In This Issue

Pilot Program for Extending Drydocking
Page 4

Joint Studies for Environmental Efficiency Design
Page 10

Clarifying MSC 85’s Amendments to the ISM Code
Page 21
Deliveries from what ABS Chairman and CEO Robert D. Somerville characterized as a “very robust orderbook” pushed the society to a new record fleet high of 159.5m gt by the end of 2009, he told the Annual Meeting of Members in New York in April.

Somerville added that the growth has continued unabated during 2010, with the fleet reaching 163.4m gt by the end of April.

The year-on-year tonnage increase of 15.4m gt was not only the largest ever recorded by ABS, outpacing even the rapid expansion that occurred during the last great shipbuilding boom of the late 1970s but was also the largest increase of the leading societies, Somerville told the meeting.

Somerville acknowledged that there had been “a manageable number” of orders cancelled during the year but “more significantly, what we found was that many owners worked with the shipyards to defer deliveries or to substitute different ship types or sizes for those on order.”

The result, he told the members attending the meeting, has been beneficial to the society. “We can now look to a more rational workflow over an extended period,” he said. He noted that the society had won new class contracts for more than 10m gt in 2009, during what was the most depressed shipbuilding market in recent memory. The new orders meant that the overall ABS orderbook declined by only 5m gt year-on-year.

“We are very conscious of the cyclical swings, the feast and famine years, of the shipping and offshore industries and the successes of the last few years have meant we are now very well positioned to deal with the expected future softness of the newbuilding market,” Somerville said.

The ABS chief executive told the society’s members that “the future is much on our minds at present.” Referring to the changes in membership of IACS, changes related to equipment certification imposed by the European Commission and other stimuli, he said that “class, in the future, will have to evolve. It is clear to me that, for a wide variety of very understandable reasons, class has yet to position itself for the 21st century.”

Acknowledging the strictures under which class operates, he suggested that “perhaps the hardest challenge will be to convince many in the maritime community to change their approach to class and accept we have a common interest in promoting safety.”

For example, he noted that some forward looking owners have realized “the potency of sharing operational data with class, but they are still the minority despite the potential benefits.”

Somerville went on to outline a future based on a data sharing partnership between class and the operator that has the potential to not only increase safety but also offer the operator a more efficient, less intrusive survey regime over the life of a ship.

He cited as an example, the recent program worked out between class, some prominent flag States and a major container operator whereby, through sharing data, the drydock interval for selected new ships has been pushed back from a five year to a seven and half year cycle.

“This program is an example of how we can more effectively partner with our clients with the ultimate objective of more safely and efficiently maintaining their fleets. The more we share information, the easier it will be to achieve those goals.”
Achieving Service Life Program

Tailoring Risk-Based Survey Programs to the Navy

Incorporating classification into the government shipbuilding process took a major step forward recently as the US Navy called for ABS to create a risk-based inspection program that could be applied to all existing non-nuclear surface combatant ships in its fleet. Called the ABS Achieving Service Life Program (ASLP), its influence will extend far into the next decade of the US Navy’s fleet.

What started as a pilot program on four existing Navy ships has turned into ABS’ most robust support program for government ships since the development of the ABS Naval Vessel Rules. The program takes existing risk-based survey programs developed for commercial ships and tailors them to the specialized needs of Navy ships. The team of surveyors and naval engineers approached the development by conducting a special survey, strength analysis and fatigue analysis on each ship in the pilot. The pilot ships were the LSD 42 amphibious support craft USS Germantown, the DDG 67 destroyer USS Cole, the FFG 36 frigate USS Underwood and the CG 53 cruiser USS Mobile Bay.

With the data obtained, ABS then applied the latest risk-based inspection techniques while keeping in mind the unique nature of Navy ship spaces and their nomenclature. Key systems examined to determine material condition of these ships included: ship structure, A/C cooling capacity, electrical plant health and capacity, CHT system (piping and components), firemain and chill water systems and the ballast system.

According to Craig Bone, ABS Vice President, Government Operations, the program determines areas where ABS can assist the Navy and share common knowledge and processes in identifying where maintenance action is most needed on ships.

The Navy plans to apply the Achieving Service Life Program to an additional ten ships in 2010.

The USS GERMANTOWN was one of the pilot ships used in the risk-based inspection program developed by ABS for the US Navy. A finite element model (FEM) of the amphibious support craft was used to conduct strength and fatigue analyses on the vessel.
P Moller-Maersk A/S (APMM), ABS and the relevant flag States have agreed to extend out-of-water drydocking periods from five to seven and a half years for eligible vessels. The agreement covers an initial fleet of 14 Maersk Line containerships and was initiated under a pilot program approved by the Danish Maritime Authority wherein vessels may undergo two underwater examinations before the traditional out-of-water drydock inspection is required.

The pilot program, also approved by the Singapore and UK Maritime Administrations, imposes strict requirements for eligibility and ongoing maintenance for vessels to be accepted into and retained within the program.

Entry into the program is restricted to vessels which are less than five years old and the provision expires once the vessel reaches 15 years of age. The agreement requires manufacturers to guarantee that the underwater coatings used are designed to last for the extended period. Other requirements include the implementation of an active condition monitoring and preventative maintenance program and the application of a structured hull inspection system.

“We have been discussing this option with APMM and various flag States for over three years,” says ABS Senior Vice President and Chief Surveyor Lenny Pendexter. “Although we had agreement in principle, we had to be satisfied that the coatings would, in fact, provide the lifespan that the manufacturers were projecting. We feel that the seven and half year period between drydockings is now feasible. However, we will retain the right to require a suspension of the program if in-service experience indicates that an out-of-water inspection may be required, whether due to damage, coating breakdown or other reasons.”

This program recognizes that the maritime industry today is vastly different than the one when many of the traditional survey requirements were first implemented. “New-building techniques, coating application requirements, the coatings themselves and the tools available to track the structural condition of the hull have all been subject to tremendous development and improvement. It is only natural that these improvements should be reflected in the manner in which surveys are conducted,” says Steen Nygaard Madsen, Director, Fleet.
Manager, Technical Vessel Operation for Maersk Line.

Pending final review and confirmation, the 14 initial vessels entered into the contract will also receive the ABS voluntary Hull Inspection and Maintenance Program (HIMP) class notation and will use the ABS Hull Inspection software that has been developed to provide owners with an easy-to-use method for both the ship and shore offices to track the condition of the structure on a compartmentalized basis. APMM was one of the industry partners that participated in the development, testing and refinement of the ABS Hull Inspection program.

Using a traffic light warning system, the program assigns grades to pre-defined zones in each compartment based on inspection criteria covering coating condition, general corrosion, localized corrosion, deformation, fractures and cleanliness. The companion software, supplied by ABS Nautical Systems, will provide APMM with a pre-populated ship model specific to each ship entered into the program, a visual interface representing the hull condition and a single database to record defects and preventative measures.

“This new agreement is a further example of how we can bring together the power of our technical capabilities with the functionality of our Nautical Systems software to provide our clients with integrated programs,” says ABS President and COO Christopher J. Wiernicki.

Maersk Line’s crew members assigned to the vessels that are entered into the extended drydocking program will undergo training on the ABS hull inspection methodology to learn what, where and how to inspect and also how the Nautical Systems software interface can best leverage their inspection results through reporting and anomaly detection across vessels.

Applying Time-Variant Reliability to Life Cycle Management

Joint Research Program on Aging Ships’ Structural Safety

ABS is working with Portugal’s Instituto Superior Tecnico (IST) on a multi-year, multi-task joint development project to apply time-variant reliability (TVR) approaches to assist in the inspection planning of hull structures.

According to Ge (George) Wang, ABS Senior Managing Principal Engineer, the focus of the project will be on hull inspection planning, applying time-variant approaches to predict the reliability of ship hulls over the course of their lifetime. This will include the effect of possible structural degradation as a result of corrosion and fatigue from inspection, maintenance and repairs.

“It is the responsibility of classification societies to track how ships comply with appropriate safety standards throughout their lifetime,” says Wang. “As a part of this effort, ABS has established a risk-based inspection (RBI) program. ABS has identified ways in which the RBI methodology may be improved and has invited IST to team together in an effort to refine the TVR technology, especially the applications for the assessment of hull girder and panel reliability”.

The research will be carried out by Professor Carlos Guedes Soares, Marine Technology and Engineering department, IST in Lisbon, together with the members of the ABS Technology department.
With the launch of the ABS Newbuild Program in the second half of 2009, ABS Nautical Systems has become the fastest growing marine software provider, adding more than 50 new clients over the last six months including leading tanker operator Teekay. “By integrating our ship maintenance software with the classification and survey requirements of ABS we have the ability to streamline an owner’s inspection and survey requirements and move towards developing a more standardized, class-approved maintenance program,” says Karen Hughey, President and COO of ABS Nautical Systems (ABS NS).

“The tremendous success of the Newbuild Program has prompted us to double our customer support staff and develop expanded offerings to provide greater value for our customers,” she adds. One of the first class-integrated, fleet maintenance solutions to have been offered to owners, the newbuild program offers free hull inspection, web-based drawings management and maintenance management software to all ABS-classed vessels built after 1 January 2009.

“We are currently using the NS5 suite on our chemical tankers and it has been the backbone for the maintenance of critical equipment on our vessels,” says Francisco Lopez of Humboldt Shipmanagement. “Of the five newbuildings we recently ordered, four of them are oil/chemical tankers which will be classed with ABS and will utilize all of the modules included in the Newbuild Program. The fifth is a chemical tanker being built in Japan and this vessel will also be integrated with the NS5 software modules,” he adds.

NS5 is an off-the-shelf fleet management software solution with built-in configurations and is fully integrated allowing owners and operators the ability to share data between individual software modules and external accounting systems. Each module can be purchased separately or as a complete suite. The NS5 interface is based on the Windows® standard which allows users to move easily between modules to quickly access the information they need through a centralized and integrated database. The hull inspection, maintenance and repair modules and the web-based drawings management tool offered as part of the ABS Newbuild Program are part of NS5.

Humboldt has installed NS5 modules including maintenance and repair, drydocking, purchasing and inventory and replication manager on more than half of its fleet including gas carriers, chemical and oil tankers. The company says that the integration of the modules helps it track the availability and reliability of the vessels’ equipment and systems.

Vancouver-based containership operator and manager Seaspan uses NS5 to cut costs and to harmonize its fleet spare parts ordering and maintenance.
ABS Nautical Systems Vice President Joe Woods has noticed that shipowners are spending more on tracking maintenance schedules than ever before, looking at where they are spending money to see that they spend it on the right things. “Owners with larger fleets are also using the maintenance software to help during the drydock preparations and survey requirements,” he says.

ABS has linked up with a number of condition-based monitoring software providers to help create a more complete asset planning tool. NS5’s flexibility allows clients to customize the modules to fit their needs. For example, in the maintenance and repair module, Humboldt has incorporated its own requirements for cargo, valves, pumps, etc. into maintenance check requirements. Each month, a report is run on the maintenance and repair module for a list of items that need attention, including those that were scheduled in the previous month and any outstanding issues for each vessel. This report is circulated to the superintendents and managers enabling them to gauge progress.

The module also enables Humboldt to analyze fleetwide maintenance to detect systematic problems and identify critical areas where preventative measures may be taken to reduce future costs. In addition, budgeting and cost analysis tools help the company to develop cost projections for upcoming maintenance work and drydocking and to evaluate past maintenance and equipment costs to forecast future expenses.

“The real benefits come from using the full suite of modules to create a better platform for asset management,” Woods stresses.

Members of the newly established ABS Arctic Technical Advisory Committee met recently for the first time in Helsinki, Finland. Comprised of prominent industry representatives active in the study of harsh environments, the committee has been chartered to evaluate and review proposed changes to the ABS Rules and Guides that pertain to Arctic and cold weather operations.

Kirsi Tikka, ABS Vice President, Global Technology and Business Development, oversees the harsh environment program at ABS. She commented that while ABS has worked closely for many years with several members of the new committee, this formal group will add even greater depth to an already robust research and development program. “The concentrated efforts of the committee will allow us to more quickly identify and provide products and services that meet the needs of this very specialized market,” says Tikka.

The committee has been established closely on the heels of another ABS initiative geared towards maritime activities in low temperature environments. Late in 2009, ABS announced the creation of the ABS Harsh Environment Technology Center located on the campus of Memorial University of Newfoundland (MUN). Supporting the development of technologies for ships and offshore structures operating in harsh environments, the Center will study vessels and units operating in ice covered waters, low temperature environments and severe wave and wind climates.
ICE MANAGEMENT AND STATIONKEEPING

Arctic Drillship Workshop Well Received

More than a dozen leading shipping operators gathered at ABS headquarters in Houston recently to discuss critical design and operational aspects for Arctic drillships. The workshop is part of an ABS initiative to develop a more comprehensive polar and harsh environment program.

The two-day session was an avenue to further define ABS’ role in ice management, says Roger Basu, ABS Director, Shared Technology. Basu points out that Arctic challenges are multifaceted. Some of the key concerns center on the industry consensus of numeric modeling of ice loads. There is also a need for best practices or case studies and further research on how a unit behaves in ice, not just simulation of its operation in ice.

During the workshop, presentations were made on the current state-of-the-art estimations for determining global ice loads on drillships. A review of the key aspects of drillship operations relevant to stationkeeping in a moving ice field was also presented.

Operators expressed interest in the role class societies can play as they move forward with exploration and production in Arctic areas, particularly as they address the concerns of regulators and the public-at-large.

“ABS is good at technology, hardware and structure but how do we extend this into the operational aspect of Arctic drilling to assist operators?” asks Basu. For example, ice management is integral to the design and operation of Arctic drillships and participants discussed quantitative methodologies and tools for assessing ice management strategies.

Basu says what the industry needs is technical guidance and clarification so everyone is comfortable that the technical concerns for drilling in the Arctic have been addressed.

Further workshops are planned with the aim of improving the industry’s ability to quantify in a rational way the influence of ice management.
Increased interest in the building of liquefied natural gas (LNG) carriers at Chinese shipyards spurred a Large LNG Carriers Forum, held in Shanghai, and conducted jointly by classification societies ABS and China Classification Society (CCS) in conjunction with leading LNG operators.

More than 150 representatives from the Chinese Government, shipowners, shipbuilders, designers, energy corporations and universities attended the forum. Topics presented by leading industry participants Poten & Partners, NYK Line LNG Group and BG Americas included the global LNG market outlook, LNG carrier specifications and LNG carrier operations and fleet management.

Providing the classification society perspective, ABS focused on the rewrite of the IMO IGC Code and updates related to the design of large LNG carriers while CCS discussed the thermal analysis of membrane systems for LNG carriers.

“This forum has provided the opportunity for ABS and CCS to share with the Chinese government, shipyards, shipowners, LNG terminal operators and others, the work that has been conducted to verify that LNG carrier designs and operations continue to remain the safest in the shipping industry,” said William J. Sember, ABS Vice President, Global Marketing. “There was a remarkable level of interest in all facets of LNG design and operation including the latest topics such as the calculation of IMO's energy efficiency design index (EEDI) for these ships.”

To date China has delivered five LNG carriers, built at Hudong-Zhonghua Shipbuilding, a subsidiary of China State Shipbuilding Corp. An order for a sixth vessel of the 147,000 m³ class was recently placed with Hudong. The five delivered ships serve two LNG terminals, one in Guangdong Province and the other in Fujian Province. China is currently in negotiations with leading energy companies for the building of a new series of LNG carriers.

Wei-Ping Hu, Deputy Director General of National Energy Administration, China National Development and Reform Commission who attended the forum called the delivery of the fifth in the series of China-built LNG ships at Hudong a 'milestone'. “We are pleased to see cooperative efforts taking place between ABS and CCS in order to help us with the training, experience and technical knowledge needed to advance our LNG shipbuilding efforts,” he said.
ABS Joint Studies for Environmental Efficiency Design

EEDI Evaluated with Baseline Recommendations

With the IMO’s Marine Environment Protection Committee (MEPC 60) having recently met to discuss the development of technical and operational measures to reduce CO₂ emissions from ships, including the Energy Efficiency Design Index (EEDI), studies by ABS and Herbert Engineering Corporation (HEC) evaluated the index with proposed baselines providing additional data for the committee’s deliberations.

The MEPC released the Interim Guidelines on the Method of Calculation of the Energy Efficiency Design Index for New Ships in July of last year to encourage implementation and testing of the methodology. The intent was for the industry to develop lessons learned so further refinements could be made to the guidelines.

The joint ABS and HEC studies “An Evaluation of the Energy Efficiency Design Index (EEDI) Baseline for Tankers, Containerships and LNG Carriers” and “Influence of Design Parameters on the Energy Efficiency Design Index (EEDI)” were presented recently at the Society of Naval Architects and Marine Engineers and Marine Board of the National Academies Symposium, Climate Change and Ships, Increasing Energy Efficiency.

As a result, two papers (MEPC 60/4/33 and MEPC 60/4/34) were submitted by IMarEST for consideration at MEPC 60.

In the studies ABS and HEC developed standard ship designs for tankers, containerships and LNG carriers in a range of sizes in order to calculate their ‘attained EEDI’ numbers and to compare them to the proposed baselines. All designs were developed as ‘well performing’ current vessels in each category.

The designs considered panamax, aframax, suezmax and VLCC tankers, and containerships in the 1,000, 4,500, 8,000 and 12,500 teu size ranges.

Six standard designs of LNG carrier were developed: three single screw with dual fuel diesel-electric (DFDE) propulsion of 150,000, 180,000 and 215,000 m³ and three slow speed diesel with reliquefaction (DRL) propulsion of 180,000, 215,000 and 265,000 m³.

“The study found that the attained EEDI for the panamax, aframax and suezmax tankers fell slightly below the EEDI baselines, indicating that the proposed baseline is a good representation of the performance of the existing fleet,” observed Kirsi Tikka, ABS Vice President, Global Technology and Business Development.

However, the attained EEDI for the standard VLCC design fell above the baseline figure. Compliance could be achieved by reducing the design speed from the assumed 15.8 knots to 15.1 knots. A further study of the baseline curve indicated that the proposed exponential curve for the baseline does not have a good fit in the VLCC size range.

For containerships, all designs evaluated fell considerably below the baseline, reflecting the fact that standard, modern designs have good performance characteristics relative to the available historical data.

For LNG carriers, the proposed baseline is based on data that include a large number of steam-powered ships, whereas many current ships have either DFDE or slow speed DRL propulsion. The historical data also lacks the larger LNG ships that have been recently delivered or are still under construction.

"On the influence of the design parameters on the EEDI, the study confirmed the finding by others that the index is very sensitive to speed," said Tikka. The power is proportional to the cube of the speed and therefore a relatively small reduction in the speed has a significant effect on the required main engine power, which dominates the EEDI value. Reducing the speed is the easiest way to lower the power requirement. Other factors such as reduction in steel weight have a minor impact on the index.

The study also investigated the influence of changing the ship principle dimensions to achieve a slender hull form and less required power and it found that the gains on the EEDI were moderate.

The investigation into the correlation of the EEDI with the CO₂ production indicated that the index generally tracked well with changes in CO₂ production. However the index does not give credit to the efficient utilization of the vessel when comparing a standard panamax ship with beam limitation to a new baby post-panamax ship that can operate with less ballast.

"It is important that the baseline be a proper representation over the entire range of sizes and types, so that one particular size or type of vessel is not unduly impacted," said Tikka. She further pointed out that the use of historical data does not always reflect modern practice. For instance, LNG carriers have in recent years increased in size by more than 60 percent and moved from steam to DFDE and DRL propulsion.

"We support wholeheartedly the efforts of the IMO to develop technical and operational measures to manage greenhouse gas emissions from shipping. From a class society perspective we look forward to a robust discussion of the issues surrounding the EEDI and a positive outcome to MEPC 61 so that the industry can move forward on this instrument with confidence."

"Goodwood has established themselves as an early trendsetter by achieving voluntary MLC certification," said Eugene Low, ABS Pacific Division Head, Safety, Environmental and Security Certification (SESC). "They are planning to continue this proactive approach across the rest of their fleet."

"It is important that the baseline be a proper representation over the entire range of sizes and types, so that one particular size or type of vessel is not unduly impacted," said Tikka. She further pointed out that the use of historical data does not always reflect modern practice. For instance, LNG carriers have in recent years increased in size by more than 60 percent and moved from steam to DFDE and DRL propulsion.

"We support wholeheartedly the efforts of the IMO to develop technical and operational measures to manage greenhouse gas emissions from shipping. From a class society perspective we look forward to a robust discussion of the issues surrounding the EEDI and a positive outcome to MEPC 61 so that the industry can move forward on this instrument with confidence."

"It is important that the baseline be a proper representation over the entire range of sizes and types, so that one particular size or type of vessel is not unduly impacted," said Tikka. She further pointed out that the use of historical data does not always reflect modern practice. For instance, LNG carriers have in recent years increased in size by more than 60 percent and moved from steam to DFDE and DRL propulsion.

"We support wholeheartedly the efforts of the IMO to develop technical and operational measures to manage greenhouse gas emissions from shipping. From a class society perspective we look forward to a robust discussion of the issues surrounding the EEDI and a positive outcome to MEPC 61 so that the industry can move forward on this instrument with confidence."

"Goodwood has established themselves as an early trendsetter by achieving voluntary MLC certification," said Eugene Low, ABS Pacific Division Head, Safety, Environmental and Security Certification (SESC). "They are planning to continue this proactive approach across the rest of their fleet."
Greece Seminar Highlights Operational and Design Considerations for Low Sulfur Fuel

Recently more than 190 members of the Greek shipowning and operating community attended a comprehensive seminar in Athens on issues associated with the requirement to burn low sulfur fuels in the existing sulfur emission control areas (SECAs) and in European ports. Hosted by ABS, and including a presentation from marine machinery service provider Harris Pye, the meeting drew an audience interested to learn more on how to gain compliance in European ports and how to prepare for reduced sulfur levels in the SECAs and in the proposed and potential new emission control areas (ECAs).

“The industry is already dealing with the introduction of the low sulfur mandate that recently took effect for European ports and California coastal waters. However, the industry needs to be prepared for lower sulfur content requirements in the current and future emission control areas,” says ABS Assistant Chief Surveyor, Europe Division, Dimitri Houliarakis.

“The allowable sulfur content of the fuel to be burned in the SECAs will be 1 percent from 1 July 2010,” he added. “And the allowable sulfur content will be further reduced to 0.1 percent in 2015. There is a sense of urgency associated with compliance with the requirements in the European ports, but the planning for the future demands of low sulfur fuels in the SECAs, which will be called ECAs from 1 July 2010, is also important.”

Because fuel is a major component of vessel operating costs, most ship machinery plants have been designed to operate primarily using lower cost heavy fuel oil (HFO) with provision for occasional operation using marine diesel oil (MDO). For some smaller diesel engine ships and most high speed ships, such as fast ferries, MDO is the primary fuel used.

However, the new 0.1 percent sulfur limits will probably require burning marine gas oil (MGO) in most instances. It can be expected that further ECAs and local and regional regulations, for example off the coast of California, will happen in the near future. For instance, a new 200 mile ECA around the East and West Coast of the North America continent as well as Hawaii was adopted at MEPC 60 and is scheduled to enter into force on 1 August 2011.

With that said, most ship machinery plants have not been designed to operate using MGO and, if not properly planned, there are potential difficulties that can arise during the fuel switching process and during sustained operation. These difficulties stem from the need to carefully control the temperature at which the lighter fuel is handled and take account of the reduced lubricity of the low sulfur and low viscosity fuels on the fuel pumps.
ABS provided attendees with a comprehensive analysis of the issues contained in its Fuel Switching Advisory Notice. The 36-page document also includes the requirements of ABS and the operational guidance provided to owners to properly carry out the changeover from heavy to marine gas oils for both the main engine and the auxiliary boilers.

During the workshop a presentation “Low Sulfur Fuels: ABS Guidance and Compliance” explained the class society’s requirements and the approach it has adopted to assist owners seeking to demonstrate to EU member States that they have an approved plan in place to comply with the new restrictions when at berth in the member State’s ports.

“There is no doubt that there will be a lot of changes still to come and a lot of accepted practices will have to be modified, together with the equipment,” Tikka warns. “As a class society, ABS sees its role as one of guidance for the industry to best understand what is required, what will be required and to assess the alternatives that are available to facilitate compliance.”

“Environmental protection is rapidly becoming the most important operating issue facing the shipping industry today,” says Kirsi Tikka, ABS Vice President, Global Technology and Business Development “The issue of emissions is front and center in the various moves to impose restrictions on the manner in which shipowners have traditionally operated their vessels.

JIP Looks at Life Integrity Management of Floating Structures

ABS is participating in a joint industry project (JIP) that looks at the life integrity management of floating structures with emphasis on the study of corrosion. Corrosion and fatigue cracking are two major degradation mechanisms in aging floaters. The JIP aims to further industry knowledge about corrosion, provide guidance and improvement to corrosion management plans and identify technologies for monitoring, predicting and evaluating the consequences of corrosion.

The JIP participants include: ExxonMobil; class societies ABS, BV, DNV, GL, LR and Class NK; and West Coast sensing company, Axcellence. The project proposal has been drafted and is being refined while the project team hopes to continue holding discussion meetings with interested oil companies. ABS is leading the task team with Class NK and Instituto Superior Tecnico in Portugal.

The ABS Fuel Switching Advisory Notice is available for download from the ABS website at www.eagle.org. Click on the Resources tab then visit Booklets & Bulletins.
Singapore MOU Supports Maritime Energy Research

ABS is one of five industry partners which have signed a memorandum of understanding (MOU) with Singapore’s Nanyang Technological University (NTU) to explore collaboration for maritime energy research. The studies will be conducted through a newly created Centre for Maritime Energy Research (CMER) which is part of NTU’s overall Energy Research Institute.

NTU recently launched a new Maritime Clean Energy Research Program with the Maritime and Port Authority of Singapore (MPA) to focus on research platforms that promote green, carbon-neutral, energy management solutions for the shipping industry and port management. This program aims to make research funding of up to $15 million available over five years. CMER has been designed to participate in this research funding initiative.

The first call for proposal has already taken place and applicants are encouraged to work out the proposals in consultation with maritime companies.

“We applaud this opportunity to partner with the MPA, with shipbuilders, shipowners, technology solutions providers and classification societies to address the rapidly growing global energy concerns related to ports and shipping,” said NTU’s Professor Bertil Andersson.

ABS was represented at the MOU signing by ABS Senior Consultant James B. Liebertz. He said this is an opportunity for ABS to further extend and strengthen its environmental research and development programs. ABS has a dedicated team of researchers within its Technology department working on a number of environmental issues. At the forefront of their efforts is the issue of emissions and the various restrictions that will be placed on the operations of vessels to reduce shipping’s carbon footprint.

Representing ABS at the MOU signing with Singapore’s Nanyang Technological University (NTU) was ABS Senior Consultant James B. Liebertz (second from left, seated).
With the emergence of mobile offshore units primarily intended for the installation, maintenance and repair of wind turbines, ABS has issued a new notation for these specialized units, Wind IMR.

Wind turbine installation, maintenance and repair (IMR) units are a distinct type of offshore unit for the renewable energy sector combining existing technologies in novel ways. These units typically include large accommodations, a heli-deck, dynamic positioning systems (DPS-2) and are fitted with large high capacity cranes. The work decks are constructed to support and stow large wind turbine components for transport.

“These specialized units need to distinguish themselves within the offshore industry with a distinct classification notation,” said Michael Sano, ABS Senior Engineer, Energy Project Development. “We have developed this notation with a specific set of standards. No doubt these standards will evolve over time as we keep pace with developments in the offshore wind industry.”

The notation, with its class requirement standards, is included in a new chapter within the ABS Guide for Building and Classing Mobile Offshore Units. Chapter 7, Specific Unit Types, details requirements for the wind turbine IMR units including pile driving, tower installation, nacelle and blade installation, supporting structure for pile driving equipment and supporting structure for deck cargo.

Sano said deck cargo requirements also take into account other items which are installed in association with a wind power generation structure. It also includes any temporary structures such as racks, stands or cradles which are not permanently attached to the unit.

He added that any crane permanently installed on board an ABS-classed wind IMR unit and intended for operations other than supply of provisions and maintenance of the unit is to be certified by ABS in accordance with Chapter 2 of the ABS Guide for the Certification of Lifting Appliances or API Specification 2C.

ABS has seen an increase in offshore support vessel activity aimed at the renewable energy market and has been involved with the classification of jackup barges, multi-purpose offshore construction vessels (OCVs) and self-elevating units (SEUs) all capable of offshore wind turbine installations. Now specialized mobile offshore units that meet the newly developed requirements from ABS will receive the Wind IMR notation.

FIND IT ON EAGLE.ORG

The ABS Guide for Building and Classing Mobile Offshore Units (publication 160) and the ABS Guide for Certification of Lifting Appliances (publication 152) are available for free download from the ABS website under the Resources tab. Select Rules & Guides followed by Downloads to access the publications.
A BS has published a Guide for shipowners seeking to obtain its optional class notations ENVIRO and ENVIRO+ denoting adherence to enhanced standards for environmental protection. The standards are contained in the recently released ABS Guide for the Environmental Protection Notation for Vessels. They include procedures and requirements for ballast water and sewage management, anti-fouling applications, airborne pollutant discharges, fuel oil and the use of exhaust gas cleaning systems, refrigerants and the Green Passport for ship recycling.

To further assist shipowners to keep pace with the steady flow of new environmentally-oriented regulations, ABS has brought together a dedicated group of individuals, each with particular knowledge and experience in these differing areas, within its Technology department. They will be contributing to an increased schedule of free, environmentally-related seminars to be held around the world in the coming months.

"With this new Guide for the ENVIRO and ENVIRO+ notations, ABS is providing owners with a clear, internationally-recognized credential that can be used to demonstrate their commitment to operating with minimum adverse impact on the environment," says Yoshi Ozaki, ABS Director, Environmental Technology.

The ENVIRO notation integrates ABS requirements with those needed for compliance with international conventions, principally MARPOL, Ballast Water Management and Ship Recycling. For the ENVIRO+ notation, the Guide establishes more stringent criteria related to design characteristics, management and support systems as well as discharges to water and air.

**FIND IT ON EAGLE.ORG**

The ABS Guide for Environmental Protection Notation for Vessels (publication 99) and the ABS Guide for Environmental Protection Notation for Offshore Units, Floating Installations and Liftboats (publication 167) are available for free download from the ABS website under the Resources tab. Select Rules & Guides followed by Downloads to access the publications.
The new ABS standards and notations replace those contained in the earlier ABS Guide for the Class Notation Environmental Safety (ES), first issued in 2001. “Technological advances and regulatory changes have contributed to a much more rigorous environmental framework that has developed in the last few years,” says Ozaki. “The new Guide takes those into account.”

According to Karsi Tikka, ABS Vice President, Global Technology and Business Development, the environmental sector is now very fluid with further changes, particularly relating to emissions, expected to come from deliberations at the IMO and in regional and local regulatory initiatives. “It can be daunting for an owner to keep pace with these requirements and with the equipment that is being developed to assist with compliance. Our new organizational structure and enhanced capability in this area is designed to help lighten that burden for them,” she adds.

The new ABS Guide is for the use of designers, builders, shipowners and operators in the marine industry and specifies the ABS requirements and criteria for obtaining the two notations. Compliance with the applicable requirements of Annexes I, II, IV, V and VI to the IMO MARPOL Convention is a prerequisite of obtaining both the ENVIRO and ENVIRO+ notations.

### RECENT NOTICES & CORRIGENDA

<table>
<thead>
<tr>
<th>Publication</th>
<th>Title</th>
<th>Version Date</th>
</tr>
</thead>
</table>
Recent Updates to ABS Rules & Guides

ABS Rules and Guides are available for purchase and/or free download directly from the website at www.eagle.org. Sign up to receive email notifications when new publications or notices are available. The following listing reflects Rules and Guides updates from 1 December 2009 to 15 May 2010.

Recent Publications

**NEW** Guide for the Environmental Protection Notation for Offshore Units, Floating Installations and Liftboats, March 2010 (Pub 167)
This Guide is for designers, builders, owners and operators in the offshore industry and specifies the ABS requirements and criteria for obtaining the optional notations Environmental Protection – Offshore (ENVIRO-OS) and Environmental Protection – Offshore Plus (ENVIRO-OS+). The ENVIRO-OS notation identifies the level of compliance with international environmental protection requirements and integrates associated ABS requirements which influence environmental protection. For the ENVIRO-OS+ notation, this Guide invokes compliance with more stringent criteria for environmental protection related to management and support systems, sea discharges and air discharges. This publication is only available for download.

**NEW** Guide for Well Test Systems, March 2010 (Pub 168)
This Guide contains the technical requirements and criteria employed by ABS in the review and survey of well test systems that are being considered for classification and for maintenance of classification. It is applicable to well test systems that are installed on board vessels and mobile offshore drilling units. This publication is only available for download.

**UPDATE** Rules for Building & Classing Steel Vessels, Part 5A, Specific Vessel Types (Chapter 1), Common Structural Rules for Double Hull Oil Tankers, February 2010 (Pub 2)
The structural requirements in Part 5A of the Rules are applicable for double hull oil tankers of 150 m in length and more. For oil tankers with structural arrangements not covered by Part 5A, the requirements in Part 5C, Chapters 1 and 2, are to be complied with. These Rules are applicable for those vessels having construction contracts signed between 1 February 2010 and 30 June 2010. This publication is only available for download.

**UPDATE** Guide for the Certification of Offshore Mooring Chain, December 2009 (Pub 39)
This new edition adds two higher strength grades R4S and R5 to the existing R3, R3S and R4 and addresses studded and studless flash butt welded chain, chafing chain, chain accessories and special subsea connectors. The Guide includes additional requirements for the qualification of manufacturers, especially with respect to forged and cast accessories and has defined certain aspects of manufacturing controls more comprehensively. Compliance with this edition is required for offshore mooring chain and accessories with a date of material purchase on or after 1 July 2011. This publication is only available for download.

Generic Rules Notices & Corrigenda

<table>
<thead>
<tr>
<th>Part 1</th>
<th>Rules for Conditions of Classification (2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Rule Change Notice 1, January 2010</td>
</tr>
<tr>
<td></td>
<td>• Rule Change Notice 2, April 2010</td>
</tr>
<tr>
<td>Part 1</td>
<td>Rules for Conditions of Classification – Offshore Units and Structures (2010)</td>
</tr>
<tr>
<td></td>
<td>• Rule Change Notice 3, January 2010</td>
</tr>
<tr>
<td></td>
<td>• Rule Change Notice 4, April 2010</td>
</tr>
<tr>
<td>Part 2</td>
<td>Rules for Materials and Welding (2010)</td>
</tr>
<tr>
<td></td>
<td>• Corrigenda, April 2010</td>
</tr>
<tr>
<td></td>
<td>• Corrigenda, April 2010</td>
</tr>
</tbody>
</table>
BS has been involved either directly as the class society or in the design review for several groundbreaking floating LNG (FLNG) and floating storage and regasification unit (FSRU) concepts. A new Guide for Floating Offshore Liquefied Gas Terminals provides criteria that can be applied to the classification of the hull structure of floating offshore liquefied gas terminals (FLGTs) with membrane tanks or independent prismatic tanks.

The criteria addresses liquefied gas terminals with ship-shaped or barge-shaped hull forms, having single center cargo tanks or two cargo tanks abreast arranged along the centerline of the terminal’s hull. This new release is based on the design and analysis experience gained by the society from classing membrane tank LNG carriers, liquefied LNG and LPG gas carriers with independent tanks and FPSOs.

Structural design challenges are being driven by the increase in the size of terminal hulls, shallow water load effects, frequent partial filling, offloading operations and critical interfaces between the hull and topside structure and between the hull and position mooring system.

FLGT concepts have broached the possibility of hull structures up to 450 meters in length and 70 meters in breadth, which would make them the largest ship-shaped units to be built. With the hull structure so large, designs with two cargo tanks abreast are being proposed to minimize the internal load effects, particularly from sloshing within the partially-filled tanks during loading and discharge operations, says Xiaozhi (Christina) Wang, ABS Structures Manager, Offshore Technology.

The onsite environment is typically close to shore so shallow water effects, which can place more severe environmental loads on the hull structure than when it is in open water, need to be considered. Frequent partial tank filling is also an important factor in establishing adequate strength to resist the dynamic loads from sloshing. “Unlike trading LNG carriers, which can avoid critical filling levels, a floating terminal operates at partial tank filling levels so the structure must be able to sustain various sloshing scenarios,” explains Wang.

Two other important considerations in the structural analysis include offloading operations and hull and topside interface. Offloading operations, either side-by-side or in tandem, have an impact on a floating terminal’s response motions as the coupling effects and relative motions between the terminal’s hull and offloading vessel must be taken into consideration. Wang also says that analyses of the hull and topside interface are critical as the size and weight of the topsides modules is significant. “The massive size of newbuild terminals calls for careful integration of the topside structure with the hull structure. For ABS, this means a detailed review of the loads as well as calculations of the hull’s yield, buckling and fatigue strength,” says Wang.

To support the technical guidance it is now providing for FLGTs, ABS has developed proprietary software. The software provides calculations for evaluating structures considering buckling, yielding, ultimate strength and fatigue strength. Importantly, the floating terminal structural criteria takes into account low cycle fatigue which factors in the cyclic and more frequent loading and discharge nature of a floating terminal as compared to a trading LNG carrier.

ABS’ evaluation of a floating gas project is based upon the application of prescriptive requirements, seakeeping studies, structural strength and fatigue analysis, assessment of the containment system, including sloshing analyses and an evaluation of the station keeping systems. As applicable, ABS will review the topsides, the gas processing and liquefaction plants or the regasification modules and use advanced risk analysis to verify that accepted safety standards are attained.
BS has revised its guidance for vessels operating in the Arctic and comparable harsh environments incorporating nearly four years of operational experience since the Guide was first released in June 2006.

Drawing upon feedback from the industry, the ABS Guide for Vessels Operating in Low Temperature Environments was reviewed by members of ABS’ newly established Arctic Technical Advisory Committee comprised of prominent industry representatives active in the study of harsh environments.

The unique demands imposed on vessels operating in polar regions are addressed in the Guide as well as guidance relating to personnel safety and training. Major sections include: materials, welds and coatings; hull construction and equipment; vessel systems and machinery; safety systems; crew considerations; training and related documentation; weather conditions and flag Administration requirements.

According to Robert Conachey, ABS Senior Managing Principal Engineer, Marine Technology, the major revisions include: updated notations to reflect occasional operation in low temperatures and continuous operation in polar regions; clarification of requirements applicable to continuous service and occasional service in low temperatures; and references to regulations since the Guide was first published. Contact

Conachey points out a new notation for vessels with de-icing systems has been created and charts and tables have been updated. “Detailed colored temperature charts have been added in the climatic conditions appendix,” he says. “These charts can be used for guidance to determine temperatures to be expected when operating in the Arctic and Antarctic areas.”

Additionally, materials charts have been updated to reflect recent changes to the IACS Unified Rule (UR) S6. The charts point out requirements for thick plates, castings and forgings. A new table has also been added listing various equipment and systems along with relevant temperature criteria and cross references.

Although not in this update, a new section detailing additional requirements for drilling vessels is currently being studied in anticipation of increased Arctic drilling activity.

Vessels designed and equipped in accordance with the optional requirements of the Guide are eligible for a special class notation. The notation CCO+ (TEMP) will be listed in the ABS Record with the ambient temperature for which the vessel is designed listed in the parenthesis. For example, CCO+-30 degrees C).

Other optional ABS class notations specified are: Cold Climate Operation (CCO (TDST, TMAT)), Cold Climate Operation – Polar (CCO-POLAR (TDST, TMAT)), Cold Climate Operation Plus (CCO (TDST, TMAT)+), Cold Climate Operation – Polar Plus (CCO-POLAR (TDST, TMAT)+) and DE-ICE.
The 85th session of the IMO’s Maritime Safety Committee (MSC) brought forth amendments to the ISM Code. While some of the amendments fine-tune the existing requirements, there are others that may have a meaningful impact on a company’s safety management system (SMS).

“How much an operator will have to adjust its safety management system depends a great deal on whether or not the company was following the implicit requirements of the Code prior to these changes,” said Hemant Juneja, ABS Director, Safety, Environment and Security Certification. “Some of the amendments now simply make explicit the requirements that had been previously implied in the Code,” he added.

With the changes coming into effect on 1 July 2010, there is little time left for confusion on the part of ship operators as to whether or not they need to make changes to their operations in order to maintain compliance.

At least four of the amendments from MSC 85 may have a greater impact on an organization’s SMS, and thus should be carefully reviewed.

1.2.2 – “…assess all identified risks to its ships, personnel and the environment and establish appropriate safeguards;”

This revision introduces for the first time a specified requirement for companies to assess the risks to ships, personnel and the environment arising from their shipboard operations. In simple terms, the revised clause now makes explicit what was already implicit in the Code. It has always been understood that it is not possible to comply with many of the Code’s provisions without carrying out some form of risk assessment. “To this end, it may appear that not much has changed. But on closer scrutiny, this amendment considerably strengthens the Code by establishing a clear methodology of risk assessment as a basis for a company’s procedures,” said Juneja.

“Effective 1 July 2010, ISM auditors will start looking for objective evidence of compliance with this requirement. As a minimum, companies must have established, documented policies and procedures for operational risk assessment...”
and, where possible, they must also have undertaken retrospective risk assessments for their existing operations and activities by that date. Lack of objective evidence may lead to unwanted non-conformities as a failure to meet the new requirements he cautioned.

9.2 – “The Company should establish procedures for the implementation of corrective action, including measures intended to prevent recurrence.” This revision now specifically establishes the concept of preventative action that is a cornerstone of continual improvement in any successful management system. Companies should implement corrective action procedures that clearly include measures to mitigate future recurrence of a non-conformity or an unwanted event. This change in language from implied behaviors to ones which are explicitly required may catch a few organizations if they do not review their SMS carefully.

12.1 – “The Company should carry out internal safety audits on board and ashore at intervals not exceeding 12 months . . . “ The important point to note here is that the standard interval between consecutive annual interval audits, is now more clearly stated as ‘intervals not exceeding 12 months’, in an effort to clear the confusion which had been occurring in the interpretation of ‘annual.’ Though many companies will not be affected, those owners or operators who interpreted annual to mean calendar year, may need to adjust their schedules. It will no longer be permissible to stretch audits across a 23-month span, which could occur if the first audit was done in, for example, January 2009 and then the second completed in December 2010.

12.12 – “The Company should periodically evaluate the effectiveness of the safety management system in accordance with procedures established by the Company.” Another slight alteration of words, where the Code previously called for organizations to evaluate the ‘efficiency of and when needed review,’ has been replaced with the requirement for the company to evaluate the ‘effectiveness of’ their safety management system. This amendment could catch some companies off guard if they don’t review their existing procedures for management reviews. These procedures should now clearly demonstrate how an organization is evaluating that its SMS is effective, rather than just documenting that the SMS was reviewed.

ABS offers several tools for operators seeking guidance in the areas of risk assessment, hazard identification and risk-based inspection. Contact your local ABS office for more information.

Training
The ABS Academy offers training courses on awareness and implementation of the ISM Code. A schedule of courses is available on the website at www.absacademy.org.

Software
The ABS Eagle Risk Manager software assists clients through the necessary steps to identify and assess risks as well as establish safeguards. Using the software will provide owners a means by which they can organize risk information in a systematic, consistent and transparent format.

In addition, ABS Nautical Systems offers a full suite of fleet management software that can document any type of audit, inspection or drill, along with hazard identification and job safety analyses. The ability to replicate findings across the fleet assists in demonstrating preventative actions.

Publications
The ABS Guidance Notes on Risk Assessment Applications for the Marine and Offshore Oil and Gas Industries provides an overview of the risk assessment field for managers and technical professionals. The concept of risk is defined and methodologies available to assess the risks associated with an operation are described. Guidelines for setting up and conducting successful risk studies are provided.
When Daewoo Shipbuilding & Marine Engineering Co. Ltd. (DSME) wanted a comprehensive, advanced program on risk management it turned to ABS Academy for assistance. The training unit responded with a customized training program that tapped into the global network and resources of ABS.

The program developed for DSME combined several existing Academy courses into a 12-week program for two representatives and culminated in a one-week Advanced Health, Safety and Environmental (HSE) Risk Workshop for an additional 12 engineers and naval architects.

The training program was conducted by a team of 32 ABS Academy authorized instructors assembled from around the world, each known leaders in their specialty area of risk.

Each training module combined traditional lecture with interactive sessions as well as case studies to demonstrate key learning concepts. The workshops were supported with printed materials and copies of the various ABS publications related to each subject.

“By attending this workshop we hope to gain a better understanding of the application of risk in our daily engineering tasks,” says Ki-Woo Sim, Senior Engineer, Basic Design and Engineering Team (Process), DSME. Sim is located at DSME’s corporate office in Seoul and says he was surprised by the number of specialists ABS was able to assemble in order to give his team a comprehensive look at risk. He says that every module is important, but most relevant was the topic of Fire and Explosion Protection Practices.

While Sim handles Process Engineering, the others in the workshop from DSME represented various disciplines such as mechanical, electrical or piping at basic and detailed design levels. His colleague, J.M. Choi, Naval Architect and Offshore Engineer, from DSME’s Koje shipyard, says it has been beneficial to drill down into a level of detail with these modules that allows for a good understanding of the subject. “We have been able to ask detailed questions of the instructors and learn from their experience,” he adds.

As the DSME team returns to Korea, Sim says they plan to build a Risk department, or Loss Control team, within their organization to handle the many areas of risk involved in the design aspects of marine and offshore assets. “After this training we will be better prepared to move forward with these efforts,” he says.

The ABS Academy provides courses that extend beyond the traditional curriculum and offers a series of specialized training courses delivered by experienced presenters that bring to the classroom an invaluable blend of theoretical knowledge and practical understanding. In addition, ABS Academy tailors training programs to help corporations meet their specific goals and objectives. For more information, contact absacademy@eagle.org or visit the website at www.absacademy.org.
Classification is the principal self regulating mechanism for the marine and offshore industries,” says ABS Chairman and CEO Robert D. Somerville. “ABS’ strength is drawn from its membership and from the members of its many regional, national and technical committees all of whom contribute enormously to the process of developing practical, impartial and authoritative standards that promote the safety of life, property and the environment.”

At the Annual Meeting of Members of ABS in New York, the following member was elected to a three-year term on the ABS Council:

• Graham Westgarth, Teekay Marine Services

Following the Annual Meeting, the ABS Council met and elected to a one-year term as a Member of the ABS Classification Committee:

• Melvyn J. Dennett, Admanthos Shipping Agency, Inc.

Elected to five-year terms as ABS Members by the Council were:

• Christopher B. Bollinger, Bollinger Shipyards, Inc.
• Jim Bradford, Gulf Offshore N.S. Ltd.
• Dr. William J. Brennan, Maine Maritime Academy
• Weon-Gil Choe, Hyundai Mipo Dockyard Co., Ltd.
• Jim Colman, Sea Star Line, LLC
• Martin Dempsey, Travelers
• Dr. Do Van Khanh, Petrovietnam Drilling & Well Services JSC
• Mark Eitzen, Gunderson Marine LLC
• David W. Foster, American Steamship Company
• Costas M. Fostiropoulos, Almi Tankers S.A.
• Wim Janse, SBM Monaco
• Dr. Bjorn Kjerfve, World Maritime University
• Gregers Kudsk, Maersk Drilling
• Dr. Dirk Lassen, Chemikalien Seetransport GmbH
• Ian J. Lennard, National Cargo Bureau
• Jim Miller, Aker Philadelphia Shipyard, Inc.
• Mrs. Molly Mok, Evergreen Marine (Singapore) Pte Ltd
• Leif Kristian Nielsen, AP Moller Singapore
• Byung-Wook Oh, Hyundai Heavy Industries
• Allister Paterson, Seaway Marine Transport
• Dimitrios Patrikios, Springfield Shipping Co., S.A.
• Leonidas S. Polemis, Remi Maritime Corporation
• Gerard H. Potier, B & H Shipping Group (B & H Management Ltd.) B & H/Potier
• Capt. Yodchai Ratanachiwakorn, Thoresen & Co., (Bangkok) Ltd.
• Bob Rietveldt, Ulstein Sea of Solutions
• I.S. Roh, Samsung Heavy Industries
• Dalton Marcio Schmitt, Astromaritima Navegacao S.A.
• William Scott, Engineering & Technical Services, Tidewater Inc.
• Peter S. Shaerf, AMA Capital Partners
• Josh M. Shapiro, Liberty Maritime Corporation
• Suhartoko, PT Pertamina Shipping, Jakarta
• Widihardja Tanudjaja, PT Berlian Laju Tanker Tbk.
• Geoffrey H. Taylor, Drydocks World
ABS Chairman and CEO Robert D. Somerville presents an ABS membership plaque to Dr. Wen-Lon Cheng, Chairman, CSBC Corporation.

Takashi Nishino, General Manager, Mitsui and Company, Ltd. receives an ABS membership plaque from Mark A. McGrath, ABS President and COO, Pacific Division.

Hitoshi Matsumoto, ABS Country Manager for Japan presents an ABS membership plaque to Takatoshi Funada, President, Funada Kaiun Company, Ltd.

Dr. Michael Kennedy, Managing Director, Hellespont receives an ABS membership plaque from Vassilios Kroustallis, ABS Country Manager for Greece.

Mark A. McGrath, ABS President and COO, Pacific Division presents an ABS membership plaque to Koji Usami, President, Mitsubishi Ore Transport Company, Ltd.

ABS Americas Division President and COO Thomas Gilmour presents an ABS membership plaque to Brian J. Carter, Manager, Commercial Marketing, General Dynamics NASSCO as John Gallagher, ABS Regional Vice President, North America looks on.
Shigemi Kurahara, President, IHI Marine United Inc. receives an ABS membership plaque from Mark A. McGrath, ABS President and COO, Pacific Division.

John Wright Russell, CEO, Russell Development Company Inc. receives an ABS membership plaque from John Linster, ABS Western District Manager, Americas Division.

ABS Americas Division Senior Vice President, Operations Adam Moilanen presents an ABS membership plaque to Detyen’s Shipyard Chairman Loy Stewart.

Hor Weng Yew, AET President and CEO, receives an ABS membership plaque from Eric Kleess, ABS Pacific Division Senior Vice President, Operations.

Karel Van Campenhout, ABS Senior Vice President, Europe Division (center) presents an ABS membership plaque to Tommy Thomsen, President and CEO, Clipper Tankers A/S (right) as Capt. Claus Thornberg, Senior Vice President and COO, Clipper Tankers A/S, looks on.

Takao Kawamoto, President, Tsuneishi Shipbuilding Company receives an ABS membership plaque from Hitoshi Matsumoto, ABS Country Manager for Japan.
ABS Sponsors Fatigue and Fracture Analysis Course

A fatigue and fracture analyses course, sponsored by BMT Fleet Technology Ltd., a subsidiary of BMT Group Ltd., was recently hosted by the ABS Academy in Houston. Attended by naval architects, ship superintendents and engineers responsible for design, material specification, welding, operational safety and maintenance, the three-day course was titled Fatigue and Fracture Analysis of Ship Structures.

ABS Director of Shared Technology, Roger Basu, was on the panel of instructors that presented and discussed the application of fatigue and fracture mechanics-based methodologies.

The course presented tools and techniques for quantitative fatigue and fracture assessment of ship structures considering the materials, structural geometry and loading. The workshop also incorporated practical application examples using sample FlawCheck software.

The course was accredited by the Royal Institution of Naval Architects for Continuing Professional Development and by SNAME for compliance with NYSED guidelines for Continuing Professional Competency.
ABS Participates in Webinar

Advancements in Aluminum Ships

Leading aluminum producer, Alcoa, recently conducted a webinar and called upon ABS to participate in the discussion because of its experience with the use of this material on naval vessels.

Derek Novak, former ABS Manager of the Naval Engineering department and now ABS Vice President of Engineering, Americas Division, participated in the hour-long session discussing ABS’ requirements for the use of aluminum, the class society’s approved aluminum alloys, developments of aluminum fatigue requirements and aluminum structural fire protection.

According to Novak new technologies have greatly advanced aluminum shipbuilding over the last decade. Specific specialty aluminum topics explained in further detail were friction stir welding, specialty extrusions and helicopter deck/mission bay tie downs.

The webinar provided an opportunity for ABS to offer its classification society perspective, explain its role in the government shipbuilding process and highlight its leading edge research and knowledge with regard to materials.

US Navy’s LCS2 Commissioned

The Austal-designed and built and ABS-classed Littoral Combat Ship USS Independence (LCS2) officially joined the operating forces of the US Navy at a historic commissioning ceremony held near Austal’s Mobile, Alabama facility.

Thousands of Navy officials, politicians, industry delegates and spectators joined in welcoming the USS Independence into the Navy’s fleet, where it will serve as a fast, agile, focused-mission platform designed for operation in near-shore environments.
ABS Wins Seatrade’s Asia Classification Society Award

ABS is honored to have been selected as the recipient of the Classification Society Award at the recent Seatrade Asia Awards 2010 ceremony in Singapore. Seatrade’s Asia Awards program was first initiated in 2008 to raise the profile of maritime development across Asia and to underscore excellence in the fields of innovation, safety and quality, social and environmental responsibility; enterprise and achievement, together with education and training. Accepting the award on the class society’s behalf was Thomas Tan, ABS Regional Vice President, Southern Pacific.

ABS also sponsored the Environment Protection Award at the ceremony for new technology or significant improvements to existing technology that can reduce or prevent marine and atmospheric pollution or assist in the cleanup of same, including emergency response strategies. Singapore-based Jenjosh Marine Services, a proponent of the cleaner-burning compressed natural gas (CNG) in shipping, received the award.

Additionally, ABS Nautical Systems (NS) was named a finalist for the Technical Innovation Award for its Hull Inspection program. A web-based software tool, the Hull Inspection program has been viewed as a service that can potentially improve the efficiency of ship operations by providing owners and operators with up-to-date information on the structural condition of the vessels in their fleet.

ABS Singapore Annual Golf Tournament

ABS clients and members look forward each year to the annual golf tournament in Singapore. The much anticipated event was held on the Serapong course at the Sentosa Golf Club. A total of 108 executives from various maritime firms and shipyards competed at the event. ABS congratulates M.S. Maniam, Managing Director of Seagull Marine and Chor How Jat, General Manager of Operations Keppel Fels for posting the winning score.
ABS Events and Conferences Calendar

2 – 3 June 2010
Offshore Asset Life Extension Conference
Kuala Lumpur, Malaysia
ABS Presenter: Joe Rousseau
www.offshoreassetintegrity.com

6 – 11 June 2010
International Conference on Ocean, Offshore & Arctic Engineering (OMAE)
Shanghai, China
Sponsored by ABS
ABS Presenters: Haihong Sun, Seung Jae Lee, Christina Wang & Kirsi Tikka
www.omae2010.com

7 – 11 June 2010
Posidonia 2010
Athens, Greece
Stand: 122
www.posidonia-events.com

10 June 2010
Coast Guard Foundation’s Tribute to the Coast Guard
Washington, DC, US
Sponsored by ABS
www.cgfdn.org

16 – 18 June 2010
Human Performance at Sea
Glasgow, United Kingdom
ABS Presenters: Clifford Baker & Kevin McSweeney
www.hpas2010.com

20 – 26 June 2010
International Society of Offshore & Polar Engineers (ISOPE)
Beijing, China
ABS Panelist & Presenter: Jer-Fang Wu
www.isope.org

28 – 29 June 2010
API Tanker Conference
La Jolla, CA, US
ABS Panelist: Robert D. Somerville
www.api.org

29 – 30 June 2010
European Shortsea Congress
Dublin, Ireland
www.navigateconferences.com

28 – 30 July 2010
ASME/USCG Marine Technology & Standards Workshop
Washington, DC, US
ABS Panelist: Tom Gilmour
ABS Presenter: Harish Patel
www.asmeconferences.org

9 – 11 August 2010
Automation & Controls Symposium
Milwaukee, WI, US
ABS Presenter: Mike Roa
www.navalengineers.org

8 – 9 September 2010
Marine Coatings Conference
Hamburg, Germany
ABS Presenter: Ed Jansen
www.paintsquare.com/smm

13 – 16 September 2010
Rio Oil & Gas Conference
Rio de Janeiro, Brazil
Stand: Q3 - Pavilion 4
www.ibp.org.br

14 – 15 September 2010
Fleet Maintenance & Modernization Symposium
Virginia Beach, VA, US
www.asne-tw.org/asne/FMMS10

19 – 24 September 2010
International Symposium on Practical Design of Ships & Other Floating Structures (PRADS)
Rio de Janeiro, Brazil
Sponsored by ABS
Keynote Speaker: Donald Liu
www.prads2010.org.br

20 – 23 September 2010
ICETECH
Sponsored by ABS
www.icetech10.org

24 – 25 September 2010
India Shipping Summit
Mumbai, India
Sponsored by ABS
www.indishippingsummit.com
CHANTAL, a 74,329 dwt tanker, SH, SHCM, ES, FL30, VEC-L, TCM, PMA, ESP, UWILD, CRC, RW, built by Sungdong Heavy Industries Co., Ltd. for Orleans Development.

1 November 2009 to 31 March 2010
Newly Classed Vessels and Facilities

**TANKERS**

**AL KHALIDIA**, 54,916 gt / 97,139 dwt, AB-CM, CSR, VEC, built by Hyundai H I for Sea Giant Shipping

**ALEXIA**, 60,205 gt / 107,574 dwt, AB-CM, CSR, VEC, TCM, built by Tsuneishi Holdings for Magdalena Navigation

**ALFA SEA**, 5,041 gt / 6,341 dwt, built by CSC Chongqing Dong Feng Shipbuilding for Alfa Navigation Services

**ALPINE MARIE**, 28,777 gt / 48,005 dwt, SHR, VEC, built by Iwagi Zosen for F J Lines

**ALFA MARINE**, 23,224 gt / 37,759 dwt, AB-CM, CSR, VEC, TCM, built by Hyundai Mipo for Nordic Sealion Tankers

**ANAMARIA**, 5,031 gt / 6,487 dwt, VEC, built by Zhenjiang Sopo Shipbuilding for N G Livanos Maritime

**ASAARI**, 8,825 gt / 13,094 dwt, VEC, built by Sekwang H I for Sci Forbes

**ATLANTIC PISCES**, 29,266 gt / 47,128 dwt, SHR, VEC, built by Hyundai Mipo Dockyard for Heroic Lyra

**AWANUIA**, 2,747 gt / 4,015 dwt, R2-S, VEC, built by Yardimci Gemi Insa for PB Sea-Tow

**BALTIC GALAXY**, 59,408 gt / 114,824 dwt, SH, SHCM, VEC-L, TCM, built by Sasebo H I for South Vigour Shipping

**BEI JIANG**, 30,694 gt / 50,120 dwt, SH, SHCM, RES, FL(30), VEC, built by SLS Shipbuilding for Nan Hai Maritime

**BLUE SEA, BLUE SKY**, 55,863 gt / 105,416 dwt, SH, SHCM, VEC, built by Sumitomo Heavy Industries Marine & Engineering for Blue Sea Navigation

**C GLORY**, 160,619 gt / 314,090 dwt, AB-CM, CSR, VEC, built by Hyundai H I for Universe Shipholding

**C PROSPERITY**, 160,619 gt / 313,875 dwt, AB-CM, CSR, VEC, built by Hyundai H I for Commander Ship Holdings

**CAESAR**, 158,327 gt / 318,227 dwt, SH, SHCM, ES, VEC-L, TCM, GP, built by Hyundai H I for Christabell Maritime

**CHAMPION PROSPERITY**, 59,179 gt / 115,098 dwt, SH, SHCM, VEC-L, TCM, built by Sasebo H I for Auriga Maritime

**CHANTAL**, 41,676 gt / 74,329 dwt, SH, SHCM, ES, FL30, VEC-L, TCM, built by Sungdong H I for Orleans Development

**CHEMTRANS ELBE**, 8,539 gt / 13,006 dwt, VEC, TCM, built by 21st Century Shipbuilding for Armitage Navigation

**CHEMTRANS HAVEL**, 8,539 gt / 13,065 dwt, VEC, TCM, built by 21st Century Shipbuilding for Hanson International

**DESH VISHAL**, 162,412 gt / 321,137 dwt, SH, SHCM, ES, NIBS, VEC, TCM, built by Daewoo Shipbuilding & Marine Engineering for Shipping Corporation of India

**DICLE DENIZ**, 2,222 gt / 3,531 dwt, SH, SHCM, ES, VEC-L, TCM, GP, built by Hyundai H I for Christabell Maritime

**DOMINIA**, 25,385 gt / 40,147 dwt, SH, SHCM, RES, FL30, Ice Class “B”, VEC, built by SLS Shipbuilding for Morfini

**DUBAI GLAMOUR**, 63,294 gt / 115,600 dwt, AB-CM, CSR, NBLES, VEC, TCM, built by Hanjin H I for Glamour Maritime

**EASTERN FORCE**, 28,777 gt / 48,056 dwt, SHR, VEC, built by Iwagi Zosen for AW Shipholding

**FELICITY**, 81,427 gt / 157,667 dwt, AB-CM, CSR, RES, ESP, UC(W), CRC, CPP, RW, built by SPP Shipbuilding Co., Ltd. for MI Europa Maritime Co.

**FOUR WIND**, 61,241 gt / 115,728 dwt, AB-CM, CSR, VEC, TCM, built by Samsung H I for Four Jolly

**FPMC 20**, 29,734 gt / 50,994 dwt, AB-CM, CSR, VEC, TCM, built by STX Offshore & Shipbuilding for FPMC Brilliance Marine

**FPMC 20**, 29,734 gt / 50,994 dwt, AB-CM, CSR, VEC, TCM, built by STX Offshore & Shipbuilding for FPMC Brilliance Marine

**HORIZON THEANO**, a 50,286 dwt oil tanker, VEC-L, TCM, FL30, AB-CM, CSR, RES, ESP, UWILD, CRC, CPP, RW, built by SPP Shipbuilding Co., Ltd. for MI Europa Maritime Co.

**MARAN ATLAS**, a 105,071 dwt tanker, VEC-L, TCM, AB-CM, CSR, GP, RES, ESP, CRC, RW, built by Hyundai Heavy Industries Co., Ltd., for RBSSAF (16) Ltd.
OVERSEAS NIKISKI, a 46,666 dwt product tanker, VEC, SH, ES, SHCM, ESP, built by Aker Philadelphia for ASC Leasing VII.

AMY, a 37,759 dwt tanker, VEC, TCM, AB-CM, CSR, ESP, UWILD, CRC, RW, built by Hyundai Mipo Dockyard Co. Ltd, for Nordic Seaarland Tankers B.V.

ATLANTIC PISCES, a 47,999 dwt tanker, VEC, SHR, ESP, UWILD, RW, built by Hyundai Mipo Dockyard Co. Ltd., for Heroic Lyra Inc.
OVERSEAS NIKISKI, 29,242 gt / 46,666 dwt, SH, SHCM, ES, VEC, built by Aker Philadelphia Shipyard for ASC Leasing VII
PELICAN STATE, 29,527 gt / 48,599 dwt, SH, SHCM, FL25, VEC, built by National Steel & Shipbuilding for P12 Pelican State
PUNTA QUILLA, 11,431 gt / 16,616 dwt, TCM, built by Zhenjiang Friendship Shipyard for Antares Naviera
ROXEN STAR, 83,662 gt / 156,435 dwt, AB-CM, CSR, RES, NIBS, VEC-L, TCM, built by Jiangsu Rongsheng Heong Industries for Roxen Star Maritime
SAHBA, 160,782 gt / 299,995 dwt, SHR, VEC-L, TCM, built by Hyundai Samho Industries for National Shipping
SCIROCCO, 42,010 gt / 73,382 dwt, AB-CM, CSR, VEC-L, TCM, built by New Times Shipbuilding for Optim
SEAMUSIC, 62,775 gt / 112,922 dwt, AB-CM, ES, CSR, VEC-L, TCM, built by New Times Shipbuilding for Blue Light Development
SEMUA PERDANA, 8,539 gt / 13,062 dwt, VEC, built by 21st Century Shipbuilding for NFC Labuan Shipbuilding
SOUTHERN SPIRIT, 62,775 gt / 113,043 dwt, AB-CM, CSR, VEC, TCM, built by New Times Shipbuilding for Spirit Shipping
STEALTH CHIOS, 62,775 gt / 112,984 dwt, AB-CM, ES, CSR, VEC, TCM, built by New Times Shipbuilding for Petrol Duke
SUMMER, 8,539 gt / 13,022 dwt, VEC, built by 21st Century Shipbuilding for Carmenta Shipholding
SUMMIT AFRICA, 42,010 gt / 73,394 dwt, AB-CM, CSR, ES 2020, VEC-L, TCM, built by New Times Shipbuilding for YK Yalu River Shipping
SUMMIT ASIA, 42,010 gt / 73,410 dwt, AB-CM, CSR, ES 2020, VEC-L, TCM, built by New Times Shipbuilding for YK Ciang River Shipping
SUMMIT AUSTRALIA, 42,010 gt / 73,427 dwt, AB-CM, CSR, VEC-L, TCM, built by New Times Shipbuilding for YK Huai River Shipping
TIGRIS, 8,247 gt / 12,920 dwt, ES, VEC-L, PORT, TCM, built by STX Offshore & Shipbuilding for Benelux Overseas
VALCONCA, 60,185 gt / 109,144 dwt, SH, SHCM, VEC, built by Hudong-Zhonghua Shipbuilding for Navigazione Montanari
YANGTZE RHYME, 156,702 gt / 297,573 dwt, SH, SHCM, VEC, built by Shanghai Jiangnan-Changxing Shipbuilding Co. for Nanjing Tanker
YASA MARMARIS, 29,832 gt / 50,215 dwt, AB-CM, CSR, RES, VEC-L, TCM, built by SPP Shipbuilding for YA-SA Tanker

AQUIFERY, a 24,242 gt / 38,934 dwt bulk carrier, BC-A, SHCM, GRAB (20), built by CMR Engineering for CMA-CGM
AQUAMARINE, a 182,060 dwt bulk carrier, BC-A, TCM, GRAB (20), AB-CM, CSR, POT, ESP, UWILD, CPS, CRC, RW, built by Odense Steel Shipyard Ltd. for Actis Shipping.

BULK CARRIERS
ALEXANDRA P, 93,385 gt / 181,255 dwt, BC-A, AB-CM, CSR, GRAB, TCM, built by Sasebo H I for Auckland Trading
ALONA, 91,373 gt / 177,944 dwt, BC-A, SH, SHCM, GRAB, TCM, built by Shanghai Waigaoqiao Shipbuilding for Thor Owning
ANANGER ARGONAUT, 89,990 gt / 177,835 dwt, BC-A, SH, SHCM, GRAB, TCM, built by Shanghai Waigaoqiao Shipbuilding for Anais Seaways
AOM SOPHIE, 58,100 gt / 106,498 dwt, SHR, HCS, built by Oshima Shipbuilding for Milamores Shipping
AQUAMARINE, 100,615 gt / 182,060 dwt, BC-A, AB-CM, CSR, GRAB, TCM, built by Odense Steel Shipyard for Actis Shipping
ATHENIAN PHOENIX, 93,050 gt / 179,223 dwt, BC-A, AB-CM, CSR, GRAB, TCM, built by Hyundai H I for Athenian Phoenix Enterprises
CHAITALI PREM, 51,255 gt / 93,313 dwt, BC-A, AB-CM, CSR, GRAB, PORT, TCM, built by Jiangsu New Yangzi Shipbuilding for Gestioni Armatoriali
CHINA PRIDE, 91,373 gt / 177,856 dwt, BC-A, SH, SHCM, GRAB, TCM, built by Shanghai Waigaoqiao Shipbuilding for China Pride Shipping

CHIMERA, a 24,242 gt / 38,934 dwt bulk carrier, BC-A, SHCM, GRAB (20), built by CMR Engineering for CMA-CGM

LOUISA BOLTEN, a 30,522 dwt bulk carrier, BC-A, TCM, GRAB (20), AB-CM, CSR, UWILD, ESP, CRC, built by Tsui Heavy Industries (Jiangsu) Co., Ltd., for Louisa Shipping and Trading Corporation.
OLIVA, a 75,208 dwt bulk carrier, BC-A, TCM, SH, GRAB (20), SHCM, ESP, UWILD, CRC, built by Hudong-Zhonghua Shipbuilding (Group) Co., Ltd, for Monteagle Shipping SA.

HANDY WIND, a 34,409 dwt bulk carrier, BC-A, TCM, GRAB (20), AB-CM, CSR, GP, ESP, UWILD, CPS, CRC, RW, built by SPP Shipbuilding Co., Ltd. for Jadyn Shipholding Corp.

OLIVA, 40,170 gt / 75,208 dwt, BC-A, SH, SHCM, GRAB, built by Hudong-Zhonghua Shipbuilding for Monteagle Shipping.

HANDY WIND, 23,400 gt / 34,409 dwt, BC-A, AB-CM, CSR, GRAB, TCM, built by SPP Shipbuilding for Four Handy.

GIOVANNI BOTTIGLIERI, 51,255 gt / 93,407 dwt, BC-A, AB-CM, CSR, GRAB, TCM, built by Tsuneishi Holdings Corporation for Deiulemar-Compagnia di Navigazione SPA.

JIN JI, 33,036 gt / 56,913 dwt, BC-A, AB-CM, CSR, GRAB, TCM, built by Tsuji H I for Louisa Shipping & Trading.

MINERAL NINGBO, 91,373 gt / 178,120 dwt, BC-A, SH, SHCM, GRAB, TCM, built by Shanghai Waigaoqiao Shipbuilding for Bocimar International.

CONTAINERSHIPS

BERRA K, 1,147 teu, Ice Class “IC”, NIBS, built by Sedef Gemi Insaati for Kasif Denizcilik

OOCL BRISBANE, OOCL NEW ZEALAND, 4,578 teu, SH, SHCM, built by Samsung H I for Orient Overseas Container Line

GAS CARRIERS

AL DAFNA, 266,000 m³, SH, SH-DLA, SHCM, ES2020, NIBS, TCM, built by Samsung H I for Qatar Gas Transport

AL GHASHIMIYA, 217,591 m³, SH, SH-DLA, SHCM, ES2020, NIBS, TCM, built by Samsung H I for Qatar Gas Transport

MIN LU, MIN RONG, 147,210 m³, SH, SH-DLA, SHCM, ES2020, FL40, NBLES, TCM, built by Hudong-Zhonghua Shipbuilding for China LNG Shipping

OOCL BRISBANE, a 4,578 teu container carrier, SH, SHCM, UWILD, CRC, CSC, RW, built by Samsung Heavy Industries Co., Ltd. for Orient Overseas Container Line Ltd.

OFFSHORE

FOIs

TAHITI, built by Technip Offshore Finland for Chevron

FSOs

PETROBRAS 10000, 60,331 gt, SH-DLA, @CDS, @DPS-3, built by Samsung H I for P & M Drilling International

MODUs

DEVELOPMENT DRILLER III, 37,981 gt, @DPS-2, built by Keppel Fels for GSF Leasing Service

DHIRUBHAI DEEPWATER KG 1, 59,824 gt, SH-DLA, @DPS-3, NBLES, built by Samsung H I for Deepwater Pacific 1

MAERSK DISCOVERER, 37,756 gt, @DPS-2, built by Keppel Fels for Maersk Drilling Deepwater Singapore

Self Elevating Drilling Units

AQUAMARINE DRILLER, 9,985 gt, built by PPL Shipyard for Aquamarine Driller

JB 114, JB 115, 3,621 gt, built by P T Nan Indah Mutiara Shipyard for Self Elevating Platforms

KUDETA 4305, 2,910 gt, built by Gulf Marine Services for Gulf Marine Services

MAERSK REACHER, 15,589 gt, built by Keppel Fels for A P Moller-Maersk

NAGA 2, 9,627 gt, built by P T Graha Trisaka Industry for UMW Standard Drilling

NOBLE SCOTT MARKS, 14,346 gt, built by Dalian Shipbuilding Industry for Noble Drilling

OFFSHORE INTREPID, 7,079 gt, built by Keppel Amfels for Scorpion Offshore

ONOME, 6,880 gt, built by Maritime Industrial Services for Seawolf Oilfield Services

PERRO NEGRO 6, 9,627 gt, built by P T Graha Trisaka Industry for Saipem Portugal Comerico Maritimo

PV DRILLING II, 10,058 gt, built by Keppel Fels for Petrovietnam Drilling Investment

SAPPHIRE DRILLER, 9,985 gt, built by PPL Shipyard for Sapphire Drilling

SEAJACKS LEVIATHAN, 5,186 gt, @DPS-2, built by Lamprell Energy for Seajacks UK

SEP DESLEY ANNE, 1,229 gt, built by P T United Sindo Perkasa for Walz Marine Services

TOPAZ DRILLER, 9,985 gt, built by PPL Shipyard for Vantage Drilling

ZHONG YOU HAI 10, 5,362 gt, built by Dalian Shipbuilding Industry for China National Petroleum Offshore Engineering

ZARGA, SHAGRA, AAMIRA, RASHEEDA, four Q-Max size 266,000 m³ gas carriers, NIBS, TCM, SH, SH-DLA, ES2020, SHCM, UWILD, HM1 (Slam Warning), CRC, SFA 40, HM2+R (Hull Girder Stress), RW, built by Samsung Heavy Industries Co., Ltd. for Qatar Gas Transport Company (Nakilat).

SEAJACKS LEVIATHAN, a 5,186 gt self elevating unit, CRC, built by Lamprell Energy Ltd., for Seajacks UK Ltd.
**Single Point Mooring**

**KOCHI SPM CALM BUOY**, built by Bluewater Energy Services for Bharat Petroleum

**PERTAMINA 10M CALM, PERTAMINIA 11M CALM**, built by P T Dwisatu Mustika Bumi for Pertamina

**MISCELLANEOUS**

**Barges**

650-7, 13,462 gt, SH, SHCM, built by VT Halter Marine for Vessel Management Services

AFRICAN WORKER, 9,462 gt, built by Nantong Dongjiang Shipyard for Jaya Shipbuilding & Engineering

ARTHANARAN IX, ARTHA SARAN X, 4,131 gt, built by Taizhou Dongfeng Shipbuilding for Goldwood Holdings

ARTHARA SARAN X, ARTHA SARANA VIII, 3,146 gt, built by Jiangsu Taixing Yuemei Shipyard for Goldwood Holdings

ASIA BAY 109, MARINA BAY 303, 3,147 gt, built by Taixing Huxin Shipbuilding for P T Pelayaran Mitra Kaltim Samudera

ASIA BAY 107, 3,231 gt, built by Nanjing San Ding Li Shipyard for P T Pelayaran Mitra Kaltim Samudera

ASIA BAY 330, 4,370 gt, built by Nanjing Asiapride Shipping Making for P T Pelayaran Mitra Kaltim Samudera

AUNG THU KHA 25, 1,438 gt, built by P T Jasamarin Engineering for Foong Sun Shipping

B. NO. 284, 6,496 gt, built by Bollinger Gretna for Bouchard Ocean Services

BAHARI 3201, 3,761 gt, built by P T Pan Batam Island Shipyard for Taiping Investments

BARGE 455 6, 7,913 gt, built by Gunderson Marine for Crowley Maritime

BARGE 455-7, 7,913 gt, built by Gunderson Marine for Vessel Management Services

BARGIAN 308, 1,266 gt, built by Yizheng Xinyang Shipbuilding for QSA Marine & Logistics

BAWAL, 5,266 gt, built by Nantong Tinnan Shipyard for P T Pelayaran Citramaritimindo Pratama

BEUK, BEKIL, 5,266 gt, built by Nantong Tinnan Shipyard for Orchard Maritime Chartering

BIG BUDDY, BIG MOVE, 3,151 gt, built by Taizhou Sanfu Ship Engineering for Asian Shipping

BINA MARINE 38, BINA MARINE 52, BINA MARINE 55, 3,279 gt, built by P T Marcopolo Shipyard for Marcopolo Shipping

BUKIT EMAS 2312, MEE LEE 12, 1,438 gt, built by P T Jasamarin Engineering for Khoo Kian Seng Machinery

CHRISTINA NO.1, 11,210 gt, built by Korea Marine & Offshore Engineering for Punj Lloyd

COM-8, 1,407 gt, Ice Class “A0”, built by Adyard Abu Dhabi for Bue Kyran

CREST STATION 1, 9,412 gt, built by Nantong Tong Sheng Shipbuilding for Pacific Crest

CREST STATION 3, 11,063 gt, built by Wisor (Nantong) H I for Pacific Crest

CSF 3301, 4,259 gt, built by Nanjing Wu Jiang Shipyard for Cathay Shipping & Freight Services

PETROCHEM SUPPLIER, a 10,884 gt oil and chemical tank barge, VEC, SH, SHCM, UWILD, HHP, built by Bay Shipbuilding Co., for US Shipping Partners.

**RTC 103**, a 7,120 gt double hull oil tank barge, built by Southeastern New England Shipbuilding Corp. (SENSCO), for Reinauer Transportation Companies, Inc.
CSF 3302, 4,259 gt, built by Nanjing Sandingli Ship Industry for Cathay Shipping & Freight Services
DBL 185, 13,895 gt, built by Bay Shipbuilding for K-Sea Transportation Partners
DLB AZIZ, 12,532 gt, built by Nantong Tongde Shipyard for Swiber Engineering
DOUBLE SKIN 504, 4,238 gt, built by Jeffboat for Vane Line Bunkering
DULCINEA, 5,289 gt, built by Nantong Tongde Shipyard for Celebes Lines
DY 302, 10,528 gt, built by Oriental Precision & Engineering for Dae Yang Offshore
ESP 318, 3,107 gt, built by P T Karya Tekhnik Utama for P T Karya Tekhnik Utama
ESTELLA, 5,299 gt, built by Nantong Tong Sheng Shipbuilding for Sea Win Marine
FIDELIA, 5,289 gt, built by Nantong Tongde Shipyard for Sea Win Marine
FINACIA 70, FINACIA 71, 3,145 gt, built by Yangzhou Runda Shipyard for Entebe Shipping
GALUH 5, 5,266 gt, built by Nantong Tiannan Shipyard for Pacific Ocean Engineering & Trading
GTO 40, 263 gt, built by Nass Marine Services for Nass Marine Services
GTO 43, 261 gt, built by Nass Marine Services for Nass Marine Services
GTO 156, 609 gt, built by Nass Marine Services for Al Jazeera Shipping
ISS 1, ISS 2, built by Alwardy Marine Engineering for Inchcape Shipping Services
JAYA INSTALLER 8, JAYA INSTALLER 9, 11,039 gt, built by Wison (Nantong) H I for Airia Jaya Marine
KASPADU I, 8,402 gt, built by PT Samudra Marine for P T Rig Tenders
KUASA RM 3007, KUASA RM 3008, 3,105 gt, built by Nanjing Yonghua Shipbuilding for WS Coastal Marine
KUBER, 16,780 gt, built by Nantong Tongde Shipyard for Punj Lloyd
LINAU 83, 4,334 gt, built by Shin Yang Shipyard for Shin Yang Shipping
LION KIMTRANS FC 3, 2,455 gt, built by P T Karimun Sembawang Shipyard for Toll Logistics (Asia)
LMP-790, built by Sneed Shipbuilding for Central Boat Rentals
LOCAR 1, 2,401 gt, built by Erin-Estaleiros Rio Negro for Locar Transportes Tecnicos e Guindastes
M 6000, 4,550 gt, built by Bollinger Marine Fabricators for First National Capital Corp
NATHAN SCHMIDT, 2,724 gt, built by US Barge for Harley Marine
NAUTICA 19, NAUTICA 20, 3,279 gt, built by P T Marcopolo Shipyard for P T Ufuk Terang Cakrawala
NAUTICA 21, NAUTICA 22, 3,814 gt, built by P T Marcopolo Shipyard for MPST Marine
NAUTICAL 18, 3,279 gt, built by P T Marcopolo Shipyard for MPST Marine
NAVIMAR 8, 4,259 gt, built by Yangzhou Hairun Shipping for Sinosin Sertosa
OCEANLEC 306, OCEANLEC 307, 3,231 gt, built by Nanjing Asiapride Shipbuilding Making for Oceanlec
ID A THERESA, a 12,835 dwt tanker, VEC, ESP, UWILD, built by STX Offshore & Shipbuilding Co., Ltd., for Rio Dauphin Schifffahrts.

P E L I C A N S T A T E, a 48,599 dwt product/chemical carrier, VEC, FL 25, SH, SHCM, ESP, CRC, HHP, RW, built by National Steel & Shipbuilding Corp, for P12 Pelican State.

KEI TH L OUSTEAU, a 2,301 gt supply vessel, Fire Fighting Class 1, built by Northern Shipyard, for Purple Fleet.

OTTO 2, 10,413 gt, built by Nantong Hongqiang Marine H I for Otto Offshore
PCF 2402, 1,662 gt, built by P T Pacific Atlantic Shipyard for Pacific Marine & Shipbuilding
PEN N NO. 110, 7,995 gt, built by Corn Island Shipyard for Penn Maritime
PES UT 2306, 1,437 gt, built by P T Karya Teknik Utama for P T Ershan Satyapratama
P E T R A E N D E A V O U R, 10,159 gt, built by Fuzhou Xiayang Shipbuilding for Perdana Venus
P E T R O C H E M S U P P L I E R, 10,884 gt, VEC, SH, built by Bay Shipbuilding for US Shipping Partners
PU 3314, PU 3315, 3,987 gt, built by Nanjing Shuitian Shipbuilding for P U Vision
R I T A 201, R I T A 202, R I T A 203, R I T A 204, 2,211 gt, built by Taixing Huahai Shipbuilding for Red Eastern Shipping & Mining
R M N 353, 3,146 gt, built by Nantong Jinjian Shipbuilding & Repair for Putra Bulian Shipping & Trading
R M N 354, 3,147 gt, built by Nantong Tongmiao Shipbuilding for Putra Bulian Shipping & Trading
R T C 103, 7,120 gt, built by Southeastern New England Shipbuilding for Reinauer Transportation
R T C 84, 5,822 gt, built by Southeastern New England Shipbuilding for Reinauer Transportation
R V R 12, 3,105 gt, built by Nanjing San Ding Li Shipyard for Maruti Logistics
S A I N T Y NO. 10, 12,513 gt, built by Yangzhou Runda Shipyard for Sainty Marine
S E R R A D O U R D A D A XI, S E R R A D O U R D A D A XII, S E R R A D O U R D A D A XIII, 1,156 gt, built by Estaleiro Rio Maguari for Transdourada Transportes
S P K K, S P L L, 3,105 gt, built by Nanjing Yonghua Shipbuilding for Rimau Towage
S S 3 3 0 3, 3,233 gt, built by Yangzhou Hairun Shipping for Sinosin Sentosa
S T A T I A V I C T O R Y, 2,655 gt, VEC, built by Orange Shipbuilding for Mc Calls Boat Rentals
T E R A S 2 5 2, 2,224 gt, built by Taixing Sunhoo Shipbuilding for Teras 250
W I N B U I L D 1 4 4 8, 3,147 gt, built by Taixing Hong Yun Shipyard for QSA Marine & Logistics
Y O N 330, 1,266 gt, built by Metal Trades for Maybank Industries

G o v e r n m e n t V e s s e l s
D B 7 6 8, 487 gt, built by Basic Marine for US Army Sustainment Command
J U B I A L 10, 367 gt, built by Zamil Offshore Services for Saudi Ports Authority
N D 4 5, ND 46, ND 47, ND 48, built by New Johnsonville Marine Service for US Army Corps of Engineers
P I S C E S, 2,218 gt, Ice Class “C0”, φOPS-1, built by VT Halter Marine for NOAA
U S N S W A L L Y S C H I R R A, 43,758 gt, SH-DA, Ice Class “C0”, RC, APS, NiBS, R1, VEC, built by General Dynamics NASSCO for Military Sealift Command

V e h i c l e C a r r i e r
L I B E R T Y P R I D E, 57,030 gt, NBLES, TCM, built by Daewoo Shipbuilding & Marine Engineering for Liberty Maritime

T u g s, W o r k b o a t s a n d O S V s
A R K C H A R L Y, H A K O J I L L I O N, 2,310 gt, Fire Fighting Vessel Class 1, φOPS-2, built by P T Batamec Shipyard for Otto Marine
A R K D A R T M O O R, 1,951 gt, Fire Fighting Vessel Class 1, φOPS-2, built by P T Batamec Shipyard for Otto Marine
A R K L O N D O N, 1,678 gt, Fire Fighting Vessel Class 1, φOPS-1, built by Fujian Southeast Shipyard for Allocean Shipping
A R K T Z E, 2,310 gt, Fire Fighting Vessel Class 1, φOPS-2, built by P T Batamec Shipyard for RK Offshore Management
ARMADA TUAH 104, 2,921 gt, Fire Fighting Vessel Class 1, DPS-2, built by P T Drydocks World Pertama for Bumi Armada Navigation

BAYOU BEE, BUSY BEE, WORKER BEE, 1,596 gt, DPS-2, built by Bollinger Shipyard for Bee Mar - Bayou Bee

BERGERON TIDE, 1,678 gt, Fire Fighting Vessel Class 1, DPS-1, built by Fujian Southeast Shipyard for Gulf Fleet Middle East

BOURBON GULF LIBERTY 211, 1,744 gt, Fire Fighting Vessel Class 1, DPS-2, built by Yangzhou Dayang Shipbuilding for Bourbon Offshore Gulf

BOURBON LIBERTY 205, BOURBON 206, BOURBON 207, 1,733 gt, Fire Fighting Vessel Class 1, DPS-2, built by Zhejiang Shipbuilding for Bourbon Supply Investissement

BOURBON LIBERTY 209, 1,733 gt, Fire Fighting Vessel Class 1, DPS-2, built by Zhenjiang Shipbuilding for Bourbon Supply Asia

BOURBON LIBERTY 212, 1,733 gt, Fire Fighting Vessel Class 1, DPS-2, built by Yangzhou Dayang Shipbuilding for Bourbon Supply Investissement

CABINESS TIDE, 2,369 gt, Fire Fighting Vessel Class 1, DPS-2, built by Fujian Mawei Shipbuilding for Tidewater Maritime

CABO ROJO, ZAPOTITLAN, 1,517 gt, Fire Fighting Vessel Class 1, DPS-2, built by Yangzhou Dayang Shipbuilding for Navegacion Costa Fuera

CALLAIS NAVIGATOR, 497 gt, DPS-1, built by Master Boat Builders for Abdon Callais Offshore

CAMPOS CAPTAIN, SANTOS SUPPLIER, THOR SUPPLIER, 2,999 gt, Fire Fighting Vessel Class 1, DPS-2, built by Estaleiro Navship for Bram Offshore Transportes Maritimos

COUPER TIDE, 2,308 gt, Fire Fighting Vessel Class 1, DPS-2, built by Zhejiang Shipbuilding for Tidewater Boats

DAYANG ZAMRUD, 3,378 gt, built by Shin Yang Shipyard for DESB Marine Services

DINO CHOUEST, 5,993 gt, DPS-2, built by North American Shipbuilding for Nautical Solutions

DUBLIN SEA, 1,040 gt, built by Marinette Marine for K-Sea Transportation Partners

EAGLE H, 1,373 gt, Fire Fighting Vessel Class 1, DPS-1, built by Weihai Xinghai Shipyard for Otto Marine

ELLA G, NORBERT BOUZIGA, 2,998 gt, Fire Fighting Vessel Class 1, DPS-2, built by North American Shipbuilding for Island Ventures II

ENA CHALLENGER, 2,583 gt, Fire Fighting Vessel Class 1, DPS-2, built by Jiangsu Zhenjiang Shipyard for Eastern Navigation

ENA TREASURE, 1,417 gt, Fire Fighting Vessel Class 1, DPS-2, built by Guangzhou South China Shipyard for Otto Offshore

ERRINGTON TIDE, 1,713 gt, Fire Fighting Vessel Class 1, DPS-1, built by P T ASL Shipyard for Tidewater Marine

GREATSHIP AARTI, GREATSHIP AHALYA, 1,830 gt, Fire Fighting Vessel Class 1, DPS-2, built by P T Nan Indah Mutiara Shipyard for Greatship (India)

HAII YANG SHI YOU 697, 2,921 gt, Fire Fighting Vessel Class 1, DPS-2, built by Fujian Southeast Shipyard for COOEC (Hong Kong)

HAKO ESTEEM, 1,373 gt, Fire Fighting Vessel Class 1, DPS-1, built by Guangzhou South China Shipyard for Otto Offshore

HAKO EXCEL, 1,373 gt, Fire Fighting Vessel Class 1, DPS-1, built by Guangzhou South China Shipyard for Otto Offshore

HAKO FAITHFUL, 1,763 gt, Fire Fighting Vessel Class 1, DPS-1, built by Guangzhou South China Shipyard for Otto Offshore

JASCON 20, 1,163 gt towing and fire fighting vessel, built by Shanghai Huali Shipping Engineering Co., Ltd., for Piedmont Overseas Ltd.

SANKO BARON, a 2,428 gt offshore support vessel, AH, Fire Fighting Class 1, BT, CRC, RW, built by Universal Shipbuilding Corporation for Baron Offshore Ltd.

PACIFIC OIL, a 1,623 gt offshore support vessel, Fire Fighting Class 1, built by PRM Offshore Heavy Industries Pte. Ltd., for Britoil Worldwide Towing Co. Pte. Ltd.
HANKS TIDE, 1,529 gt, Fire Fighting Vessel Class 1, DPS-1, built by Grandview Shipbuilding & Engineering for Tidewater Marine
HARRIER, 1,678 gt, Fire Fighting Vessel Class 1, DPS-1, built by Fujian Southeast Shipyard for P T Baruna Raya Logistics
HONEY BEE, 2,032 gt, DPS-2, built by Bollinger Shipyard for Bee Marine
HOS EAGLE VIEW, 2,428 gt, DPS-2, built by Leevac Industries for Hornbeck Offshore Services
HOS SILVER ARROW, 1,934 gt, DPS-2, built by Atlantic Marine Florida for Hornbeck Offshore Services
JASCON 20, 1,163 gt, Fire Fighting Vessel Class 1, DPS-2, built by Shanghai Huali Shipping Engineering for Piedmont Overseas
JAYA AMANDAM, 1,459 gt, Fire Fighting Vessel Class 1, built by Guangdong Hangtong Shipbuilding for JSE Shipping
JAYA AMARA, 1,459 gt, Fire Fighting Vessel Class 1, built by Guangzhou Hangtong Shipbuilding for AJM Shipping
JAYA DEFENDER, 2,893 gt, Fire Fighting Vessel Class 1, built by Wuhu Xinlian Shipbuilding for Jaya Shipbuilding & Engineering
JEAN PIERRE LAB, 2,287 gt, DPS-2, built by Eastern Shipbuilding for Laborde Marine Services
KEITH LOUSTEAU, 2,301 gt, Fire Fighting Vessel Class 1, DPS-2, built by Northern Shipyard for Purple Fleet
MARIA-G, 1,085 gt, built by Sealink Engineering & Slipway for Rederij Groen
MARISKA-G, 1,108 gt, built by Sealink Engineering & Slipway for Sealink
MARZHAN, 1,678 gt, Fire Fighting Vessel Class 1, DPS-1, built by Fujian Southeast Shipyard for GAC Marine
MERMAID VISION, 1,951 gt, Fire Fighting Vessel Class 1, DPS-2, built by P T Nan Indah Mutiara Shipyard for Mermaid Marine Asia
MERMAID VOYAGER, 1,678 gt, Fire Fighting Vessel Class 1, DPS-1, built by Fujian Southeast Shipyard for Mermaid Marine Charters
NAUTIKA PRIDE, 1,302 gt, built by Sarawak Slipways for Tegas Navigation
NOR AUSTRALIS, 4,230 gt, Fire Fighting Vessel Class 1, DPS-2, built by P T Jaya Asiatic Shipyard for Jaya Shipbuilding & Engineering
OCEAN AMETHYST, 2,418 gt, Fire Fighting Vessel Class 1, DPS-2, built by Jingjiang Nanyang Shipbuilding for Pacific Ocean Engineering & Trading
ODYSSEA GOLD, 1,111 gt, DPS-2, built by Master Boat Builders for Odyssey Marine
OSA GOLIATH, 25,812 gt, general cargo vessel, Fire Fighting Vessel Class 2, ES 2020, DPS-3, built by P T Drydocks World Pertama for Coastline Maritime
PACIFIC OIL, 1,623 gt, Fire Fighting Vessel Class 1, Safety Standby Service GR “C” (6), DPS-1, built by PRM Offshore H I for Britoil Worldwide Towing
PETRA GALAXY, PETRA ORBIT, 3,410 gt, built by Shin Yang Shipyard for Petra Teknik
PETRA RANGER, 1,706 gt, Fire Fighting Vessel Class 1, DPS-1, built by Fujian Crown Ocean Shipbuilding Industry for Perdana Pluto
PETRA VOYAGER, 2,532 gt, Fire Fighting Vessel Class 1, DPS-2, built by Fujian Crown Ocean Shipbuilding Industry for Mount Santubong
POSH VIRTUE, 2,538 gt, Fire Fighting Vessel Class 1, DPS-1, built by Yuexin Shipbuilding for Starling Shipping
PRIDE, 1,052 gt, built by V T Halter Marine for Vessel Management Services
PTSC HAI PHONG, 1,706 gt, Fire Fighting Vessel Class 1, DPS-1, built by Fujian Crown Ocean Shipbuilding Industry for Petroleum Technical Services

PS PEARL, a 573 gt offshore support vessel, built by Jiangsu Wuxi Shipyard Co., Ltd., for Pacific Ocean Engineering & Trading.
S K JUPITER, 2,147 gt, Fire Fighting Vessel Class 1, ØDPS-2, built by Nam Cheong Dockyard for Nam Cheong Dockyard
SANKO BARON, 2,428 gt, Fire Fighting Vessel Class 1, ØDPS-2, built by Universal Shipbuilding for Baron Offshore
SANKO BRILLIANCE, 2,428 gt, Fire Fighting Vessel Class 1, ØDPS-2, built by Universal Shipbuilding for Brilliance Offshore
SANKO CLOVER, 2,465 gt, Fire Fighting Vessel Class 1, ØDPS-2, built by Niigata Shipbuilding & Repair for Clover Offshore
SANKO COSMOS, 2,465 gt, Fire Fighting Vessel Class 1, ØDPS-2, built by Niigata Shipbuilding for Cosmos Offshore
SEA COMANCHE, 2,943 gt, Fire Fighting Vessel Class 1, TCM, built by Keppel Nantong Shipyard for Gulf Marine Far East
SETIA KENTAL, 1,454 gt, Fire Fighting Vessel Class 1, built by Nantong Mee Lee Cheong Tongbao Shipbuilding for Aiam-Pe I
SWIBER ELSE-MARIE, 2,708 gt, Fire Fighting Vessel Class 1, ØDPS-2, built by Fujian Southeast Shipyard for Bukit Timah Offshore
SWISSCO SUPPORTER, 2,218 gt, built by Guangzhou Panyu Lingshan Shipyard for Swisssco Ship Services
TOMMY SHERIDAN TIDE, WILLIAM R CROYLE II, 2,301 gt, Fire Fighting Vessel Class 1, ØDPS-2, built by Northern Shipyard Gdansk for Silver Fleet
TOPAZ SHAHEEN, 1,706 gt, Fire Fighting Vessel Class 1, built by Fujian Crown Ocean Shipbuilding for Nam Cheong Marine
TYLER STEPHEN, 1,639 gt, ØDPS-2, built by Thoma-Sea Shipbuilders for JNB Operating
UOS COLUMBIA, 2,922 gt, Fire Fighting Vessel Class 2, ØDPS-2, TCM, built by Fincantieri Cantieri Navali Italiani for ATL Offshore
VOS HADES, 1,678 gt, Fire Fighting Vessel Class 1, built by Fujian Southeast Shipyard for Vroon Offshore
VOS HELIOS, 1,678 gt, Fire Fighting Vessel Class 1, built by Fujian Southeast Shipyard for Offshore Support Vessels 16
WAHA I, 1,039 gt, built by Sealink Shipyard for Waha Offshore Marine Services
WISE TIDE II, 2,308 gt, Fire Fighting Vessel Class 1, ØDPS-2, built by Zhejiang Shipbuilding for Tidewater Maritime
ZAKHER EMPEROR, 1,973 gt, Fire Fighting Vessel Class 1, ØDPS-1, built by Berjaya Dockyard for Zakher Marine International
ZAKHER PELICAN, ZAKHER PIONEER, 1,456 gt, ØDPS-2, built by Jingjiang Nanyang Shipbuilding for Zakher Marine International
ZAMIL 54, ZAMIL 55, 1,574 gt, Fire Fighting Vessel Class 1, ØDPS-1, built by Zamil Offshore Services for Zamil Offshore Services
ZAMIL 60, 1,330 gt, Fire Fighting Vessel Class 1, built by Cheoy Lee Shipyards for Zamil Offshore Services

Yachts
AL MIRQAB III, 488 gt, built by Overmarine for Overmarine Due
ALEXANDER TWO, 360 gt, built by Mondo Marine for Alexander Holding
ANCORA, 419 gt, built by Cantieri Navali Baglietto for Purple Yachting
APHRODITE, 333 gt, built by Westport Shipyard for Aphrodite Marine
BIG CITY, 399 gt, built by Trinity Yachts for M/Y Big City
BLINK, 310 gt, built by Cantieri Di Pisa for Sea Grace Investments
BLUE BAY, 299 gt, built by Azimut-Benetti for Benetti Classic
BLUE EYES, 312 gt, built by Cantieri Navali Lavagna for Cantieri Navali Lavagna
CANTIERI DI PISA HULL 689, 195 gt, built by Cantieri Di Pisa for Cantieri Di Pisa
CLAUDIA OF MC, 299 gt, built by Azimut-Benetti for San Ignacio Maritime
FLYING DAGGER II, 288 gt, built by Cantieri Navali Codice for Flying Dagger II
HARMONY III, 456 gt, built by Azimut-Benetti for Harmony Charter
IBOAT, 317 gt, built by San Lorenzo for San Ignacio Marine

SANTOS SUPPLIER, a 4,920 gt offshore support vessel, built by Estaleiro Navship Ltda., for Bram Offshore Transportes Maritimos Ltda.
SMIT CARIPUNA, a 397 gt tug, built by Detroit Brasil Ltda, for Rebras Rebocadores do Brasil SA.
OSA GOLIATH, a 25,812 gt offshore support vessel, Fire Fighting Class 2, ES 2020, CRC, built by P.T. Drydocks World Pertama, for Coastline Maritime Pte. Ltd.

KOS, 299 gt, built by Azimut-Benetti for Unicredit Leasing
LADY LARA, 996 gt, built by Azimut-Benetti for Winlass
LADY SHEILA, 456 gt, built by Azimut-Benetti for New Haven Yacht
MISS MICHELLE, 333 gt, built by Westport Shipyard for Miss Michelle Marine
NATORI, 399 gt, built by Cantieri Navali Baglietto for Cantieri Navali Baglietto
NAZENIN V, 422 gt, built by RMK Marine Yacht Division for Naz Yachting
ODESSA, 499 gt, built by Christensen Shipyard for Electra International
OXYGEN, 399 gt, built by Cantieri Navali Baglietto for Andres Piedrahita
PETRA, 458 gt, built by Heesen Yacht Builders for Pfra Leasing
RIELA, 499 gt, built by Perini Navi for Knik Wind
SEQUEL P, 710 gt, built by Proteksan Turkuaz Yat Sanayi for VA Bene
SYCARA IV, 271 gt, built by Burger Boat for Wport 08
TOY-A, 498 gt, built by Mondo Marine for Marcellus Maritime
UNBRIDLED, 803 gt, built by Trinity Yachts for Neptune
WHEELS, 456 gt, built by Trinity Yachts for FW Charters
ZEUS I, 488 gt, built by Overmarine Due for Yanis Yacht Charter

Others
BOURBON AUTAN, 454 gt, high speed craft crew boat, ØDPS-2, built by Midship Marine for Bourbon Supply Investissements
BOURBON MARIN, 454 gt, high speed craft crew boat, ØDPS-1, built by Midship Marine for Bourbon Supply Investissements
FAST TEAM, 336 gt, high speed craft crew boat, ØDPS-2, built by Breaux Bros Enterprises for Nautical Transport
FOS POLARIS, 785 gt, high speed craft safety standby vessel, Safety Standby Service GR. B(60), (Fire Fighting Capability), ØDPS-1, built by Sam Aluminum Engineering for Fast Offshore Supply
GULF FURY, 368 gt, high speed craft crew boat, ØDPS-1, built by Swiftships Shipbuilders for Gulf Fleet Management
HALLIN MARINE SATURATION SYSTEM HMS SAT-08, saturation diving system, built by Hallin Corporate Services for Hallin Marine Subsea International
IPANEMA, 416 gt, high speed craft crew boat, ØDPS-2, built by Breaux Bros Enterprises for Nautical Transport
JATI THREE, 238 gt, high speed craft utility vessel, built by Strategic Marine for Juragan Jati
OPUTUKPA, 236 gt, high speed craft crew boat, built by Penguin Shipyard International for Octopus Clan Nigeria
SAMSON SUPPLIER, SAMSON SUPPORTER, 237 gt, high speed craft crew boat, ØDPS-1, built by Strategic Marine for Samson Maritime
SETIA DERA, SETIA KILAS, 270 gt, high speed craft utility vessel, built by Sam Aluminum Engineering for Alam Maritime
STANFORD RHINE, STANFORD TIGRIS, STANFORD TYNE, 240 gt, high speed craft crew boat, built by Grandweld for Stanford Charter
TIGER, 498 gt, high speed craft crew boat, ØDPS-1, built by C&G Boat Works for Gulfmark Americas
Recent Class Contracts

**TANKERS**

Four 11,900 gt / 19,900 dwt for Sanko Steamship at Fukuoka Shipbuilding
Three 28,300 gt / 50,000 dwt for Orix Maritime at Onomichi Dockyard
Two 30,000 gt / 50,000 dwt for Byzantine Maritime at SPP Shipbuilding
Two 29,500 gt / 50,000 dwt for Internship Navigation at Onomichi Dockyard
Two 29,500 gt / 50,000 dwt for Socomore at Onomichi Dockyard
Two 29,500 gt / 50,000 dwt for Maybaru Shipping & Trading at Onomichi Dockyard
One 11,500 gt / 17,000 dwt at Sekwang Shipbuilding

**BULK CARRIERS**

Twelve 42,868 gt / 79,600 dwt at Zhoushan Jinhaiwan Shipyard
Ten 40,200 gt / 74,997 dwt for Cido Shipping at Sasebo H I
Four 31,000 gt / 58,321 dwt at Hyundai Mipo Dockyard
Three 32,300 gt / 57,000 dwt at Taizou Kouan Shipbuilding
Two 95,000 gt / 159,000 dwt for Anangel Shipping Enterprises at Daewoo Shipbuilding & Marine Engineering
Two 40,200 gt / 74,858 dwt for Sanko Steamship at Sasebo Heavy Industries
Two 34,400 gt / 60,700 dwt for Sanko Steamship at Oshima Shipbuilding
Two 32,300 gt / 57,000 dwt at Jiangsu Nantong Ship H I
One 93,200 gt / 180,200 dwt for Hawaii Shipping at Imabari Shipbuilding
One 82,000 gt / 180,000 dwt for Navius Maritime at Sungdong Shipbuilding & Marine Engineering
One 51,000 gt / 92,500 dwt at Jiangsu New Yangzi Shipbuilding
One 34,400 gt / 59,700 dwt for Jinhui Shipping at Oshima Shipbuilding

**CONTAINERSHIPS**

Eight 157,000 gt at Nantong Cosco KHI Ship Engineering

**GAS CARRIERS**

Three 5,000 m³ for Stealth Maritime at Kanrei Shipbuilding
One 84,500 m³ for Sanko Steamship at Sasebo H I

**OFFSHORE**

**FSOs**

Two 59,000 gt at Samsung H I

**MODU**

Two 10,000 gt for Ensco at Keppel Fels
One 59,000 gt for Pride Offshore International at Samsung H I

**Self Elevating Drilling Units**

One 5,000 gt at National Petroleum Construction

**Single Point Mooring**

Three at Gulf Piping
One at SBM Atlantia

**VALCONCA, a 109,144 dwt crude oil tanker, VEC, SH, SHCM, POT, UWILD, ESP, CRC, built by Hudong-Zhonghua Shipbuilding Co., Ltd., built for Navigazione Montanari SPA.**

**OOCL NAGOYA, a 4,578 teu container carrier, SH, SHCM, UWILD, CRC, CSC, RW, built by Samsung Heavy Industries Co., Ltd. for Orient Overseas Container Line Ltd.**

**CHAITALI PREM, a 93,313 dwt bulk carrier, BC-A, PORT, TCM, GRAB (20), AB-CM, CSR, ESP, UWILD, CRC, RW built by Jiangsu New Yangzi Shipbuilding Co., Ltd. for Gestioni Armatoriali SPA.**
MISCELLANEOUS

Barges

Four 3,231 gt at Nanjing Yonghua Shipbuilding
Four 3,135 gt at Yangzhou Hairun Shipping
Two 7,000 gt at Jiangsu Huatai Shipbuilding
Two 6,800 gt for Penn Maritime at Corn Island Shipyard
Two 5,102 gt at Pacific Ocean Engineering & Trading
Two 3,230 gt at Nanjing Yonghua Shipbuilding
Two 3,151 gt at Jinsheng Ships Manufacture
Two 3,150 gt at Jinsheng Ships Manufacture
Two 3,150 gt for Sainty Marine Development at Nanjing Sandingli Ship Industry
Two 3,146 gt at Jiangsu Ganghua Shipyard
Two 3,146 gt at Jiangsu Taixing Yuemei Shipyard
Two 3,146 gt at Lianyungang Helitong Shipbuilding
Two 3,135 gt at Nantong Tongmao Shipbuilding
Two 2,340 gt at Yizheng Xinyang Shipbuilding
Two 2,309 gt at Pacific Ocean Engineering & Trading
Two 2,308 gt at Jiangsu Taixing Yuemei Shipyard
Two 2,300 gt at Nanjing East Star Shipbuilding
Two 2,020 gt at C & C Marine & Repair
Two 1,250 gt at Yangzhou Hairun Shipping
Two 1,000 gt at Yangzhou Hairun Shipping
Two 650 gt at Yangzhou Hairun Shipping

Launching ceremony for 21st Century Shipbuilding Co., Ltd. GANGES STAR, a 13,000 dwt product tanker, VEC, GP, POT, ESP, UWILD, CRC, RW, for Rigel Schiffahrts GMBH & Co.

DOMINIA, a 40,174 dwt tanker, VEC, FL 30, SH, RES, SHCM, ESP, CRC, RW, built by SLS Shipbuilding Co. Ltd., for Morfini SPA.

BERRA K, a 1,147 teu container carrier, NIBS, CRC, built by Sedef Gemi Insaati AS, for Kasif Denizcilik AS.
**Passenger Vessels**
Two 98 gt for Texas Dept Highways & Public Transport at Southwest Shipyard

**Tugs, Workboats and OSVs**
Two 1,678 gt for Coastal Offshore (Labuan) at Fujian Southeast Shipyard
Two 1,678 gt for Offshore Support Vessels at Fujian Southeast Shipyard
One 2,400 gt for Tidewater Marine at Quality Shipyards
One 1,200 gt for Valueright International at Taixing Huxin Shipbuilding

**Yachts**
Two 500 gt at Mondo Marine
Two 108 gt at Xiamen South Coast Marine Yacht Building
One 585 gt at Westport Shipyard
One 500 gt at Asimut-Benetti
One 500 gt at Perini Navi
One 498 gt at Heesen Yacht Builders
One 450 gt at Heesen Yacht Builders

**Others**
Two landing craft 1,050 gt for Greenbay Marine at Nanjing Yonghua Shipbuilding
Two high speed craft 320 gt for Gulf Marine Service at Midship Marine
Two high speed craft 99 gt for Nautical Solutions at Breaux Bros Enterprises
Two underwater systems for Offshore Subsea Works at Lexmar Engineering
One high speed craft 270 gt for Seacoral Maritime at Sam Aluminium Engineering
One underwater system at Hydra Marine
One underwater system at Rana Diving
One underwater system for Kreuz Shipbuilding & Engineering at Hallin Manufacturing Services
One underwater system for Kreuz Subsea at Seanetics Asia Works

**DEVELOPMENT DRILLER III**, a 37,981 gt column stabilized drilling unit, CRC, built by Keppel Fels Ltd., Singapore, for GSF Leasing Services GMBH.

**Naming ceremony for two containerships built by Samsung Heavy Industries Co., Ltd: OOCL WASHINGTON, 8,063 teu (NIBS, SH, ES, SHCM, UWILD, CRC, CSC, RW) and OOCL LE HAVRE, 4,578 teu (SH, SHCM, UWILD, CRC, CSC, RW) for Orient Overseas Container Line Ltd.**

**OCEAN AUTUMN**, a 41,340 dwt tanker, VEC, FL 30, SH, GP, RES, SHCM, ESP, UWILD, CRC, CSC, RW, built by SLS Shipbuilding Co., Ltd., for Xin Ying Shipping (Pte.) Ltd.
ABS WORLD HEADQUARTERS
ABS Plaza
16855 Northchase Drive
Houston, TX 77060 USA
Tel: 1-281-877-5800
Fax: 1-281-877-5803
Telex: 6737929 ABS HQ
Email: abs-worldhq@eagle.org

ABS EUROPE DIVISION
ABS House
No. 1 Frying Pan Alley
London E1 7HR, United Kingdom
Tel: 44-20-7247-3255
Fax: 44-20-7377-2453
Email: abs-eur@eagle.org

ABS PACIFIC DIVISION
438 Alexandra Road #10-00
Alexandra Point
Singapore 119958
Republic of Singapore
Tel: 65-6276-8700
Fax: 65-6276-8711
Email: abs-pac@eagle.org

ABS AMERICAS DIVISION
ABS Plaza
16855 Northchase Drive
Houston, TX 77060 USA
Tel: 1-281-877-6000
Fax: 1-281-877-6001
Email: abs-amer@eagle.org

www.eagle.org

We Welcome Your Thoughts

ABS Activities is intended to provide our Members and clients with ABS views, news and research.
Editorial content is gathered from ABS engineering and field offices around the globe.

Managing Editor: Stewart Wade
Contributing Editors: Jennifer Bewley, Susan V. Gonzalez and Laila Rihawi
Production Manager: Sherrie Anderson
Graphic Designer: Sharon Tamplain and Christopher Reeves

To comment, please contact Stewart Wade, Vice President, External Affairs, at tel: 1-281-877-5850 or email CorporateCommunications@eagle.org.

The mission of ABS is to serve the public interest as well as the needs of our clients by promoting the security of life, property and the natural environment primarily through the development and verification of standards for the design, construction and operational maintenance of marine-related facilities.

ON THE COVER
ALEXIA, a 107,574 dwt double hull oil carrier, ¹A1, Oil Carrier, ²AMS,²ACCU, VEC, TCM, AB-CM, CSR, ESP, UWILD, CRC, RW, built by Tsuneishi Holdings for Magdalena Navigation.