AB-CM, CSR, GP, SPMA, built by New Times Shipbuilding for Crest Agency Ltd.

PACIFIC LAPI, 28,426 gt / 50,007 dwt, VEC-L, TCM, AB-CM, CSR, GP, built by Onomichi Dockyard for Friend Shine Shipping S.A.

PACIFIC ONYX, 28,426 gt / 50,007 dwt, VEC-L, TCM, AB-CM, CSR, GP, built by Onomichi Dockyard for Kairasu Shipping S.A.

PACIFIC ZIRCON, 28,426 gt / 50,015 dwt, VEC-L, TCM, AB-CM, CSR, GP, built by Onomichi Dockyard for Friend Shine Shipping S.A.

PRINCIMAR COURAGE, 81,394 gt / 158,368 dwt, VEC, TCM, AB-CM, BWE, BWT, CSR, ENVIRO, GP, built by Samsung H I for Courage Holdings

SEA JEWEL, 62,255 gt / 112,081 dwt, VEC-L, TCM, FL 30, AB-CM, CSR, built by Hyundai H I for Arab Maritime Petroleum Transport

SEAPRIDE, 29,925 gt / 50,660 dwt, VEC-L, TCM, AB-CM, BWE, CSR, ENVIRO, GP, SPMA, built by STX Offshore & Shipbuilding for Thenamaris Ships Management

SEASALVIA, 29,925 gt / 50,660 dwt, VEC-L, TCM, AB-CM, BWE, CSR, ENVIRO, GP, SPMA, built by STX Offshore & Shipbuilding for Thenamaris Ships Management

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SEASALVIA, a 50,660 dwt tanker, VEC-L, TCM, AB-CM, BWE, CSR, ENVIRO, GP, SPMA, built by STX Offshore & Shipbuilding for Thenamaris Ships Management.

EAGLE VARNA, a 320,299 dwt tanker, NBLES, VEC, TCM, AB-CM, BWT+, CSR, ENVIRO, GP, SPMA, built by Daewoo Shipbuilding & Marine Engineering for AET Inc. Ltd.

PACIFIC LAPI, a 50,007 dwt tanker, VEC-L, TCM, AB-CM, CSR, GP, built by Onomichi Dockyard for Friend Shine Shipping S.A.
OCEAN LIBRA, an 81,504 dwt bulk carrier, BC-A, GRAB(20), AB-CM, BWE, CSR, GP, built by Yangfan Group for Ocean Libra Navigation.

DENSA SEA LION, a 37,586 dwt bulk carrier, BC-A, TCM, GRAB(20), AB-CM, CSR, built by Hyundai-Vinashin Shipyard for Sea Lion Marine & Trading Ltd.

PIO GRANDE, a 30,215 dwt bulk carrier, BC-A, TCM, GRAB(20), AB-CM, CSR, built by Tsuji H I for Norsulmax Navegacao S.A.

STI EMERALD, 29,708 gt / 49,990 dwt, VEC, TCM, AB-CM, BWE, CSR, ENVIRO, GP, SPMA, built by Hyundai Mipo Dockyard for STI Emerald Shipping

STI SAPPHIRE, 29,708 gt / 49,990 dwt, VEC, TCM, AB-CM, BWE, CSR, ENVIRO, GP, SPMA, built by Hyundai Mipo Dockyard for STI Sapphire Shipping

WU YI SAN, 164,169 gt / 319,000 dwt, VEC-L, TCM, AB-CM, CSR, GP, SPMA, built by Shanghai Jiangnan-Changxing Shipbuilding for Nan Zhou Maritime

STI SAPPHIRE, 29,708 gt / 49,990 dwt, VEC, TCM, AB-CM, BWE, CSR, ENVIRO, GP, SPMA, built by Hyundai Mipo Dockyard for STI Sapphire Shipping

WU YI SAN, 164,169 gt / 319,000 dwt, VEC-L, TCM, AB-CM, CSR, GP, SPMA, built by Shanghai Jiangnan-Changxing Shipbuilding for Nan Zhou Maritime

BULK CARRIERS

ANNA MARIA, 44,332 gt / 82,000 dwt, BC-A, TCM, GRAB(20), AB-CM, BWE, CSR, ENVIRO, GP, built by Sungdong Shipbuilding & Marine Engineering for Blue Breeze Shipping

BATAVIA EXPRESS, 54,651 gt / 70,089 dwt, ENVIRO, built by Jiangsu New Yangzi Shipbuilding for Batavia Express Ltd.

CANON TRADER I, 44,980 gt / 81,762 dwt, BC-A, TCM, GRAB(20), AB-CM, CSR, ENVIRO, GP, built by Jiangsu New Yangzi Shipbuilding for Ratu Shipping Co., S.A.

CONTI JAPSIS, 51,265 gt / 93,233 dwt, BC-A, PORT, TCM, GRAB(20), AB-CM, BWE, CSR, built by Jiangsu New Yangzi Shipbuilding for Conti 52 Container Schiffrahrts-GmbH & Co. Kg Nr. 3

DENSA SEA LION, 22,709 gt / 37,586 dwt, BC-A, TCM, GRAB(20), AB-CM, CSR, built by Hyundai-Vinashin Shipyard for Sea Lion Marine & Trading Ltd.

EISHO, 40,334 gt / 74,930 dwt, BC-A, TCM, GRAB(20), AB-CM, CSR, built by Sasebo H I for Mi-Das Line S.A.

ERHAN, 23,638 gt / 35,167 dwt, BC-A, TCM, GRAB(20), AB-CM, BWE, BWT, CSR, built by SPP Shipbuilding for Erhan Maritime Ltd.

GLORIOUS KAMAGARI, 23,239 gt / 38,182 dwt, BC-A, SH, GRAB(20), SHCM, built by Imabari Shipbuilding for Bright Carrier S.A.

INDUS TRIUMPH, 51,238 gt / 92,967 dwt, BC-A, TCM, GRAB(20), AB-CM, CSR, built by Taizhou Sanfu Ship Engineering for MSPL Diamond Pte Ltd.

IOLCOS COMMANDER, 41,254 gt / 76,094 dwt, BC-A, TCM, GRAB(20), AB-CM, BWE, CSR, built by Hudong-Zhonghua Shipbuilding for Iolcos Hellenic Maritime Enterprises

IOLCOS CONFIDENCE, 41,254 gt / 76,036 dwt, BC-A, TCM, GRAB(20), AB-CM, CSR, built by Hudong-Zhonghua Shipbuilding for Caspian Anthem Shipping

IONIC HAWK, 22,432 gt / 35,000 dwt, BC-A, TCM, GRAB(30), AB-CM, BWE, CSR, ENVIRO, GP, built by Daesun Shipbuilding & Engineering for Ionic Hawk Inc.

K. CONFIDENCE, 93,383 gt / 181,488 dwt, BC-A, TCM, GRAB(20), AB-CM, CSR, built by Sasebo H I for David B Shipholding S.A.

LIBERTY DAWN, 44,252 gt / 81,513 dwt, BC-A, TCM, GRAB(30), AB-CM, CSR, GP, built by Daewoo Shipbuilding & Marine Engineering for Liberty Dawn Corp.

LUYANG RISING, 41,684 gt / 76,243 dwt, BC-A, TCM, GRAB(20), AB-CM, CSR, built by Yangfan Group for Luyang Rising Ltd.

MANGAN TRADER I, 45,955 gt / 83,986 dwt, BC-A, TCM, GRAB(20), AB-CM, BWE, CSR, built by Hyundai Samho H I for Ratu Shipping Co., S.A.

MANGAN TRADER II, 45,955 gt / 83,975 dwt, BC-A, TCM, GRAB(20), AB-CM, BWE, CSR, built by Hyundai Samho H I for Ratu Shipping Co., S.A.

MANGAN TRADER III, 45,955 gt / 83,975 dwt, BC-A, TCM, GRAB(20), AB-CM, BWE, CSR, built by Hyundai Samho H I for Ratu Shipping Co., S.A.

NS YAKUTIA, 40,972 gt / 74,559 dwt, BC-A, Ice Class “IB”, NBLES, TCM, GRAB(20), AB-CM, BWT, CSR, ENVIRO, GP, built by Hyundai Mipo Dockyard for NS Yakutia Shipping Inc.

OCEAN LIBRA, 44,163 gt / 81,504 dwt, BC-A, GRAB(20), AB-CM, BWE, CSR, GP, built by Yangfan Group for Ocean Libra Navigation.
GASLOG SANTIAGO, a 154,800 m³ gas carrier, DFD, NIBS, PORT, TCM, SH, SH-DLA, ENVIRO+, RES, SHCM, built by Samsung H I for Gas-Three Ltd.

OCEAN VIRGO, 44,163 gt / 81,564 dwt, BC-A, GRAB(20), AB-CM, BWE, CSR, GP, built by Yangfan Group for Ocean Virgo Navigation

PACIFIC COURAGE, 94,866 gt / 180,007 dwt, BC-A, TCM, SH-DLA, GRAB(25), AB-CM, BWE, CSR, GP, built by Qingdao Beihai Shipbuilding H I for Welland Shipping Ltd.

PIO GRANDE, 19,999 gt / 30,215 dwt, BC-A, TCM, GRAB(20), AB-CM, CSR, built by Tsuji H I for Norsulmax Navegacao S.A.

SOYA MAY, 48,090 gt / 87,146 dwt, BC-A, TCM, GRAB(20), AB-CM, BWE, CSR, built by Hudong-Zhonghua Shipbuilding for Soya May Maritime

VALE SAHAM, 201,336 gt / 400,694 dwt, NBLES, PORT, TCM, SH, SH-DLA, GRAB(20), GP, SHCH, built by Jiangsu Rongsheng H I for Vale Saham Maritime Transportation

WAN MAY, 91,387 gt / 176,000 dwt, BC-A, TCM, GRAB(25), AB-CM, CSR, built by Shanghai Waigaoqiao Shipbuilding for Zhongqiao Shipping

CONTAINERSHIPS

APL VANCOUVER, 9,200 teu, NBLES, TCM, SH, ENVIRO, ES 2020, GP, SHCM, built by Daewoo Shipbuilding & Marine Engineering for Triton Shipping

COSCO BELGIUM, 13,386 teu, NIBS, TCM, FL 30, SH, SH-DLA, ES, SHCM, built by Nantong COSCO KHI Ship Engineering for COSCO Belgium Shipping

EVER LEADER, 8,000 teu, TCM, FL 25, SH, BWE, ENVIRO, SHCM, built by Samsung H I for Evergreen Marine

EVER LEGACY, 8,000 teu, TCM, FL 25, SH, BWT, ENVIRO, SHCM, built by Samsung H I for Evergreen Marine

MAERSK CARDIFF, 4,500 teu, NBL, TCM, SH, BWT+, SHCM, built by Hyundai H I for A.P. Moller Singapore

MAERSK LABREA, 8,700 teu, TCM, SH, SH-DLA, BWE, BWT+, ES, GP, SHCM, built by Daewoo Shipbuilding & Marine Engineering for Maersk Shipping Hong Kong Ltd.

MAERSK LAMANAI, 8,700 teu, TCM, SH, SH-DLA, BWE, BWT+, ES, GP, SHCM, built by Daewoo Shipbuilding & Marine Engineering for Maersk Shipping Hong Kong Ltd.


RHODOS, 6,900 teu, TCM, ENVIR, GP, SHCM, SHR, built by Hyundai Samho H I for Rhodos Maritime

SITC BUSAN, 1,040 teu, TCM, SH, ENVIR, GP, SHCM, built by Daesun Shipbuilding & Engineering for SITC Ships Management

YM UNANIMITY, 8,800 teu, IRCC, NBL, TCM, SH, SH-DLA, ES 2020, GP, SHCM, built by CSBS Corp., Taiwan for Yang Ming Marine Transport Corp.

GAS CARRIERS

GASLOG SANTIAGO, 154,800 m³, DFD, NIBS, PORT, TCM, SH, SH-DLA, ENVIRO+, RES, SHCM, built by Samsung H I for Gas-Three Ltd.

GASLOG SHANGHAI, 154,800 m³, DFD, NIBS, PORT, TCM, SH, SH-DLA, ENVIRO+, RES, SHCM, built by Samsung H I for Gas-Three Ltd.

SONANGOL BENGAUELA, 160,500 m³, NIBS, PORT, TCM, SH, SH-DLA, ENVIR, GP, RES, SHCM, built by Daewoo Shipbuilding & Marine Engineering for Sonangol Benguela Ltd.
**OFFSHORE**

**Column-Stabilized Accommodation Unit**
EXPLORER LIFTER, 46,600 gt, DPS-3, built by Yantai CIMC Raffles Offshore Ltd. for Ocean Challenger Pte. Ltd.

**Column-Stabilized Drilling Unit**
ENSCO 8506, 19,377 gt, DPS-2, built by Keppel Fels for ENSCO

**Fixed Platforms**
MGWC, built by Cuel for Chevron Thailand Exploration & Production
MGWD, built by Cuel for Chevron Thailand Exploration & Production
PLWJ, built by Cuel for Chevron Thailand Exploration & Production
SPWB, built by Cuel for Chevron Thailand Exploration & Production

**Self-Elevating Drilling Units**
AL-JASSRA, 10,501 gt, built by PPL Shipyard for Gulf Drilling International Ltd.
AOD I, 10,429 gt, built by Keppel Fels for Asia Offshore Rig 1 Ltd.
AOD II, 10,429 gt, built by Keppel Fels for Asia Offshore Rig 2 Ltd.
ATWOOD MANTA, 10,679 gt, built by PPL Shipyard for Alpha Manta Company
ATWOOD ORCA, 10,679 gt, built by PPL Shipyard for Alpha Orca Company
DYNAMIC VISION, 9,743 gt, built by Keppel Fels for Vision Drilling
GREATDRILL CHAAYA, 7,459 gt, built by Lamprell Energy for Greatship Global Energy Services Pte Ltd.
HERCULES TRIUMPH, 14,268 gt, built by Keppel Fels for Discovery Offshore (Gibraltar) Ltd.
MUHAIYIMAT, 7,418 gt, built by Lamprell Energy Ltd. for National Drilling Company
PETROBRAS 59, 7,576 gt, built by Consorcio Rio Paraguacu for Petrobras Netherlands B.V.
PRIMUS, 10,430 gt, built by Keppel Fels Singapore for Oro Negro Primus
SEA BOSS, 10,501 gt, built by PPL Shipyard for Sea Boss Offshore
TRANSOCLEAN ANDAMAN, 10,343 gt, CDS, built by Keppel Fels for Transocean Offshore Deepwater Holdings
TRANSOCLEAN SIAM DRILLER, 10,343 gt, CDS, built by Keppel Fels for Transocean Siam Driller

**Single Point Moorings**
FAPCO SPM, built by Gulf Piping for Fujairah Asia Power
HADERA GIT, built by APL Norway AS for Israel Natural Gas Lines
IOCL PARADIP SPM III, built by SBM Atlantia for Indian Oil Corp.

**MISCELLANEOUS**

**Barges**
750-3, 25,239 gt, built by VT Halter Marine for Vessel Management Services
A.M.S. DARWIN, 2,098 gt, built by Yizheng Xinyang Shipbuilding for Triton Offshore
A.M.S. PERTH, 2,307 gt, built by Yizheng Xinyang Shipbuilding for Triton Offshore
ADITAMA, 3,070 gt, built by Nanjing Sandingli Ship Industry for PT Joint Aditama Samudra
ALIM B-40, 3,161 gt, built by Taizhou Xing Gang Shipbuilding for PT Alim Shipping
ALNAIR, 2,486 gt, built by Nantong Tongbao Shipbuilding for Ciesco

STI SAPPHIRE, a 49,990 dwt tanker, VEC, TCM, AB-CM, BWE, CSR, ENVIRO, GP, SPMA, built by Hyundai Mipo Dockyard for STI Sapphire Shipping.

BOURBON SIROCCO, a 464 gt high-speed craft crew boat, built by SEAS (South East Asia Shipyard) (Cong Ty Thnh Dong Nam A) for Bourbon.
ALRAI, 3,151 gt, built by Taizhou Sanfu Ship Engineering for PT Patria Maritime Lines
ALTAIR, 2,486 gt, built by Nantong Tongbao Shipbuilding for PT Binaindo Transportasi Bahari
BRAM BRAVO, 3,606 gt, built by Estaleiro Navship for Bram Offshore Transportes Maritimos
BUKIT EMAS 2371, 1,466 gt, built by PT Sumatera Maju Jaya Shipyard for PT Pelayaran Sumatera Bukit Emas
BUKIT EMAS 2373, 1,561 gt, built by PT Sumatera Maju Jaya Shipyard for PT Pelayaran Sumatera Bukit Emas
BULESKO VI, 3,233 gt, built by Nanjing Suopu Shipbuilding for PT Pelayaran Buana Lestari Kalpindo
CIB 724, 2,164 gt, built by C & C Marine & Repair for CIB 724
CIB 725, 2,164 gt, built by C & C Marine & Repair for CIB 725
CORDIE, 2,161 gt, built by Conrad Industries for Gray Offshore Construction
CORN ISLAND HULL 295, 3,258 gt, built by Corn Island Shipyard for Marinex Construction
CREST 2823, 3,344 gt, built by Poet Shipbuilding & Engineering for Pacific Crest
DIAMOND A, 3,141 gt, built by Jiangsu Hongqiang Marine H I for PT Samudra Pratama Abadi
DIAMOND C, 3,141 gt, built by Jiangsu Hongqiang Marine H I for PT Samudra Pratama Abadi
DLB 1600, 17,542 gt, built by Nanjing Tian Shun Shipbuilding for Valentine Maritime
DRAGON SEA, 3,256 gt, built by PT Marcopolo Shipyard for PT Marcopolo Shipyard
EKA PASIFIK 300, 10,500 gt, built by K.S Yanase Industries for PT Eka Nusantara Line
FC KAYAN CHAMPION, 2,609 gt, built by PT Karya Teknik Utama for PT Kaya Putra Utama Coal
FC PRIMA KARYA, 2,446 gt, built by PT Karya Teknik Utama for PT Karya Hasil Bahari
HH 3003, 3,064 gt, built by Taizhou Kouan Shipbuilding for Putra Bulian Shipping & Trading
INFINITI 7, 1,554 gt, built by Jiangsu Huatai Shipbuilding for Infiniti Marine Pte. Ltd.
INFINITI 8, 1,117 gt, built by Jiangsu Huatai Shipbuilding for Infiniti Marine Pte. Ltd.
JMC 3012, 3,956 gt, built by Nanjing Yonghua Shipbuilding for Cashman Equipment Corp.
JMC 3013, 3,956 gt, built by Nanjing Yonghua Shipbuilding for Cashman Equipment Corp.
JMC 3014, 3,956 gt, built by Nanjing Yonghua Shipbuilding for Cashman Equipment Corp.
JMC 3015, 3,956 gt, built by Nanjing Yonghua Shipbuilding for Cashman Equipment Corp.
JMC 3337, 5,974 gt, built by Nanjing Yonghua Shipbuilding for Cashman Equipment Corp.
KAPUAS 315, 4,084 gt, built by Nantong Tong Sheng Shipbuilding for PT Pelayaran Kapuas Jatratama
KAPUAS JAYA 3119, 4,084 gt, built by Nantong Tong Sheng Shipbuilding for PT Pelayaran Kapuas Jatratama
KAPUAS JAYA 3120, 4,084 gt, built by Nantong Tong Sheng Shipbuilding for PT Pelayaran Kapuas Jatratama
KAPUAS JAYA 3121, 4,084 gt, built by Nantong Tong Sheng Shipbuilding for PT Pelayaran Kapuas Jatratama
KIM HENG 212, 1,059 gt, built by Nantong Gangzha Shipping Manufacturing for Kim Heng Marine & Oilfield Pte. Ltd.
KTH GREEN GLOBAL, 2,748 gt, built by PT United Sindo Perkasa for PT Trans Power Marine

**ATWOOD MANTA, a 10,679 gt self-elevating drilling unit, built by PPL Shipyard for Alpha Manta Company.**

**MUHAIYIMAT, a 7,418 gt self-elevating drilling unit, built by Lamprell Energy Ltd. for National Drilling Company.**
LANPAN CB5, 6,641 gt, built by Nanjing Yonghua Shipbuilding Co. for Lanpan Pte. Ltd.
LANPAN CB6, 6,641 gt, built by Nanjing Yonghua Shipbuilding Co. for Lanpan Pte. Ltd.
LINDAWATI, 1,838 gt, built by PT Karya Teknik Utama for PT Wahana Gemilang Samudera Raya
LINTAS SAMUDERA 80, 4,284 gt, built by Nanjing Ding Feng Shipbuilding for PT Pelayaran Duta Lintas Samudera
LINTAS SAMUDERA 81, 4,284 gt, built by Nanjing Ding Feng Shipbuilding for PT Pelayaran Duta Lintas Samudera
M8001, 3,008 gt, built by Jiangsu New Yangzi Shipbuilding for Malaspina Marine Ltd.
M8002, 3,008 gt, built by Jiangsu New Yangzi Shipbuilding for Malaspina Marine Ltd.
MADELAINE D-2502, 1,157 gt, built by Sterling Shipyard for Setx Asset Management Inc.
MARMAC 302, 4,262 gt, built by C & C Marine & Repair for McDonough Marine Service
MASPAPUA 8, 2,808 gt, built by Nanjing Asiapride Shipping Making for PT Masindo Mitra Papua
MASPAPUA 10, 2,808 gt, built by Nanjing Asiapride Shipping Making for PT Masindo Mitra Papua
MBP 1501, 7,043 gt, built by Nanjing Dongze Shipyard for PT Maritim Barito Perkasa
MBP 1502, 7,043 gt, built by Nanjing Dongze Shipyard for PT Maritim Barito Perkasa
MDM 9, 7,986 gt, built by Nanjing Yonghua Shipbuilding for PT Meratus Advance Maritim
M.E.R.C. SHEVLIN, 2,725 gt, built by St. Johns Shipbuilding for Sterling Equipment
NEWCRUZ 281, 3,427 gt, built by Anhui Hezhou Hongyun Shipbuilding for Zeus Marine
NEWCRUZ 282, 3,427 gt, built by Anhui Hezhou Hongyun Shipbuilding for Zeus Marine
NY-88, 4,446 gt, built by Jingjiang Nanyang Shipbuilding for BES Investment Company Ltd.
OCEAN TREASURE, 12,645 gt, HELIDK, built by Nantong Tongshun Shipyard for Ocean Treasure Ltd.
OCEANUS 31, 3,064 gt, built by Taizhou Kouan Shipbuilding for PT Oceanus Perkasa
OCEANUS 32, 3,064 gt, built by Taizhou Kouan Shipbuilding for PT Oceanus Perkasa
OCEANUS 33, 3,064 gt, built by Taizhou Kouan Shipbuilding for PT Oceanus Perkasa
PB 3022, 3,071 gt, built by Nantong Tongbao Shipbuilding for Putra Bulian Shipping & Trading
PB 3023, 3,071 gt, built by Nantong Tongbao Shipbuilding for Putra Bulian Shipping & Trading
POSH MOGAMI, 18,060 gt, built by COSCO (Zhoushan) Shipyard for Nimitrans Pte. Ltd.
SOEKAWATI - 309, 3,093 gt, built by Yangzhou Topniche Shipbuilding for PT Pelayaran Borneo Karya Swadiri
SOEKAWATI - 367, 3,093 gt, built by Yangzhou Topniche Shipbuilding for PT Pelayaran Borneo Karya Swadiri
SOEKAWATI - 2715, 2,136 gt, built by Yangzhou City Jiangdu Tengda Shipyard for PT Pelayaran Borneo Karya Swadiri
SPA 27007, 2,413 gt, built by PT Boston Oriental Shipbuilding & Shipyard for PT Samudra Pratama Abadi
SUMANGGALA 1, 3,233 gt, built by Nanjing Suopu Shipbuilding for PT Pelayaran Jadi Berlian Samudra
T-15, 10,612 gt, built by COSCO Nantong Shipyard for Seadrill T-15 Ltd.
T-16, 10,612 gt, built by COSCO Nantong Shipyard for Sea Drill Tender Rig Ltd.

ARDMORE SEAVALIANT, a 49,998 dwt tanker, VEC-L, TCM, AB-CM, BWE, CSR, RES, built by SPP Shipbuilding for Fitzroy Shipco.

HERCULES TRIUMPH, a 14,268 gt self-elevating drilling unit, built by Keppel Fels for Discovery Offshore (Gibraltar) Ltd.
TERAS 3707, 6,844 gt, built by Jiangsu Hongqiang Marine H I for Teras 375 Pte. Ltd.

TERAS 3708, 6,844 gt, built by Jiangsu Huatai Shipbuilding for Teras 375 Pte. Ltd.

TERAS 3709, 6,844 gt, built by Nantong Tongshun Shipyard for Teras 375 Pte. Ltd.

TERAS 3711, 6,844 gt, built by Jiangsu Hongqiang Marine H I for Teras 375 Pte. Ltd.

VANGUARD, 2,355 gt, built by P.T. Nexus Engineering Indonesia for PT Armada Indonesia Mandiri

W. WIMOLSIRI, 1,071 gt, built by Marine Acme Thai Dockyard for Silamas Service

WINBUILD 1543, 3,147 gt, built by Nantong Tongmiao Shipbuilding for Poet Shipbuilding & Engineering

WINBUILD 1550, 3,147 gt, built by Poet Shipbuilding & Engineering for Poet Shipbuilding & Engineering

WINDA 99, 3,064 gt, built by Taizhou Kouan Shipbuilding for Putra Bulian Shipping & Trading

WINSTAR 2310, 1,088 gt, built by PT Bangun Karyasindo Utama for TYS Marine Services

WITTE 4004, 2155 gt, built by Donjon Shipbuilding & Repair for Donjon Marine

ZULKARNAIN 99, 3,064 gt, built by Taizhou Kouan Shipbuilding for Putra Bulian Shipping & Trading

Government Vessels

SARYU, 2,941 gt, HSC patrol vessel, built by Goa Shipyard Ltd. for Indian Navy

VAIBHAV, 2,200 gt, HSC patrol vessel, built by Goa Shipyard Ltd. for Indian Coast Guard

Tugs, Workboats and OSVs

ABDON J CALLAIS, 1,158 gt, 4DPS-2, built by Master Boat Builders, Inc. for Abdon Callais Offshore

ALDEMIR SOUZA TIDE, 3,601 gt, Fire Fighting Vessel Class 1, 4DPS-2, built by Fujian Mawei Shipbuilding Ltd. for Vermillion Fleet Ltd.

BNI CASTOR, 1,678 gt, Fire Fighting Vessel Class 1, 4DPS-1, built by Fujian Southeast Shipyard for PT Bahtera Niaga Internasional

BOL GINIA 8, 1,159 gt, built by Nantong Tongbao Shipbuilding for Berlitz Offshore Ltd.

BONGO, 3,806 gt, Fire Fighting Vessel Class 1, Oil Recovery Capability Class 2, 4DPS-2, built by Remontowa Shipbuilding S.A. for 4K + 3Gp, for and on behalf of Duh Boats 2 Partnership, C.V.
CABALLO MARANGO, 13,027 gt, HELIDK, Ice Class “C0”, Fire Fighting Vessel Class 2, ÌØPS-3, built by Strategic Marine for Shanara Maritime International S.A.

CCC MARITIME 1, 2,512 gt, ÌØPS-2, built by Poet Shipbuilding & Engineering for Hiberie Maritime Company S.A.

CLARENCE TRICHE, 3,242 gt, Fire Fighting Vessel Class 1, ÌØPS-2, built by North American Shipbuilding for Galliano Marine Service

CREST IMPERIAL, 2,759 gt, Fire Fighting Vessel Class 1, ÌØPS-2, built by Guangzhou Hangtong Shipbuilding & Shipping for Pacific Crest

ENA SAMURAI, 3,260 gt, Fire Fighting Vessel Class 1, ÌØPS-2, built by Japan Marine United Corp. for Eastern Navigation

FELTON TIDE, 3,601 gt, ÌØPS-2, built by Fujian Mawei Shipbuilding Ltd. for Vermillion Fleet Ltd.

GARY PRIDE, 3,242 gt, Fire Fighting Vessel Class 1, ÌØPS-2, built by North American Shipbuilding for Galliano Marine Service

JAYA PRIDE, 4,227 gt, ÌØPS-2, built by PT Jaya Asiatic Shipyard for JSE Offshore Shipping

KEITH COWAN, 2,540 gt, Fire Fighting Vessel Class 1, ÌØPS-2, built by Eastern Shipbuilding for Seacor Marine

KUDU, 3,806 gt, Fire Fighting Vessel Class 1, Oil Recovery Capability Class 2, ÌØPS-2, built by Remontowa Shipbuilding S.A. for 4K + 3Gp, for and on behalf of Duh Boats 2 Partnership, C.V.

LEWEK ALKAID, 2,972 gt, Fire Fighting Vessel Class 1, Oil Recovery Capability Class 2, ÌØPS-2, built by Saigon Offshore Fabrication & Engineering for Marina Adella Shipping

LEWEK AVIOR, 2,972 gt, Fire Fighting Vessel Class 1, Oil Recovery Capability Class 2, ÌØPS-2, built by Saigon Offshore Fabrication & Engineering for Marina Aquata Shipping

LEWEK TEAL, 6,262 gt, Fire Fighting Vessel Class 1, Oil Recovery Vessel Class 2, ÌØPS-2, built by Saigon Shipyard for Marina Jessamine Shipping Ltd.

LOGINDO STATURE, 1,461 gt, Fire Fighting Vessel Class 1, ÌØPS-1, built by Guangdong Yuexin Ocean Engineering for PT Logindo Samudramakmur

MDPL ASHA DEEP, 2,759 gt, Fire Fighting Vessel Class 1, ÌØPS-2, built by Guangzhou Hangtong Shipbuilding & Shipping for Marine Lilac Shipping Ltd.

MEO SOVEREIGN 2, 3,473 gt, Fire Fighting Vessel Class 1, ÌØPS-2, built by PT Miclyn Shipbuilding & Engineering for Girino Enterprise Pte. Ltd.

MERMAID COVE, 1,386 gt, ÌØPS-2, built by ASL Shipyards Pte. Ltd. for Mermaid Marine Australia Ltd.

FELTON TIDE, a 3,601 gt offshore support vessel, ÌØPS-2, built by Fujian Mawei Shipbuilding Ltd. for Vermillion Fleet Ltd.

ASPROUDA, a 74,011 dwt tanker, VEC-L, TCM, AB-CM, BWE, CSR, ENVIRO, GP, SPMA, built by SPP Shipbuilding for Asprouda Ltd.

STI EMERALD, a 49,990 dwt tanker, VEC, TCM, AB-CM, BWE, CSR, ENVIRO, GP, SPMA, built by Hyundai Mipo Dockyard for STI Emerald Shipping.
MONTET TIDE, 3,601 gt, Fire Fighting Vessel Class 1, DP-2, built by Fujian Mawei Shipbuilding Ltd. for Vermillion Fleet Ltd.

OCEAN WIND, 1,258 gt, Fire Fighting Vessel Class 1, DP-1, built by Bollinger Marine Fabricators, Inc. for Vessel Management Services, Inc.

PACIFIC JUMBO, 3,161 gt, Fire Fighting Vessel Class 2, DP-2, built by PRM Offshore H I for Britoil Worldwide Towing

PETER W CALLAIS, 1,158 gt, DP-2, built by Master Boat Builders for Abdon Callais Offshore

POSH CONCORDE, 2,736 gt, Fire Fighting Vessel Class 1, DP-2, ES 2020, built by Paxocean Engineering Zhuhai for Starling Shipping Pte. Ltd.

POSH SKUA, 3,553 gt, Fire Fighting Vessel Class 1, Oil Recovery Capability Class 1, DP-2, built by Poet Shipbuilding & Engineering for Poet Shipbuilding & Engineering

RUSSELL BOUZIGA, 3,242 gt, Fire Fighting Vessel Class 1, DP-2, built by North American Shipbuilding for Galliano Marine Service L.L.C.

S.C.I.URJA, 2048 gt, Fire Fighting Vessel Class 1, DP-1, built by Cochin Shipyard Ltd. for The Shipping Corp. of India Ltd.

SEA HAWK, 1,657 gt, Fire Fighting Vessel Class 1, DP-1, built by Nanjing East Star Shipbuilding for Qms 2 Offshore Services Ltd.

SETIA HIJRAH, 3,709 gt, Fire Fighting Vessel Class 1, Oil Recovery Capability Class 1, DP-2, built by Guangxin Shipbuilding & H I for Alam Maritim

SETIA JIHAD, 3,709 gt, Fire Fighting Vessel Class 1, Oil Recovery Capability Class 1, DP-2, built by Guangxin Shipbuilding & H I for Alam Maritim

SK LINE 70, 1,678 gt, Fire Fighting Vessel Class 1, DP-1, built by Fujian Southeast Shipyard for Nam Cheong International Ltd.

SK LINE 75, 1,678 gt, Fire Fighting Vessel Class 1, DP-1, built by Fujian Southeast Shipyard for Nam Cheong International Ltd.

SK PROACTIVE, 3,594 gt, Fire Fighting Vessel Class 1, DP-2, built by Fujian Southeast Shipyard for Nam Cheong (Labuan) Ltd.

STANFORD BATELEUR, 3,601 gt, Fire Fighting Vessel Class 1, DP-2, built by Fujian Mawei Shipbuilding Ltd. for Stanford Marine Asia Pte. Ltd.

TED SMITH, 3,242 gt, Fire Fighting Vessel Class 1, DP-2, built by North American Shipbuilding for Legacy Leader

TERASEA FALCON, 3,513 gt, Fire Fighting Vessel Class 1, Oil Recovery Capability Class 1, built by Japan Marine United Corp. for Terasea Pte Ltd.

UM SUPPORTER, 2,259 gt, Fire Fighting Vessel Class 1, DP-2, built by Poet Shipbuilding & Engineering for Uniwise Offshore Ltd.

VEGA EMTOI, 1,678 gt, Fire Fighting Vessel Class 1, Oil Recovery Capability Class 2, DP-2, built by Fujian Southeast Shipyard for Vega Emtoi AS

VOS ATLAS, 1,678 gt, Fire Fighting Vessel Class 1, Oil Recovery Capability Class 2, DP-1, built by Fujian Southeast Shipyard for Offshore Support Vessels 14 Pte. Ltd.

VOS SWEET, 1,794 gt, DP-2, built by Fujian Southeast Shipyard for Dsv V Express

ZAMIL 406, 1,394 gt, built by Zamil Offshore Services for Zamil Offshore Services

ZAMIL 407, 1,462 gt, built by Zamil Offshore Services for Zamil Offshore Services

Yachts

OHANA, 370 gt, built by Fitzroy Yachts Ltd. for SelmaBipiemme Leasing S.p.A

SERENA III, 317 gt, built by H. Dantas Construcao E Reparos Navais Ltd.a. for Richard Paul Matheson

WESTPORT 40M, 333 gt, built by Westport Shipyard Inc. for Westport Shipyard Inc.
**Other**


BOURBON SHAMAL, HSC crew boat, 464 gt, *DPS-2*, built by SEAS (South East Asia Shipyard) (Cong Ty Tnhh Dong Nam A) for Bourbon

BOURBON SIROCCO, HSC crew boat, 464 gt, *DPS-2*, built by SEAS (South East Asia Shipyard) (Cong Ty Tnhh Dong Nam A) for Bourbon

ESNAAD 1010, general cargo carrier, 1,334 gt, built by Sealink Shipyard for Abu Dhabi National Oil Company

EXPRESS 73, HSC crew boat, 257 gt, built by Penguin Shipyard International for Ticwink Pte Ltd.

FINFINE, general cargo carrier, 21,024 gt, built by Huanghai Shipbuilding for Ethiopian Shipping & Logistics Services Enterprise

GAMBELLA, general cargo carrier, 21,024 gt, built by Huanghai Shipbuilding for Ethiopian Shipping & Logistics Services Enterprise

HMAN-28 HRF, underwater systems, built by Hallin Marine for Hallin Marine

M/V ABBA, HSC crew boat, 257 gt, built by Penguin Shipyard International for Project Masters Nigeria Ltd.

MAJESTIC, barge drilling unit, 3,554 gt, built by PT Marcopolo Shipyard for Megadrill Services Ltd.

PAC SEGINUS, general cargo carrier, 21,094 gt, built by Zhejiang Hongguan Shipbuilding for Seginus Shipping Ltd.

PILOT 1, HSC crew boat built by Zamil Offshore Services Company for Saudi Seaports Authority

PILOT 2, HSC crew boat, built by Zamil Offshore Services Company for Saudi Seaports Authority

SARMAR 2, HSC patrol vessel, built by Instituto Maritimo Portuario De Angola

SARMAR 3, HSC patrol vessel, built by Instituto Maritimo Portuario De Angola

SEACOR LYNX, HSC crew boat, 497 gt, *DPS-3*, built by Gulf Craft for Seacor Marine

SMS VOSPER, HSC crew boat, 244 gt, built by PT Adiguna Shipbuilding & Engineering for PT Wintermar

TOLL KESTREL, landing craft, 2,045 gt, *DPS-2*, built by Tianjin Xinhe Shipbuilding H I for Toll Marine Logistics

TOLL OSPREY, landing Craft, 2,045 gt, built by Tianjin Xinhe Shipbuilding H I for Toll Marine Logistics


WAN MAY, a 176,000 dwt bulk carrier, BC-A, TCM, GRAB(25), AB-CM, CSR, built by Shanghai Waigaoqiao Shipbuilding for Zhongqiao Shipping.

OOCL BRUSSELS, a 13,200 teu containership, NIBS, FL 25, SH, SH-DLA, BWT+, ENVIRO, GP, SHCM, built by Samsung H I for Newcontainer No. 63 (Marshall Islands) Shipping Inc.
We Welcome Your Thoughts

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ON THE COVER

ABS recently released its *Guide for Ergonomic Notations* to address best practices in ergonomics. One of the new notations, ERGO TOP, evaluates access issues for crew mobility and task performance with topside structures, including external stairs, ramps, ladders and platforms.