

December 2006

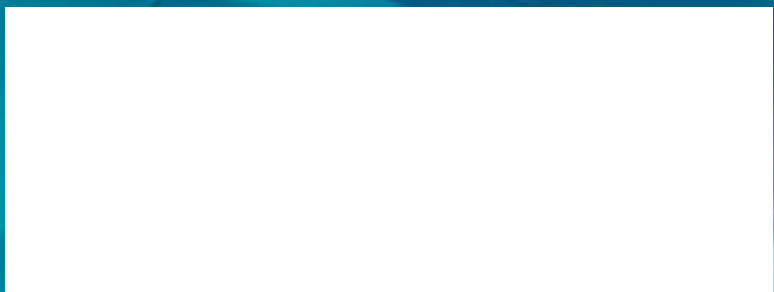
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Great Ships
of 2006

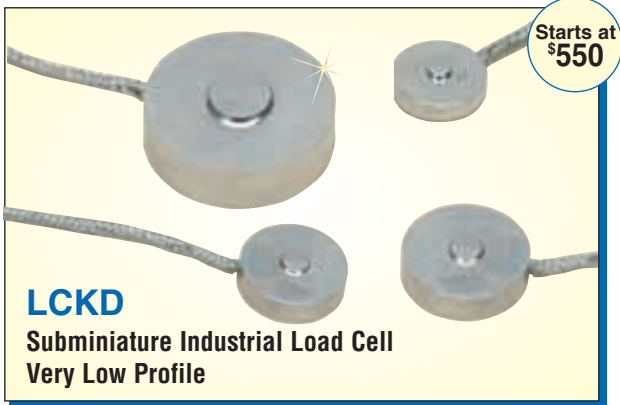
Government Update
Oily Water Separators

USS Hyman G. Rickover
Admiral's Legacy Outlives Itself



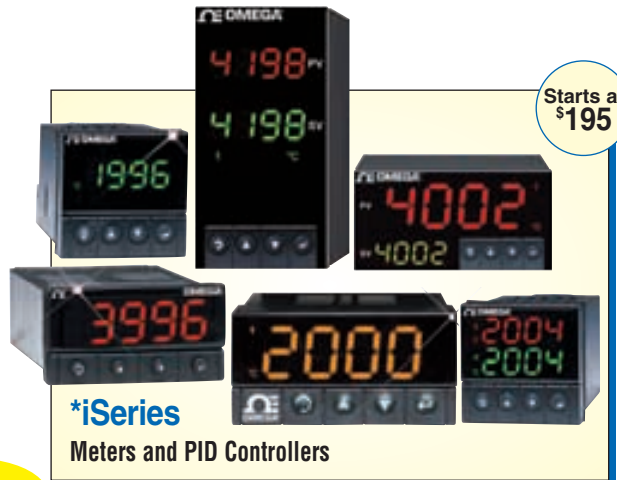
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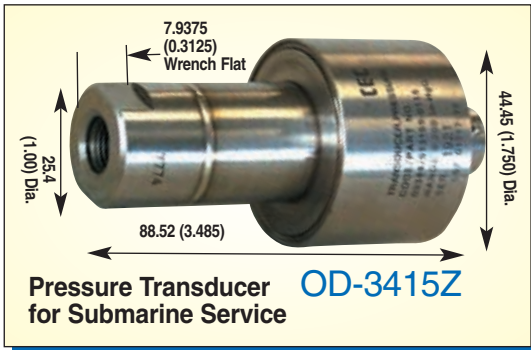
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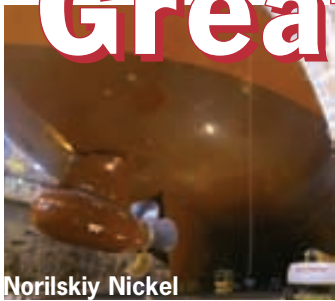


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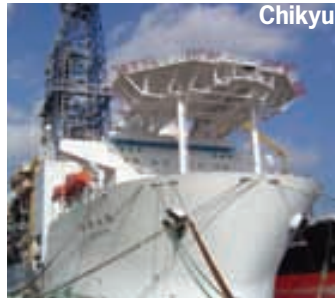
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Rickmers Tokyo Displays Capabilities



An almost complete profile of cargo carried regularly by Rickmers-Linie vessels was photographed onboard Rickmers Tokyo shortly after she departed the Port of Genoa, Italy, in late October. Almost every square meter of deck space was used. Aside from a row of yachts, the vessel had loaded a number of tanks for a brewery project in Thailand. Rickmers Tokyo is the second of nine identical Superflex Heavy Multipurpose Container (MPC) vessels built for Rickmers in China between 2002 and 2004. The Superflex MPC vessels are designed for the carriage of breakbulk, heavylifts and project cargo and can lift up to 640 tons with their onboard cranes.

GL Rejects BV's Hostile Takeover Bid

The Executive Board and Supervisory Board of Germanischer Lloyd advised its shareholders to reject a hostile takeover offer by Bureau Veritas. After due examination and assessment of the purchase proposal, both bodies of the Society have issued a joint statement to the shareholders, detailing their reasons for rejecting the offer. "We do not need Bureau Veritas. On the contrary, a hostile takeover would jeopardize the continuation of our business success thus far," said Executive Board Member Rainer Schöndube. On November 9, 2006, BV submitted a takeover offer to the shareholders, without any prior consultation with the Executive Board and Supervisory Board.

Vinashin to Build for Norway

The Viet Nam Shipbuilding Industry Group signed a contract to supply eight car carriers to Norway's Hoegh Auto liners, according to a report on <http://vietnamnews.vnagency.com.vn>. Each carrier will have a total loading capacity of 6,900 cars. The carriers, reportedly designed by DeltaMarin of Finland, will measure 200 x 32.2 m. The first carrier will be delivered in December 2009.

M80 Stiletto Honored in TIME

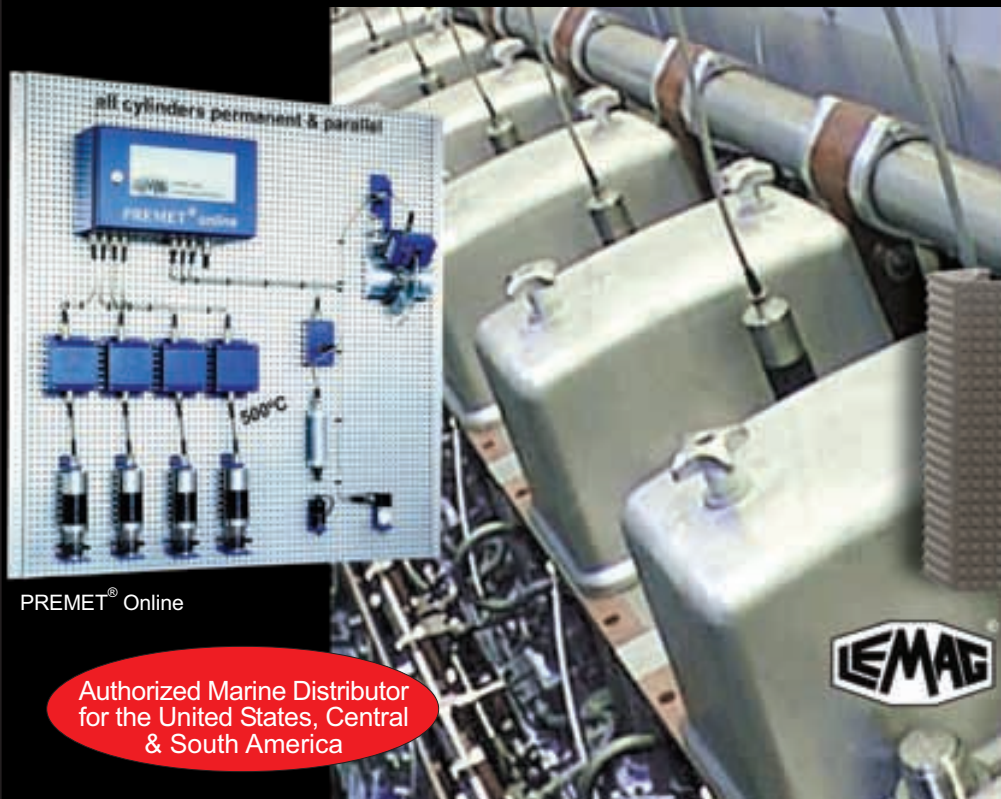
The M80 Stiletto, which was featured on the March 2006 cover of *Maritime Reporter & Engineering News*, has been included in TIME Magazine's annual "Best Inventions 2006" guide. In the profile, the magazine termed the M80 "uniquely suited for naval missions in shallow water." Built by Knight & Carver with a patented design by MShip Co., the M80 was built under strict specifications for the Department of Defense's Office of Force Transformation. Build time for the \$6 million project was 12 months, with delivery to the OFT last February.



Swift Tankers Formed

Teekay Shipping and A.P. Moller - Maersk A/S formed a new company dubbed Swift Tankers, a pool of intermediate product tankers, which will be full operational in January 2007. The Managing Director of the Pool will be Kristian Lohmann.

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Editor's Note

In each of my 15 years overseeing the "Great Ships of the Year" edition, the technological leaps made year-on-year literally never ceases to amaze me. For an industry that is generally regarded as traditional and rather slow to assimilate new technologies, this year's crop of 16 "Great Ships of 2006" goes a long way to dispel those misguided notions.

The cover ship, Emma Maersk, is an amazing vessel at 1,302 ft. in length, able to carry 11,000 TEU. As the efficiencies of moving cargo from "point A to point B" via containership technology continues to dominate new construction, Emma Maersk is the realization of a vision that not too long ago many would have dispelled as unthinkable.

As might be expected, as Korea continues to dominate the new ship order logs, so to do its ships dominate coverage in this edition. No longer are the Korean shipbuilders known solely for the production of assembly-line ships such as bulkers and tankers, rather the industry has elevated its game quickly to produce a number of higher value ship lines, specifically massive container carriers and top of the line gas ships.

While this trend, followed closely by China's massive build-up of ship construction infrastructure, will likely erode market share from traditional European shipbuilding powers, European shipyards are still well represented here and in our pages throughout the year for building a number of high technical specification vessels, including the Norilskiy Nickel, a double-acting containership, and, of course, the aforementioned Emma Maersk.

There is much more to read on this year's collection of award winning ships, starting on page 18.



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On the Cover



On the Cover: Pictured on this month's cover is the 1,302-ft., 11,000 TEU containership Emma Maersk, one of 16 Great Ships of 2006. Read about this fascinating ship and 15 others starting on page 18.

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100 Knots Underwater

Evaluation of Supercavitation-Based Underwater Naval Transport

A team led by Northrop Grumman won a \$5.4m contract from the Defense Advanced Research Projects Agency (DARPA) to determine the feasibility of using supercavitation technology for stable, controllable, high-speed underwater transport.

The Underwater Express program is a DARPA technology research and evaluation program to establish the potential of a new technology. Supercavitation creates a gas cavity between the vehicle surface and the water, thereby reducing drag and increasing vehicle speed. The

program's ultimate goal is a new class of underwater craft for littoral missions that can transport small groups of Navy personnel or specialized military cargo at speeds up to 100 knots.

In Phase 1 of the contract, which will last for 13 months, Northrop Grumman

and its teammates will establish the technology basis for supercavitation transport through a series of testing and modeling activities, and produce a concept design for an underwater demonstrator vehicle.

Most of the work will be divided between Northrop Grumman's Undersea Systems facility in Annapolis, Md., and Pennsylvania State University's Applied Research Laboratory in State College, Pa. Other organizations contributing to the team include the University of Minnesota, the University of Maryland, the Navy's Naval Undersea Warfare Center in Newport, R.I., and BBN Technologies of Cambridge, Mass.

"Supercavitation technology has great potential to increase the speed of underwater vehicles," said John Golombeck, vice president of Naval and Surface Systems for Northrop Grumman's Systems Development and Technology business unit. "By drawing on university research into supercavitation physics and adapting this technology for real-world use, we are opening up new naval transport opportunities." The contract comes with two 15-month options. Phase 2, worth up to \$17 million, would include continued technology research at a larger scale and establish the detailed design of the demonstrator vehicle. Phase 3, worth up to \$23.4 million, would include building a Demonstration Super-fast Supercavitating Transport (DSST) vehicle which would operate at 100 knots for durations of up to 10 minutes. The potential value of all three phases is \$45.8 million.



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TOP Orders Tankers

TOP Tankers Inc, has entered into an agreement with SPP Shipbuilding Co, Ltd of the Republic of Korea for the construction of four 50,000 dwt Product/Chemical tankers. The vessels will be delivered during the first and second quarters of 2009. The Company also has the option to order two additional tankers with the same specifications and delivery period. The total investment for the Company (excluding the option) will be approximately \$190.9m, which will be funded with secured credit lines and working capital.

L-3 Appoints Morton

L-3 Communications announced that its Klein Associates, Inc. division (L-3 Klein) has appointed Rick Morton as Sales Manager for their Side Scan Sonar Systems. Morton will be responsible for implementing Klein's strategy to multiply its sales of domestic and international Side Scan and Multi-Beam Sonar.

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Aker Yards to Build World's Largest Ferries

Aker Yards entered into a contract with Stena Rederi AB in Gothenburg (Sweden) to deliver two (plus two option) Super Ferries. The value of the contract is approximately \$512.4m, and deliveries are scheduled for the first and third quarter of 2010. "After several years, we are

very pleased to renew our customership with such an innovative client as Stena, and are looking forward to a long future cooperation," said

Karl Erik Kjelstad (pictured left), President & CEO of Aker Yards. Although the yards traditionally serving the ferry business (Finland and France) were fully booked for the



delivery dates requested by the client, Aker Yards, with its 17 yards, had the possibility to offer building of the ferries in Germany. Aker Yards, Germany has experience in building passenger ships and RoRo ferries, and the designer, Aker Yards, Rauma has experience in designing and building of passenger and car ferries for more than 20 years.

The 62,000 gt ships will measure 787.4 x 105 ft. (240 x 32 m). There will be 5,500 m trailer lanes and 700 m car lanes of vehicle space, and the passenger capacity will be 1,200 in each.

With main engine output of 4 x 8,000 kW — powered by four-stroke diesel engines — they will reach a service speed of 22 knots

Underwater Noise Measurement Standard Working Group Forming

The development of an entirely new commercial standard for "Underwater Noise Measurement of Ships" will commence in early 2007. ANSI-Accredited Standards Committee S12 Committee on Noise recently voted unanimously to form a Working Group (WG) for the development of an underwater noise measurement standard.

For many years, the field of underwater noise from ships has been the exclusive specialty of the Navy. However, non-navy vessels are looking to be just as quiet so that they can perform better science. "Green Ships" are being conceived in order to have less emission into the ocean. One such quiet ship is the new Fisheries Research Vessels (FRV) that the National Oceanic and Atmospheric Administration (NOAA) is building in Mississippi.

The goal of this project is to develop an American National Standard for the measurement of underwater noise levels of ships using commercial technology.

One aim is that the standard would be applicable to any open ocean site in the world and not require traveling to a special acoustic test range.

However, the committee's scope of work will include neither regulatory actions nor the development of any underwater noise level limit. (Since 1995, recommendations for underwater noise levels for these types of research vessels have been available [ICES CRR209]).

Organizations procuring or operating quiet ships, naval architects, and acoustical engineers should be interested in helping to develop this new standard.

The Working Group is being formed at this time. If your organization is interested feel free to contact the new S12 Working Group chair, Michael Bahtiaran at

mikeb@noise-control.com.

Euronav Records Good Results

Euronav NV reported provisional financial results for the three months ended September 30, 2006. The company had net income of \$53.8m (2005: \$5.8m) or \$1.02 (2005: \$0.11) per share, for the three months ended September 30, 2006. EBITDA was \$110.5m (2005: \$56.9m).

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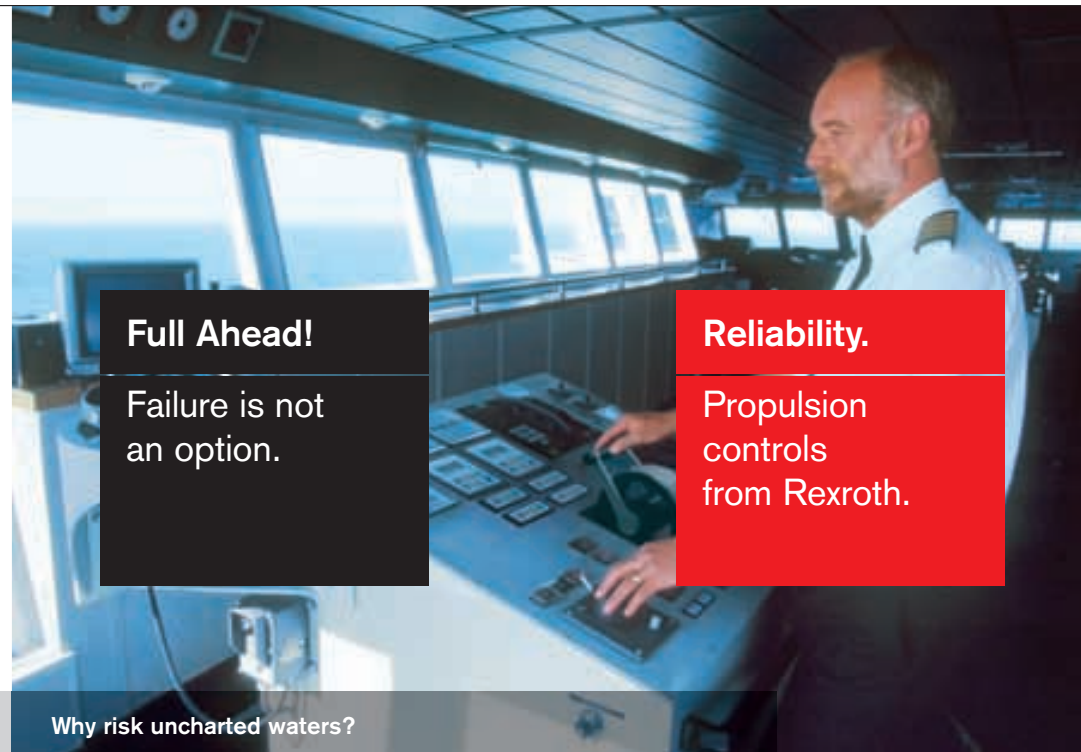
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Pool earned a time charter equivalent, in average for the quarter, of \$69,500 (2005: \$35,858). The time charter earnings of the Suezmax fleet which is fixed on long term time charters, was \$35,860/day for the third quarter.

During the third quarter, Euronav sold the TI Guardian (1993 — 290,927 dwt) for \$86,295,000 and will take it back on a time charter contract for seven years with purchase options as from the end of year three.

The Cap Guillaume (2006 — 157,800 dwt) and the Cap Charles (2006 — 157,800 dwt) were delivered during Q3. The Cap Victor and the Cap Lara will be delivered in 1Q07 and both have been time chartered out for a total of 72 months.

Euronav also ordered two double-hull, 159,000 dwt Suezmax ships from Samsung Heavy Industries, with expected delivery in October 2009 and March 2010. The contract price amounts to \$164.6 million for both vessels.

Bourbon Offshore Division Revenues Up 32.9%

"The performances recorded as of end-September 2006, both by the Offshore Division and by Bourbon as a whole, confirm the success of the 2003-2007 plan, which is being completed a little early in a highly favorable market," said Jacques de Chateaueux, Chairman and CEO of Bourbon. "In this context, we have initiated a major ship-building program which, by the year 2010, will enable Bourbon to become the leading global company for oil and gas marine services with the world's largest fleet of new generation vessels."

Offshore Division

With revenues of \$339.9m as of end-September 2006, up 32.9% (+ 30.6% at constant exchange rates) on September 2005, the Offshore Division continued to report very strong business in the third quarter. Reasons attributed to the success include:

- the increase in the number of vessels in the fleet (10 supply vessels and 12 crew boats and fast support and intervention vessels during the past nine months)
- a market context that remains favorable featuring a noticeable hike in the average daily rates applied to medium and long-term contracts.

Revenues grew steadily in Angola as well as Nigeria, under the twofold effect of a thriving exploration and development business and the start of production of oil fields discovered in the past few years.

Activity in this Division also benefited from six months of business under a new joint venture in Mexico, Naviera Bourbon Tamaulipas, which has been 50 percent consolidated as of April 2006.

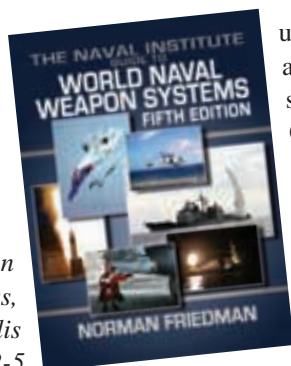
The performance by the Bourbon Orca, an innovative vessel commissioned last June, illustrates the Bourbon strategy in the modern offshore business.

Towage & Salvage Division

As of end-September 2006, the Towage & Salvage Division posted revenues of \$124.7m, up 16.1 percent over 2005. Since the beginning of the year, this business has benefited from a particularly strong market in Africa, notably in Ivory Coast, as well as the full-time activity of the Abeille Bourbon and the Abeille Liberté.

The Naval Institute Guide to World Naval Weapon Systems - Fifth Edition

By Norman Friedman
2006, Naval Institute Press,
Annapolis
ISBN 1-55750-262-5
List Price: \$250.00



underwater hull inspections and patrol the approaches to ships berthed or at anchor. Offboard combat capability means you no longer have to be on the ship to prosecute the target. "Unmanned Surface Vehicles (USVs) could be a very important technology. Swarm boats

might have to deal with an unmanned USV and that might tip their hand."

The U.S. Navy's Littoral Combat Ship is a new kind of combatant that relies on offboard systems, including helicopters and unmanned systems, for combat capability.

Most navies do not have the resources to make wholesale changes to weapons. Development has slowed down. But

new command and control systems are coming online to integrate existing systems. "There are not a lot of new and unique systems," he says. "What you see are bits and pieces of systems."

"The subject of command and control is the biggest new thing, and it's the most difficult to grasp. Command and Control used to be hardware-based, and the hardware didn't really change,"

(Continued bottom of page 16)

Reviewed by Edward Lundquist
Alion Science and Technology

Norman Friedman has gathered the world's most complete listing and analysis of weapons, sensors and systems in his very readable Naval Institute Guide to World Naval Weapon Systems

The book catalogs changes in naval warfare development since the 1997-1998 edition was published. Remarkably, much has not changed. Friedman covers both the old and the new.

What's new is better and faster communications, able to move more detailed intelligence and information faster, Friedman says. While there are fewer weapon systems builders, the industrial capability is more sophisticated, manufacturing smaller and more powerful semiconductors and moving information with greater speed and fidelity over fiber optics. Ground Positioning Satellite (GPS) gives weapons pinpoint accuracy. With these improvements as well as computer aided design and manufacturing, weapons can be made both more precise and less expensive.

"The impact of GPS continues to be very big. It amounts to mailing a weapon to a target.

But it remains to be seen if GPS can be compromised. The presumption today is that if you can identify a set of targets you can hit them," Friedman says. "But that's not just what naval warfare is about."

With better communications and more robust networks, Friedman says, naval forces can now be truly be integrated forces ashore.

Missile defense continues to be a core naval competency. The threat is no longer confined to the Soviet bloc as it was in the Cold War. Both North Korea and Iran possess long-range missiles and are working to achieve a nuclear weapons capability today.

Another development since the last edition is the Global War on Terror. Anti-terrorism and force protection have become new missions following the USS Cole incident in Yemen. Unmanned systems, itself a growth industry, are being used to conduct

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Oily Water Separators

Dennis L. Bryant, Senior Counsel, Holland & Knight LLP

Pogo first uttered the immortal truth: "We have found the enemy and they is us!"

The maritime industry is slowly coming to the conclusion that the cause of the numerous illegal discharges of oily bilge water is not a cabal of black-hearted chief engineers, but the very device that was first installed to resolve the problem — the oily water separator (OWS). Waste liquids naturally accumulate in the bilges of ships. Improved maintenance and closer attention to detail can reduce (but not eliminate) such accumulation. Part of those waste liquids consists of oil. To prevent the waste liquids from overwhelming the cargo spaces and the engine room, the bilge water and mingled liquids were traditionally discharged over the side and into the ocean. As shipping became somewhat more environmentally conscious, the OWS was developed to filter most of the oil out of the bilge water before the bilge water was pumped overboard.

The OWS was first mandated for installation on ships by the International Maritime Organization (IMO) in 1974. At the same time, a requirement was established for maintenance of an oil record book

(ORB) to keep track of use of the OWS and disposal of the ship's oily waste. The OWS was originally designed to reduce the oil in discharge water to 100 parts per million. Ships could discharge waste water that contained up to that level of oil so long as the ship was underway, at least a certain distance offshore, and not in a particularly sensitive area. The equipment operated reasonably well and the program was largely self-enforced. Life was good.

Actually, there are three separate methods for a ship to legally dispose of waste oil: (1) burning on board, (2) transfer to an appropriate facility ashore, and (3) discharge into the ocean through a properly operating OWS. Use of the OWS is clearly the preferred method among shipboard personnel. The oil record book provides for detailed entries of oil accumulated and stored, as well as the time, place, and method of any and all disposals. Totals are supposed to match, but this is difficult as measurements, particularly of liquids in storage tanks on a ship at sea, are rough estimates at best.

In 1992, though, the discharge standard was strengthened to 15 parts per million. Problems surfaced immediately. The OWS equipment was not operating properly. Filters regularly clogged and discharges ceased

Dennis L. Bryant, Senior Maritime Counsel at the law firm of Holland & Knight, Washington, D.C., is a contributing editor of MR/EN. For additional information contact Dennis at dbryant@hklaw.com



frequently. Meanwhile, waste water levels in the bilges were rising. It turned out that many OWS manufacturers had merely fine-tuned their old 100 ppm devices to achieve the new 15 ppm requirement. This was easily done on a test platform in the factory, but frequently failed on a ship at sea. Life was no longer good, at least for chief engineers, who had to manage this problem while keeping the ship operating.

There are other, more basic problems, though. For many years, governments and ship operators only paid lip service to OWS operation and oil record book entries. Waste oil was routinely discharged at sea and few seemed to care. Chief engineers were under constant pressure to keep operating costs down. One method utilized was to ignore maintenance of the OWS. When the OWS wasn't working properly or when the filter needed replacing, the system would be circumvented. This could be done either through use of a bypass pipe to divert the discharge around the sensor unit or by adding non-oily flush water to artificial-

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ly reduce the level of oil passing the sensor unit to below 15 ppm. Alternatively, false entries could be made in the oil record book to show that more waste oil was burned on board than was actually the case. It is difficult to falsify the amount of waste oil transferred ashore, since signed receipts (and payment records) are required. But, for so long as everyone played by the same rules, the system (while flawed) was stable.

When the US Coast Guard and counterpart agencies in other countries (particularly France) began prosecuting ship owners, masters, and engineering officers for illegal discharges of oily bilge water, many in the maritime industry ascribed the blame to over-zealous prosecutors. It is no coincidence, although hardly noticed at the time, that the round of enforcement actions started in 1993 and closely followed the change in OWS standards.

Recently international shipping organizations, such as the Baltic and International Maritime Council (BIMCO), the International Chamber of Shipping-International Shipping Federation (ICS-ISF), the Oil Companies International Marine Forum (OCIMF), the International Association of Dry Cargo Shipowners (INTERCARGO), and the International Association of Independent Tanker Owners (INTERTANKO) issued guidance to members and the maritime industry in general on the proper use of oily water separators.

BIMCO recently published a handbook on how to prepare and undergo a port state control inspection by the US Coast Guard. The handbook notes that the majority of federal prosecutions of foreign seafarers relate to violations that occurred in US waters, such as the presentation to the Coast Guard of an ORB containing false entries. In the handbook, the crew is cautioned to operate and service the OWS and other equipment properly and to maintain contemporaneous and accurate records.

The most candid acknowledgement to date of problems with the OWS comes from ICS-ISF, which stated:

Flagrant infringements of MARPOL requirements concerning the use of oily water separators have apparently been allowed to develop on a disturbing number of ships. A combination of poor equipment design, a lack of environmental awareness, and misguided attempts to save on waste disposal fees seem to be amongst the root causes. But these also imply serious management shortcomings and non-compliance with the ISM Code.

The problem has become particularly

associated with the United States where the size of recent fines imposed on some well-known shipping companies has not only attracted the attention of the entire industry but also, sadly, of the public at large. The continuing lack of adequate waste reception facilities in some ports, despite the obligation of coastal states under MARPOL to provide them, is also a relevant issue, but it cannot be allowed

to obscure the fact that these incidents are fragrant breaches of international law.

They say that confession is good for the soul, and this one is long overdue. But, there is another culprit.

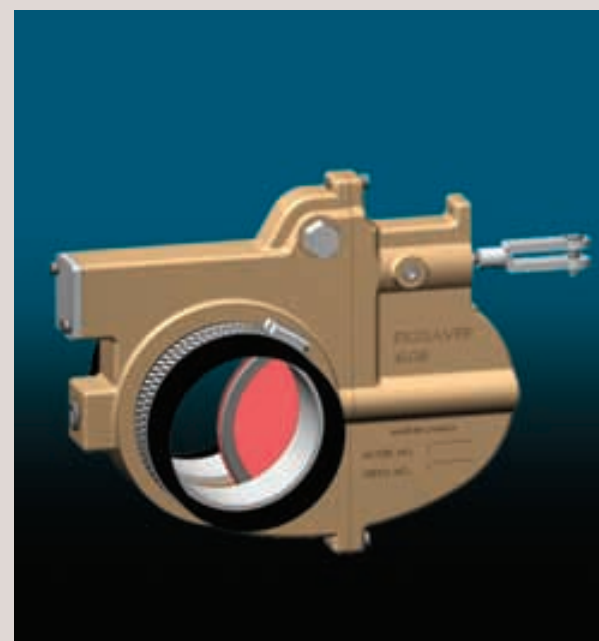
The International Maritime Organization (IMO) promulgated the original technical standards for oily

water separators in 1974. It also published a list of devices that met the standard. All a ship owner or shipyard was required to do (at least initially) was install an oily water separator that appeared on the list. When the water discharge standard was changed in 1992 from 100 parts per million to 15 parts per million, it appears that the IMO took the word of the manufacturers that only

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minor adjustments were necessary for most old OWS devices to comply. Ship owners and shipyards blindly installed and utilized whatever OWS could be obtained, so long as it was found on the IMO list.

Recently, the IMO acknowledged that the old OWS standard was inadequate. It promulgated a new, tighter standard.

Oily water separators meeting the new standard are now on the market. They are much better able to deal with the mixtures of water, oil, solvents, chemicals, and waste commonly found in the bilges of ships.

They provide significantly better monitoring and read-out features. And, they are less susceptible to by-passing and

other manipulation.

The problem is that the IMO only requires installation of the new, improved OWS on ships built on or after January 1, 2005 or on older ships that replace their old OWS equipment. As a result, it is possible, even likely, that 30 years from now there will still be a few ship plying international trade routes

with oily water separators that are inadequate. It is time for the IMO to step up to the plate and adopt an accelerated phase-out schedule for the old oily water separators.

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(Continued from page 13)

Friedman says.

Describing hardware like radar, guns and missiles, and how they work, isn't all that hard, he admits. "In previous editions I felt I was able to explain or describe them. The major challenge today is trying to describe software applications. How do you describe what's going on?"

The last edition of his book had a section on computers, but he gave up with this book because computers and software change too fast.

Where does Friedman find all the information for his book? He's "always collecting stuff." He shares information with other analysts and keeps up with the periodicals. "It helps to read French, Italian, Spanish and German," he tells me. He attends shows like the Sea-Air-Space Expo and Surface Navy Symposium in the U.S.; Euronaval in France; IMDEX Asia in Singapore; the Pacific 2006 International Maritime Exposition in Australia, and others.

"Usually it's the same people who show up at all the show," he says. Many Chinese companies do not exhibit outside of China, he says. "The challenge is to get information from the people who don't exhibit at shows."

While providing information about the newest and greatest naval weapon systems, the book still includes much material on older systems because some navy somewhere is still using it.

The future is promising, but not clear. New systems like directed energy weapons and rail guns generate much excitement and Congress is willing to fund the development. But they keep getting pushed off into the future, Friedman says.

"Some people think if you can draw it and animate it, then you can do it," he says. "But the laws of physics not set by congress. These weapons are still pretty futuristic." While some systems covered in the book are new, "most have been around forever," Friedman says.

Edward Lundquist is a retired U.S. Navy captain and a senior science advisor for Alion Science and Technology. He supports the Navy's Surface Warfare Directorate in the Pentagon.

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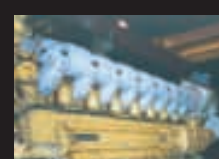
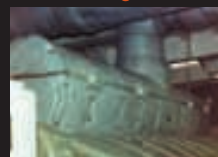
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New Shipyard — SeaBuilders — Opens in Texas

SeaBuilders, LLC said it is accepting orders for the first quarter of 2008 to construct 30,000 barrel and 60,000 barrel oil barges. The company also announced that it has received an initial \$3 million round of funding from Harbor Bunkering Corporation of Puerto Rico. SeaBuilders shipyard opened to provide capacity, as well as a new, more efficient approach to barge building, according to the company. SeaBuilders is expecting to leverage its Lean Manufacturing Process to build barges faster, more efficiently and more cost effectively. "We are delighted to offer the industry a solution — SeaBuilders is available to now take orders and by leveraging the Lean Manufacturing Process, we will be able to meet the pressing demands of industry to come into compliance to meet the pending requirements under the Oil Pollution Act of '90," said Eric Rivera, Executive Vice President of SeaBuilders.

"SeaBuilders is the next generation of barge building. They are a company built from the ground up by an experienced team driven to meeting the industries' demands," said Alfredo Santaella Suarez, CEO of Harbor Bunkering.

SeaBuilders shipyard is located in Corpus Christi, Texas. The SeaBuilders' focus will be to focus on the develop-

ment of 30,000 barrel barges (the C5 Series) and 60,000 barrel barges (the C10 Series).

"While the marine and oil industry have worked to meet the demands for

the larger barges and tankers, the barge building industry has pent up demand for the smaller sized barges with the 2015 deadline looming," said Jack Walsh, Executive Vice President.

"SeaBuilders will play a critical role in the marine and oil industries meeting the timetable with high quality barges that are delivered on time and on budget," added Rivera.



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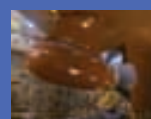


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OSG Acquires Maritrans

Overseas Shipholding Group (OSG) and Maritrans Inc. announced that OSG has completed the acquisition of Maritrans Inc., a U.S. Flag crude oil and petroleum product shipping company that owns and operates one of the largest fleets of double hull Jones Act vessels serving the East and U.S. Gulf coastwise trades. The acquisition was made pursuant to the definitive merger agreement between the companies announced on September 25, 2006.

Based on 12 million shares outstanding and the assumption of net debt outstanding as of September 30, 2006, the transaction is valued at \$471 million. OSG financed the acquisition with borrowings under its revolving credit agreement and intends to repay up to \$300 million of this amount from qualified withdrawals under its Capital Construction Fund (CCF). The transaction is expected to be immediately accretive to OSG's earnings, before consideration of any transaction synergies. Maritrans will be renamed "OSG America, Inc." As a result of the combination, OSG's U.S. Flag fleet now totals 35 operating and newbuild vessels that include handysize product carriers, a car carrier, dry bulk carriers and articulated tug barges. OSG's U.S. Flag fleet provides U.S.-based companies with a broad range of short-haul and long-haul transportation and lightering services. The strategic acquisition also gives OSG a presence in all four major U.S. trading routes.



Page	Ship Name	Ship Type	Ship Builder	Ship Owner
22	Al Marrouna	LNG Carrier	Daewoo Shipbuilding & Marine Engineering Co., Ltd. (DSME)	Teekay Shipping (Canada) Ltd.
25	Artemis Glory	306,500 DWT COT (VLCC)	Daewoo Shipbuilding & Marine Engineering Co. Ltd. (DSME)	Solar Maritime Ltd.
25	Berge Nanton	82,000 cu. m. LPG/NH3 Carrier	Hyundai Heavy Industries Co., Ltd.	Unique Shipping
31	Chikyu	Drilling Vessel	Mitsubishi Heavy Industries	JAMSTEC
22	Cosco Guangzhou	9,500 Teu Containership	Hyundai Heavy Industries Co., Ltd.	Costamare
18	EMMA MÆRSK	Container Vessel	Odense Steel Shipyard in Lindoe, Denmark.	Maersk Line
27	KronViken	Tanker	Samsung Heavy Industries, Co. Ltd.	Viken
20	Maersk Kowloon	Containership	Hanjin Heavy Industries & Construction Co., Ltd.	A. P. Møller Singapore Pte. Ltd.
22	MAERSK QATAR	145,600 m3 LNG Carrier	Samsung Heavy Industries, Co. Ltd.	A.P.Moller
18	MSC Heidi	8,400 TEU Containership	Daewoo Shipbuilding & Marine Engineering Co. Ltd. (DSME)	Mediterranean Shipping Company S.A.
29	Nganhurra	900,000bbls FPSO	Samsung Heavy Ind., Co. Ltd.(Hull)	Woodside Energy Ltd.
20	Norilskiy Nickel	Double-Acting Arctic Containership	Aker MTW Werft GmbH	MMC Norilsk Nickel
29	Otello	Pure Car/Truck Carrier	Daewoo Shipbuilding & Marine Engineering Co., Ltd. (DSME)	Wallenius Marine AB
26	Overseas Houston	Veteran Class MT-46 Tanker	Aker Philadelphia Shipyard	Overseas Shipholding Group
33	Promitheas	116,000 dwt Ice Classed P/C	Hyundai Heavy Industries Co., Ltd.	Tsakos
24	Seatrout	Double Hull Product Tanker	Lindenau GmbH Schiffswerft & Maschinenfabrik, Kiel	German Tanker Shipping GmbH & Co.

Container Vessels

Big.

One small word effectively summarizes this year's featured "Great Ship of 2006," the containership **EMMA MÆRSK**. Measuring 1,302 x 183.7 ft. (397 x 56 m) with a 45.9 ft. (14-m) draft, the mammoth ship delivered on September 1, 2006 from Odense Steel Shipyard is able to carry 11,000 TEU, and is currently the world's largest containership. As global trade grows, so must the mechanisms that support it.

EMMA MÆRSK represents a new wave in making goods available faster, more easily, and in greater quantities, than ever before. EMMA MÆRSK is named after Mrs. **Emma Mc-Kinney Møller**, the late wife of Mr. Mærsk Mc-Kinney Møller. It represents the next generation of container vessels, setting the standard for the future with a unique combination of size, advanced technology and environment friendly innovations.

In order for the container industry to keep moving forward — and to keep

stride with continued rapid growth in the volume of cargo transported by container — there is a need for continued development and improvement. Innovation means reviewing and rethinking business concepts. EMMA MÆRSK is a step in this evolution.

Environment is an essential part of business, particularly in today's shipping's litigious environment. Maersk Line works toward ways of both meeting and exceeding, present and future standards. Mr. A.P. Møller, the founder of A.P. Moller - Maersk, said, "No loss should hit us which can be avoided with constant care." These words still shape the activities of the company's business today and reflect its approach to the company's environmental policy. It aims to ensure that all of operations are managed responsibly with respect for the world. All education and training programs cover environmental sensitivity and awareness. The company strives toward creating the next generation of vessels, positively influencing the future of containerization. It therefore designs its vessels in the most environmentally sound manner possible. EMMA MÆRSK has an advanced energy efficiency system, waste heat recovery system, and an electronically controlled engine, features that all contribute to fewer emissions through a reduced total fuel consumption of up to 10 percent. In addition, the hull of EMMA MÆRSK is painted with a biocide-free silicone-based antifouling paint. This initiative

reduces the impact on the oceans and lowers fuel consumption by an estimated 1,200 tons per year.

Safety is a top priority for Maersk Line and the company is committed to the application of constant care to improve safety throughout our company in all operations. Since 2005 all vessels have been built with protected fuel tanks, placed away from the outer part of the hull. These inboard fuel tanks are a preventive measure to avoid oil spills in case of incidents. EMMA MÆRSK is built with fuel tanks like these to ensure that our operations are conducted in the safest possible manner. For protection against a potential oil spill in case of a collision or grounding, the fuel tanks are placed in the center of the double hull, protected and away from the shell plating of the hull. The remaining tanks containing lubrication oil or oil residuals, i.e. anything than clean water, are placed in the center of the double hull.

EMMA MÆRSK is a highly automated vessel, enabling it to be operated by a crew of just 13 people. The vessel is equipped with 14 life buoys. Six with light, two quick release from bridge wings with combined smoke and light, two with 60-m line and four life buoys without equipment.

MSC Heidi was built for Mediterranean Shipping Company S.A. by DSME, designed as double skinned construction in the way of cargo holds except No.1 hold and arranged with nine cargo holds, 20 bays of 40 ft. container

Emma Maersk



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DRILLSHIP

98K Drillship “Deepwater Discovery”



CONTAINER

9,600 TEU Container “XIN Los Angeles”

MSC Heidi



MSC Heidi Main Particulars

Delivery date	October 4, 2006
Length, o.a.	1089.2 ft. (332 m)
Length, b.p.	1040.6 ft. (317.2 m)
Breadth, molded	141.7 ft. (43.2 m)
Depth, molded	80.4 ft. (24.5 m)
Draft, designed	42.7 ft. (13 m)
Draft, scantling	47.6 ft. (14.5 m)
DWT at design draft	89,150 metric tons
DWT at scantling draft	107,150 metric tons
Speed	25.6 knots
Main engines	B&W 12K98MC-C x 1 set
Total installed power	68,520 kW x 104 rpm
Bow Thrusters	3,000 kW x 1 set
Diesel Generators	4 x 3,000 kW
Emergency Generator	1 x 550 kW
Coatings	Tar free epoxy, Vinyl modified epoxy, Tin free SPC
Radars	1 set x X-band & 1 set x S-band
SatCom	INMARSAT standard B type x 1 set, INMARSAT standard C type x 2 sets
Classification	GL

with 19 hatches.

The ship is fully welded flush deck type with forecastle and has a raked stem with bulbous bow, a transom stern, a full spade rudder and a fixed pitch propeller directly driven by a B&W 12K98MC-C engine with MCR output of 68,520 kW at 104 rpm.

The ship can carry 8,400 TEU, including 700 FEU reefer containers. Forty-five ft. containers on hatch covers are arranged from third tier on deck.

The number of loadable containers with 14 tons/TEU is approximately 6,647 TEU at the scantling draft of 14.5 m. MSC Heidi was designed to exchange ballast water by flow through method for wing ballast tanks and pump in-pump out method for double bottom ballast tanks.

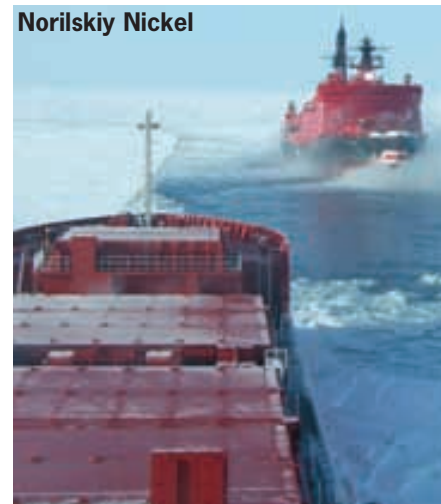
MS Norilskiy Nickel is the first Arctic cargo ship newbuilding using the double-acting Azipod technology. The 14,500-dwt, \$88.8m containership, developed by Aker Arctic Technology in Finland, was built at Aker Yards Helsinki, and delivered to MMC Norilsk Nickel in April 2006, having concluded successful ice trials on the Kara Sea and Yenisei River.

MS Norilskiy Nickel is the first ship in a series, part of an investment program through which MMC Norilsk Nickel will be able to handle its exports of primarily nickel-semi-products through Dudinka by itself, without icebreaker assistance, at least most of the time. At the time of the delivery, Dimitrii Cheskis at Norilsk Nickel said "the commissioning of the unique diesel-electric ship is an important step forward in achieving independence with regard to transportation," and that the intention of the company, "is to create its own fleet of five modern vessels to carry cargo along the Northern Sea Route," in line with the planned logistic strategy.

Until now, the transportation from Dudinka has been carried out by chartered ships, with a separate icebreaker

assistance agreement with Murmansk Shipping Company, which operates the icebreaker in the region. The investment of the mining company also includes an own container terminal in Murmansk, where cargo to and from Dudinka is reloaded. A separate organization, the Norilsk Nickel Murmansk Transport Branch, has been set up to handle the transportations. Primarily pre-rolled nickel plates on flats/frames of standardized size are loaded onto pallets and loaded into containers already in Norilsk, from where they will be transported by train to the port of Dudinka by the Yenisey River, for further transportation to Murmansk and further. Transportation costs should be cut by half thanks to shorter turnaround times, according to estimations made. The normal turnaround time on that route is about 17 days. With independent regularly scheduled traffic much time will be saved by not having to wait for expensive icebreaker assistance. The transportation contract between MMC Norilsk Nickel and Murmansk Shipping Company for the transportation of nickel was extended by three years in early 2004. MS Norilskiy Nickel is 554.6 ft. (169.04 m) long and 75.8 ft. (23.1 m) wide. The winter deadweight is 14,928 dwt at a draft of nine meters. In summer, at 32.8 ft. (10 m) draft, the deadweight is 18,486 dwt. The vessel can take 648 20-ft. TEU containers. The heavy nickel is transported in containers only four feet high, instead of eight feet. The ship is fitted with one tween deck, at a height of

Norilskiy Nickel



10.45 m, for the various return cargo, much of which need to be transported sheltered from the weather. There are three main cargo holds, each with tween deck, and one smaller cargo hold forward, which is also suitable for transportation of hazardous cargo. The size of the main deck cargo holds are from aft, 84 x 59.4 ft. (25.6 x 18.1m); 84 x 59.4 ft. (25.6 x 18.1 m); and 63 x 59.4 ft. (19.2 x 18.1 m). The main and tween deck cargo hatch covers were supplied by MacGregor.

The diesel-electric machinery consists of three Wärtsilä 12V32 diesel engines, each with a maximum continuous rating of 6,000kW at 750rpm, each driving an ABB alternator with a capacity of 8314kVA. The electricity produced feeds the 6600V 50Hz main switchboard. The ship is fitted with a single Azipod drive with a power of 13MW. The electric motor has double winding, to give redundancy to the propulsion

Maersk Kowloon • Containership

Maersk Kowloon is about 984 ft. (300 m) long, with a beam of 131.2 ft. (40 m) and full load draft of 47.5 ft. (14.5 m). Its service speed on design draft (39.4 ft./12 m) is 25.1 knots at 85 percent MCR with 15 percent sea margin, its maximum cruising range is 24,500 nautical miles and its maximum carrying capability of container is 6,160 TEU. This vessel is designed as raked stem with bulbous bow, a transom stern with open water type stern frame and flush deck with forecastle. Main hull girder which consist of deck, double skin and double bottom in cargo hold space is of a longitudinal framing system, and E/R double bottom, fore and aft end of hull is longitudinally and/or transversely framed. All accommodation space including navigation-bridge and propulsion machinery space have been located semi-aft, but vibration and noise is designed in order to avoid resonance, for the comfort of the crew and for the long life of ship's equipment. Comfortable accommodations are provided for 28 officer and crew plus six of Suez-canal crew. The main propulsion is provided with one Wärtsilä 10RT flex 96C, two stroke single acting airless injection, crosshead, direct reversible, turbocharged type, producing a maximum power of 77,800 PS at 102 rpm and service power of 66,130 PS at 96.6 rpm. A fin stabilizer system is installed, enabling the reduction of 90% roll at 20 knots. Of the 6,160 TEU, 2,810 TEU are in the hold and 3,350 TEU are on deck. The ship has been constructed under the special supervision of and according to the full requirements and recommendation of the Classification Society Lloyd's Register of Shipping and is designed +100A1 Container Ship, Ship Right (SDA, FDA, CM), +LMC, UMS, IWS, LI, BWMP(S), SCM, NAV1. In addition, the vessel adopts and applies up-to-date rules and technology, including:

- Fuel oil tank protection: Installation of HFO Tank in part of cargo hold to satisfy MARPOL Annex 1, Reg.12A
- Reefer container water cooling system: For cooling all reefer containers in cargo holds (total 268 FEU), a closed type fresh water cooling water system is installed. Cooling fresh water is supplied from a central cooling plant.
 - With fresh water cooling system, higher cooling efficiency of reefer unit condenser and much reduced noise level are ensured.
- Accommodation design: The latest ergonomic design guidance of IACS UI SC-181 has been adapted to the design of the Navigation Bridge & relevant equipment, and the uppermost comfortable operation and intrinsic safety has been realized.
- Navigational arrangements: Navigational arrangements for periodic one man watch, LRS notation NAV1 is applied with the latest INS (Integrated Navigation System). This vessel also applied unattended machinery space, LRS notation UMS, and remote control of the main engine is carried out by means of electronic control system from wheelhouse both bridge wings and engine control room.
- Radio system is provided according to SOLAS 1988 amendments for GMDSS (Global Maritime Distress and Safety System) for A3 area with duplication of equipment and shore based maintenance. This vessel equipped with high speed Local Area Network (LAN) system for public ownership of information.
- Propulsion: A new Wärtsilä 10RT flex 96C common rail main engine
- Railko stern tube bush enabling sailing under seal damage.



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unit. ABB also delivered the main switchboard, propulsion transformers, two high voltage distribution transformers, propulsion control and remote control systems. The 750kVA harbour generator set and the 415kVA emergency generator are supplied by Volvo.

The contractual icebreaking capability of Norilskiy Nickel was to be able to proceed with a minimum continuous speed of two knots in 1.5 m solid ice, with a snow layer of 200 mm, moving with stern first. According to reports from the ice trials, the icebreaking performance exceeded expectations. The vessel was able to break solid 1.5 m thick ice with a speed of almost four knots and penetrate rubble ice fields with a ridge height of three metres without churning, with an average speed of two knots. A three metres ridge height indicates a depth of some 30 m. The ship has an open water service speed of 15.5 knots. The navigation equipment is supplied by Kelvin Hughes. The ship has also an online information terminal for receiving information on the ice conditions and the ice cover along the ship's course.

The Damatic/Valmarin-type machinery control and monitoring system is supplied by L-3 Communications Corporation. There is one free-fall lifeboat supplied by Ernst Hatecke GmbH, with a capacity of 25 persons, launched over the stern, and a rescue boat from the same supplier, in addition to needed liferafts. The mooring system and deck winches are supplied by SEC-Groningen B.V. The cargo part of the hull, forward of the engine room bulkhead, was built by Aker Yards in Warnemünde, Germany, and the assembly and outfitting took place at the Aker Helsinki yard. Norilskiy Nickel carries Russian flag with Murmansk as home port. The ship is built to Russian Maritime Register of Shipping ice class LU7, except for the stern of the vessel

that will be built to LU6 BOW class RULES, which are more demanding than LU7 requirements for a stern would have been. The bow of Norilskiy Nickel is shaped for icebreaking too, and is not fitted with a bulb.

The 9,500 TEU class containership Cosco Guangzhou built at Hyundai Heavy Industries (HHI) was delivered to Costamare, Greece on February 23, 2006. The vessel measures 1151.5 x 140.4 (351 x 42.8 m) with a 89.5 ft. (27.3 m) depth and design draft of 42.6 ft. (13 m). She is powered by a Hyundai-B&W 12K98MC (Mark 7) diesel engine, which develops an MCR of 74,760 kW at 97 rpm which enables the ship to sail at a service speed of 25.4 knots with 15 percent sea margin without power take off.

The Hyundai containership features a wide beam, designed to ensure better stability when loading and unloading at international container terminals. It is also designed to have superior propulsion efficiency against the various draft which will be caused by loading scheme. The vessel has 10 holds, eight of which are arranged forward of the engine room (20 ft. container/32 bay) and two are backward (20 ft. container/8 bay) and a maximum of 15 rows and 10 tiers of containers can be stowed in the holds. Two air changes per hour are provided to No. 1-5, 9 and 10 hold in which dangerous cargoes of SOLAS classes 1 to 9 can be carried.

The containership can carry the maximum 15 rows in holds and 17 rows on deck of containers. Total TEU capacity is 9,469 of which 4,673 TEU in holds and 4,796 TEU on deck, with 700 FEU reefer sockets provided. Pontoon type

Cosco Guangzhou



Al Marrouna



hatch covers close the 10 holds.

Each hatch cover is made up of three panels with maximum panel weights kept below 41 tons to suit handling by port cranes. The vessel is arranged to carry 20 ft.; 40 ft.; 45 ft. containers and cargo holds are provided with 40 ft. fixed cell guide. Athwartship lashing bridges are arranged with necessary fittings so that containers on hatch

Maersk Qatar



cover/stool on upper deck can be conveniently and securely lashed. The Hyundai containership is provided with both optimum section profile of rudder and tip-raked propeller to

reduce the possible cavitation. For durability of outside shell, tin-free self-polishing anti-fouling paint and ICCP is applied to the vessel. The vessel is classed and registered as GL +100A5, Container Ship, IW, SOLAS II-2 REG. 19, RCP(700/65), ENVIORONMENTAL PASSPORT, +MC, AUT.

Gas Carriers

Maersk Qatar, built by Samsung Heavy Industries for A.P. Moller, is a high quality LNG Carrier that has LNG cargo carrying capacity of 145,600 cu. m. Among 19 same-size vessels, seven are currently under construction and 12 have been delivered by the shipyard.

The ship features the GTT Membrane Mark-III containment system, and was built for A.P. Moller for RasGas project. The vessel measures 928.5 ft. x 142.4 ft. (283 x 43.4 m) with a 37.4 ft. (11.4 m) design draft. It can carry 145,600 cu. m. of LNG with boil-off rate to 0.15 percent of the total cargo volume per day. This ship has a service speed of 20 knots at designed draft, driven by a Kawasaki Heavy Industries UA400 type steam tur-

bine. Two 1,700 cu. m./hr. cargo pumps can be used to completely discharge the cargo tanks within 12 hours after the tanks have been pre-cooled by LNG spray. The ship has a bunker capacity sufficient for the cruising of 13,000 nautical miles on fuel oil only. The bunker tanks are surrounded for its protection by the water ballast tanks.

The LNG Carrier Al Marrouna was built in Daewoo Shipbuilding & Marine Engineering Co., Ltd. (DSME) OKPO shipyard for Teekay Shipping Ltd. under the survey of Lloyd's Register with the notation of +100A1, Liquefied Gas Tanker, Ship type 2G, Methane in Membrane tanks, Maximum Vapor Pressure 0.25 bar, Minimum Temperature minus 163 oC, ShipRight (SDA plus), *IWS, LI" "+LMC, UMS, NAV1, IBS, ICC" with descriptive notes "ShipRight (PCWBT, FDA plus, CM, SEA(HSS-4L, VDR), SCM, TCM, PMS(CM)), ETA".

The ship, which measures 945.5 x 142.4 ft. (288.2 x 43.4 m) with an 85.3-ft. (26 m) depth and a 39.4-ft. design draft — is designed to transport 151,700 cu. m. of liquefied natural gas at one time, meaning that it has 3,400 cu. m. more cargo capacity than existing NO96 type LNG carriers with same principal dimension. Powered by a marine steam turbine which generates 36,800 ps, the ship is able to sail approximately 16,000 nautical miles without using of any boil-off gas. With the assistances of an innovative hull form, the ship can achieve 20.5 knots at the draft of 12 m on even keel with the main steam turbine at 90 percent MCR (33,120 PS) without sea margin. Design fatigue life of critical details and all longitudinal stiffener connections to transverse webs and transverse bulkheads is minimum 40 years based on the North Atlantic trading route (UK South West Approached to Boston USA, great circle route).

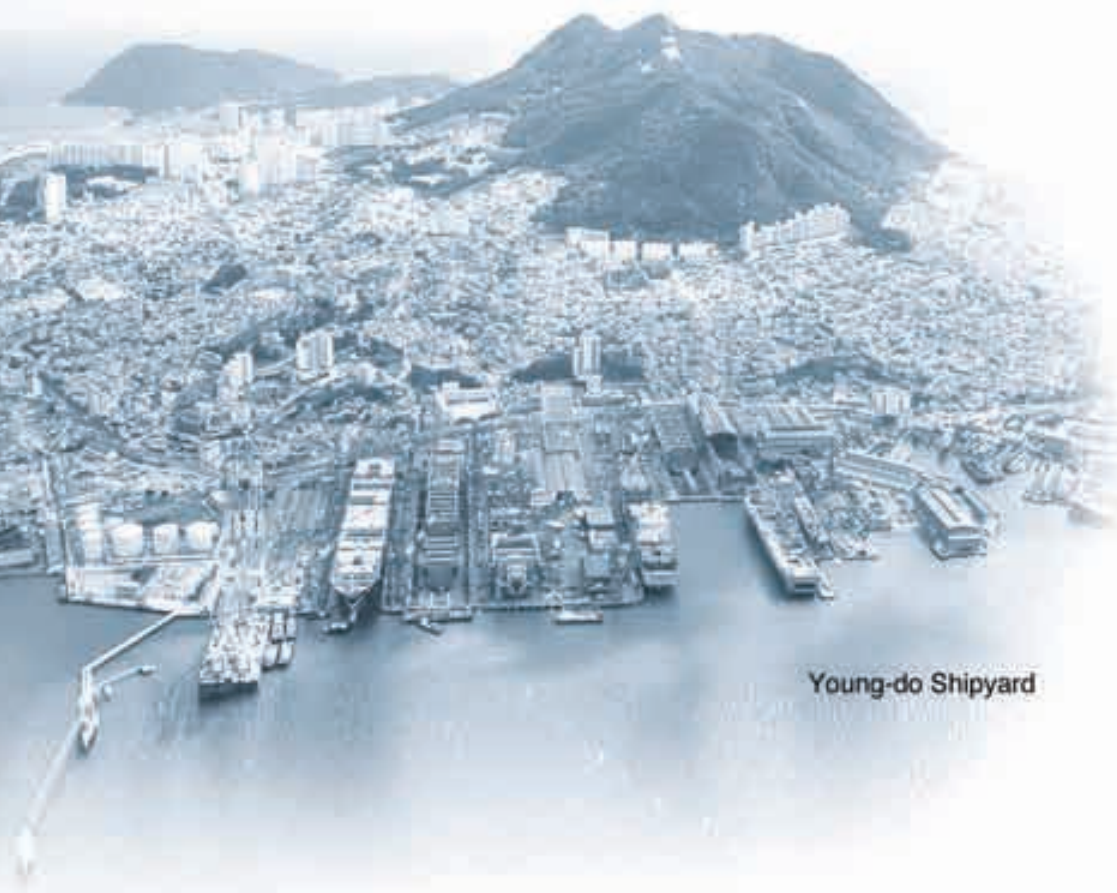
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Seatrout: Double Hull Product Tanker

The 40,600-dwt double hull tanker Seatrout was delivered from Lindenau GmbH Schiffswerft & Maschinenfabrik in June 2006. Built for the transport of oil and oil products to Ice Class E3 standard, the ship is a significant achievement as it is one of the largest and safest double hull tankers built in Germany. It was developed and built in close collaboration with the shipping company, German Tanker Shipping GmbH, and was built with class under the survey of Germanischer Lloyd and SeeBG, respectively. Together with the shipowner Lindenau worked to optimize the ship lines, to achieve an optimized load/volume relation at a maximum draft of 33 ft. (11 m) and PanMax breadth of 105 ft. (32.2 m). Line developments tested and proven by tank tests were intended to not only prove seakeeping and ice performance, but to optimize speed/power ratio to minimize fuel consumption. Much attention was paid to the development of a new fore ship, for the dual purpose of optimizing fuel consumption as well as ice-breaking performance. Compared to previous newbuildings, structural stresses on the fore ship were reduced by 40 percent according to the shipyard through the optimization of fore-ship lines. The cargo space of the ship consists of 2 x 5 cargo tanks as well as three slop tanks, separated from each other by volume longitudinal and volume transversal bulkheads, leading to smooth tank surfaces. The ship is equipped with a computer-based cargo monitoring and indication system in the cargo control room, with the following functions: cargo- and slop-tank level indication with tank radars; cargo temperature indication and monitoring with three sensors arranged at different heights; cargo tank pressure monitoring with given alarms; manifold pressure monitoring with given alarms; and draft measurement system with four sensors. The electric-driven deep-well pumps enable a total cargo separation, very short discharge times of approximately 12 hours, and a high-efficiency tank washing system. The ship is equipped with an online-loading computer, which is connected to the integrated cargo monitoring and indication system, as well as to the tank level measurement system for ballast and engine room storage and consumable tanks. The computer allows the crew to control online the longitudinal strength and intact stability during loading and discharging. For safety in navigation, the integrated bridge system is outfitted with two anti-collision radar systems.



Main Particulars		Draft, (scantling) max.	36 m (11 m)
Owner	German Tanker Shipping	DWT (at design draft)	35,400
Delivery Date	June 3, 2006	DWT (at scantling draft)	min. 40,600
Classification	GL	Speed	17.2 knots
		Main engines	MAN 8 L58/64
Length, (o.a.)	618 ft. (188.33 m)	Total installed power	11,200 kW
Length, (b.p.)	589 ft. (179.5 m)	Bow Thrusters	1,250 kW
Breadth, (molded)	105.6 ft. (32.2 m)	Generators	3 x Wärtsilä/AvK
Depth, (molded)	55.8 ft. (17 m)	Radars	ARPA-S and ARPA-X
Draft, (designed)	32.8 ft. (10 m)		

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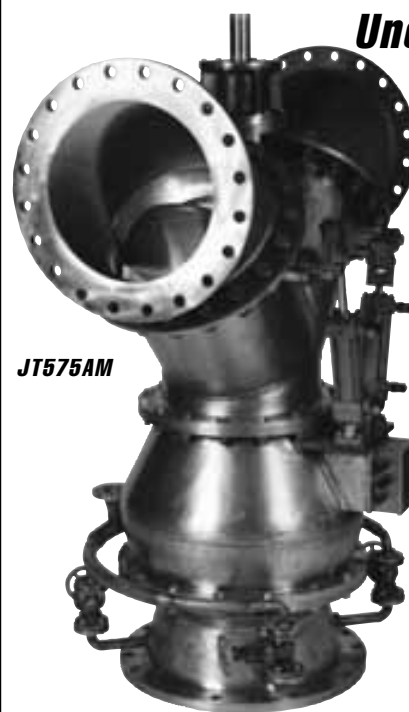
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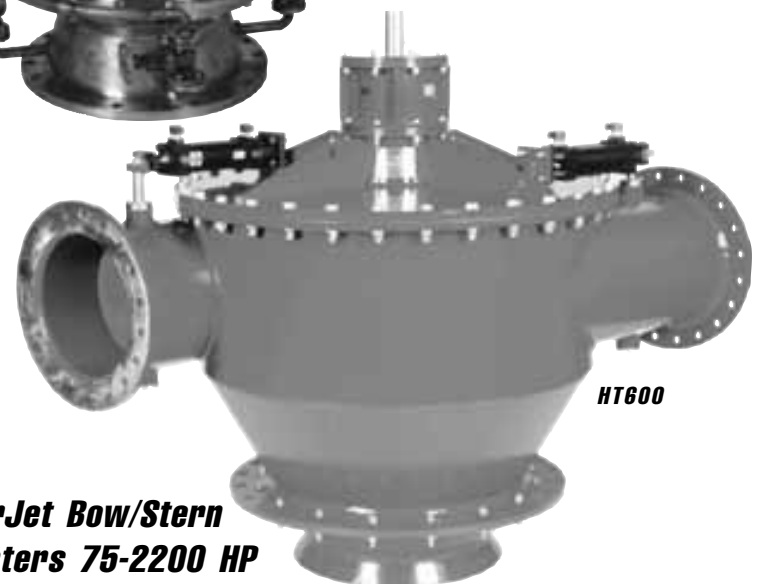
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Artemis Glory, a 306,500-dwt VLCC from Daewoo Shipbuilding & Marine Engineering Co. Ltd. (DSME) for Solar Maritime has a fully welded upper deck with aft sunken deck, a raked stem with bulbous bow, a transom stern with open water type stern frame, a semi-balanced rudder and a fixed pitch propeller directly driven by a Sulzer 7RTA84T-D engine with MCR output of 40,005 PS at 76 rpm. The ship is built with four longitudinal bulkheads and transverse bulkheads to have five pairs of side cargo tanks, five center cargo tanks, two slop tanks and wing and double bottom

tanks for water ballast. Design fatigue life of longitudinal stiffeners to transverse webs/bulkheads and lower hopper connection in cargo area shall generally be a minimum of 30 years in accordance with the requirement of DNV, based on worldwide operation defined in Classification Note 30.7.



Artemis Glory

Artemis Glory Main Particulars

Flag	.....Panama
Class	.....DNV
Length, o.a.	.....1089.2 ft. (332 m)
Length, b.p.	.....1049.8 ft. (320 m)
Breadth, molded	.....190.3 ft. (58 m)
Depth, molded	.....101.7 ft. (31 m)
Draft, designed	.....68.2 ft. (20.8 m)
Draft, scantling	.....73.8 ft. (22.5 m)
DWT, at design draft	.....278,130
DWT, at scantling draft	.....306,500
Speed	.....16 knots at scantling draft
Accommodation	.....7 tiers including sunken deck
Main engines	.....Sulzer 7RTA84T-D
Total installed power, MCR	40,005 PS (bhp) x 76 rpm
Propellers	.....FPP
Generators	3 x (1,190 kW), 1 emergency (300 kW)
Bearings	.....JMT
Coating	Tin-free SPC A/F/ of harmless to environment & high quality proven epoxy paint for anti-corrosive purpose

Tank Capacities (100% full)

Cargo Tanks including slop tanks	.....347,000 cu. m.
Water Ballast Tanks incl. peak tanks	.....98,000 cu. m.
Heavy Fuel Oil Tanks incl. sett./serv.	.....7,500 cu. m.
Diesel Oil Tanks incl. sett./serv.	.....350 cu. m.
Fresh Water Tanks	.....500 cu. m.

Berge Nantong, built by Hyundai Heavy Industries Co., Ltd. and delivered in July to Unique Shipping, Hong Kong, is an 82,000 cu. m. LPG carrier, a fully refrigerated type with a cargo space divided into four independent holds.

The LPG carrier vessel measures 738 x 120 ft. (225 x 36.6 m) with a 72 ft. (22 m) depth and a 37.4 (11.4 m) draft. The ship is powered by a B&W 6S60MC-C main engine with an MCR output of 18,420 bhp at 105 rpm, enabling it to sail at a service speed of 16.75 knots on the condition of NCR 16,380 bhp. Electrical supply is derived from 3 diesel driven alternators of 1,000 kW, plus an emergency unit of 130 kW.

Berge Nantong has a cargo space divided into four holds with wing tanks. Each hold accommodates an independent and self-supporting prismatic cargo tank, designed for low temperature cargo of -48. Cargo tanks are insulated with 120 mm thick polyurethane foam cad-died with 0.5 mm aluzinc steel sheeting.

The LPG carrier is able to carry two cargoes simultaneously, both of which

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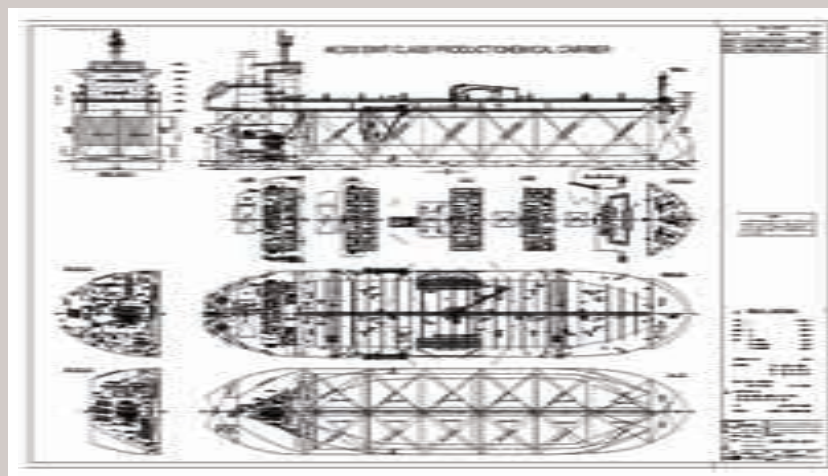
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Overseas Houston: Veteran Class MT-46 Tanker

Overseas Houston is the first in a series of 10 double-hulled Veteran Class MT-46 Tankers built at the Aker Philadelphia Shipyard for Overseas Shipholding Group. The Jones-act ship will fly the U.S. flag and will transport crude oil and petroleum products between ports in the U.S., specifically from the U.S. Gulf to the Southern Atlantic region. The 46,000 dwt ship - constructed of high-strength steel - measures is 601 x 105.6 ft. (183 x 32.2 m) and is able to carry approximately 14 million gallons of liquid product in six tanks. Propelled by a two-stroke, six-cylinder main engine that generates 8,700 kW at 127 rpm, the ship travels at a cruising speed of 14.6 knots and boasts a range of 14,000 nautical miles. Overseas Houston and her nine sister ships constitute one of the largest commercial ship orders ever placed in the history of the U.S., and the largest order since World War II.



Overseas Houston Main Particulars

Ship Name	Overseas Houston	Tank capacity	
Ship Type	Veteran Class MT-46 Tanker	HFO	1,600 cu. m.
Builder	Aker Philadelphia Shipyard	MDO	170 cu. m.
Owner/Operator	Overseas Shipholding Group	Fresh Water	250 cu. m.
Length, o.a.	601 ft. (183 m)	Potable water	50 cu. m.
Length, b.p.	570.8 ft. (174 m)	Lube oil	100 cu. m.
Breadth, molded	105.6 ft. (32.2 m)		
Depth	61.7 ft. (18.8 m)	Speed, 11 m, 85% MCR, 15% sm	14.6 knots
Design draft	36 ft. (11 m)	Range	14,000 nm
Scantling draft	40 ft. (12.2 m)	Class	ABS
DWT (12.2 m draft)	46,000	Flag	USA
GT	29,200	Cargo tanks	6
Tank Capacity		Hyd. Submerged pumps	12 x 600 cu. m./hr. 125 m Th
In holds	52,650 cu. m.	Unloading/loading capacity	3,600 cu. m./hr.
Slop tank	1,150 cu. m.	Main engine	2-stroke, 6 cyl., 8,700 kW @127 rpm
Total	53,800 cu. m.	Propeller	4-blade, 5.8 m diameter
Ballast water	22,500 cu. m.	Accommodation	26 + 6

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On August 2, 2006, Canadian Shipbuilding & Engineering Ltd. ("CSE") filed for protection under the *Companies' Creditors Arrangement Act*. Pursuant to the order issued by the Ontario Superior Court of Justice on August 2, 2006 (the "Initial Order"), RSM Richter Inc. was appointed the Monitor ("Monitor").

Pursuant to the Initial Order and an order issued on November 17, 2006, the Monitor has been authorized to conduct a sale process for some or all of CSE's business. In this regard, the Monitor has commenced a sale process for Port Weller Dry Docks ("PWDD") and Pascol Engineering ("Pascol"), both divisions of CSE.

Pascol specializes in ship repair at its dry dock facility in Thunder Bay, Ontario. Pascol is also involved in heavy custom fabrication, machining and mechanical contracting for shipping companies and land-based industries, including pulp and paper, mining and sawmills.

PWDD, based in St. Catharines, Ontario, is a shipyard at which over 60 major vessels have been built since 1946. PWDD also performs major refit and ship repair work from the two dry docks located at that facility.

The Monitor will be accepting offers for the business and assets of PWDD and/or Pascol until January 15, 2007 at 5:00 p.m. (Toronto time). Further details related to the sale process can be obtained by contacting David Sieradzki of the Monitor's office at (416) 932-6030.

RSM Richter

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may be refrigerated. Cargoes include anhydrous ammonia, 1,3-butadiene, butane (iso and normal), butylenes, commercial propane, propylene.

The reliquefaction plant can handle two refrigerated cargo grades simultaneously and major equipments such as cargo compressors and motors are located in compressor and motor room on

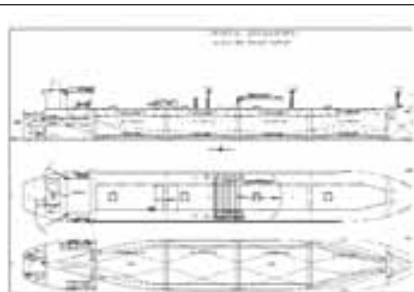
main deck level.

Cargo handling is operated by eight deep well pumps, each with a capacity of 600 cu. m./hr., allowing for a discharge time of approximate 18 hours excluding stripping.

Loading is accomplished in about 18 hours based on vapor return to shore.

Berge Nantong





Berge Nantong Main Particulars

Shipbuilder	Hyundai Heavy Industry Co., Ltd.
Vessel Name	Berge Nantong
Owner/Operator	Unique Shipping
Contract date	December 5, 2003
Launch/float-out date	May 4, 2006
Delivery date	July 27, 2006
Length, o.a.	738 ft. (225 m)
Length, b.p.	705.3 ft. (215 m)
Breadth molded	120 ft. (36.6 m)
Depth molded	72 ft. (22 m)
Draft, design	37.4 ft. (11.4 m)
Draft, scantling	41.2 ft. (12.5 m)
Main engine	Hyundai-B&W 6S60MC-C
Output MCR	18,420 bhp x 105 rpm
Cargo pumps	8 x HKSE-Svanehoj
Radars & integrated navigation system	JRC
Displacement	69,404 MT
Lightweight	18,624 MT
Deadweight, design	50,780 MT
Deadweight, scantling	58,899 MT
Speed, service (-- %MCR output)	16.75 knots (89% MCR)
Cargo capacity	82,250 cu. m.
Heavy oil	3,367 cu. m.
Diesel oil	280 cu. m.
Water ballast	23,600 cu. m.
Daily fuel consumption (tons/day)	
Main engine only	48.55
Auxiliaries	14.56
Classification society and notations:	Det Norske Veritas, +1A1, Tanker for Liquefied Gas,
Ship type	2G (-50 oC, 600kg/m3, 0.25bar), E0, NAUTICUS (Newbuilding), PLUS-1, NAUT-OC, CLEAN, OPP-F, TMON, In-Water Survey
% high-tensile steel	54%
HT32 = 14%; LT32 = 40%	
Propeller	23 ft. (7 m)
Exhaust-gas scrubbing equipment	Kangrim
Cargo cranes/cargo gear	Hochang-MacGregor
Mooring equipment	Rolls-Royce
Cargo tanks	4
Cargo pumps	8 x HKSE-Svanehoj
Ballast control system	DAMCOS
Complement	16 Officers; 14 Crew
Bridge control system	Kongsberg
Fire detection system	SARACOM
Radars	2 x JRC
Waste disposal plant	HMMCO-ATLAS

The tanker **Kronviken**, built by Samsung Heavy Industries for Viken Shipping is an ocean going single screw diesel engine driven crude oil tanker suitable for carrying crude oil. The ship, which measures 817 x 143.7 (249 x 43.8 m) with a 44.6 ft. (13.6 m) design draft, is powered by a MAN B&W 7S60MC diesel engine which produces a total installed power of 19,460 bhp.

Delivered September 14, the ship has a raked stem with a protruded bulbous bow, a transom stern and one continuous deck. Accommodations including navigation bridge and an engine room shall

be located aft as outlined on the general arrangement.

The vessel has bowthruster room, forward water ballast tank, aft peak tank, cargo oil tanks, segregated water ballast tanks, fuel oil tanks, a pump room and an engine room.

The cargo area is constructed with double bottom and double shell and shall consist of six pairs of cargo oil tanks, two slop tanks and six pairs of wing and double bottom water ballast tanks. Heavy fuel oil tanks is constructed with double bottom and double shell

and outer space of heavy fuel oil tanks shall be void space.

The transverse and longitudinal bulkheads below the upper deck are of plane type.

Peak tanks and six pairs of wing and double bottom water ballast tanks in



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Kronviken

way of the cargo area are designed as segregated water ballast tanks. One bowthruster and a ice knife are provided. The ship is meets the requirements of Baltic ice class 1A.

KronViken Main Particulars

Ship Name Kronviken
 Ship Type Crude Oil Tanker
 Builder Samsung Heavy Industries
 Owner Viken Shipping
 Designer Samsung Heavy Industries
 Delivery Date September 14, 2006
 Length, (o.a.) 817 ft. (249 m)

Length, (b.p.) 784.1 ft. (239 m)
 Breadth, (molded) 143.7 ft. (43.8 m)
 Depth, (molded) 68.9 ft. (21 m)
 Draft, (designed) 44.6 ft. (13.6 m)
 Draft, (scantling) 48.9 ft. (14.9 m)
 DWT (at scantling draft) 114,500 mt
 Speed 14.6 kts
 Main engines MAN B&W 7S60MC
 Total installed power 19,460 bhp
 Bow Thrusters Brunvoll
 Ballast control system Remote Control from CCR
 Depth Sounders JRC
 AIS JRC
 SatCom One INMARSAT-C and One INMARSAT-F77
 Classification DNV
 Complement 30

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Nganhurra is the 900,000 bbls FPSO with very unique design which enables her to travel at 12 knots, at designed draft without tug assistance. A FPSO with propulsion function is very rare and there has been only one new building FPSO with the function, whose name is Sea Rose (940,000 bbls FPSO) built by Samsung. Therefore, Nganhurra is reportedly only the world second FPSO with propulsion function.

The Enfield field, where Nganhurra is deployed, is located in the Carnarvon Basin, approximately 40 km offshore from North West Cape, Western Australia.

The field development concept comprises the use of subsea wells and flowlines to support a single Floating Production Storage and Offloading (FPSO) facility to receive reservoir fluids (oil, water and gas). Nganhurra is moored on location with a water depth range from 350 to 700m, using a disconnectable single point mooring system. The FPSO will disconnect the single point mooring system and evacuate when a very strong cyclone comes.

The FPSO's Topside processes the produced fluids into oil, gas and produced water streams. The stabilized crude oil will then be stored in the cargo tanks of the FPSO and offloaded to tandem-moored trading tankers via a float-

ing flexible hose, and produced water will be further treated using hydrocyclones prior to disposal overboard.

Twelve (12) deep-well cargo pumps with 700 cu. m./hr. are installed to transfer 550,000 bbls of cargo oil within 24 hours.




Nganhurra


Nganhurra Main Particulars

Ship Name	.....	NGANHURRA
Ship Type	.....	900,000bbls FPSO
Builder	.....	Samsung Heavy Ind., Co. Ltd.(Hull)
Owner	.....	Woodside Energy Ltd.
Operator	.....	Woodside Energy Ltd.
Designer	.....	Samsung Heavy Ind., Co. Ltd.(Hull) / AMEC+FLOW Danniell (Topside)
Classification	.....	LR
Length, (o.a.)	.....	937.7 ft. (285.8 m)

Ship Name	Otello
Ship Type	Pure Car/Truck Carrier
Ship Owner	Wallenius Marine AB
Ship Builder	Daewoo Shipbuilding



Designer DSME
 Delivery Date August 25, 2006
 Classification LR
 Length, (o.a.) 652.8 ft. (199 m)
 Length, (b.p.) : 625 ft. (190.5 m)
 Breadth, (molded) 105.8 ft. (32.26 m)
 Depth, (molded) 113.8 ft. (34.7 m)
 Draft, (designed) 31.2 ft. (9.5 m)
 Draft, (scantling) 37 ft. (11.3 m)
 DWT (at design draft) 13,200 mt
 DWT (at scantling draft) 22,650 mt
 Speed 20.6 knots
 Main engines B&W 7S60MC-C
 Total installed power 15,820 kW x 105 rpm
 Bow Thrusters 1,500 kW, one set
 Generators STX-MAN 8L 21/31 x 2 sets, shaft generator 1,000 kW x 1 set
 Radars X-band one(1) set, S-band one(1) set
 GMDSS Sea area A1, A2 and A3
 SatCom B and C
 Mooring equipment Electric type, 8 sets
 Fire extinguishing systems Low pressure CO2 system
 Fire detection system Addressable
 Lifeboats Freefall launching lifeboat one x 33P
 Liferafts Davit launching type, 4 sets x 18P




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Length, (b.p.) 816.9 ft. (249 m)
 Breadth, (molded) 150.9 ft. (46 m)
 Depth, (molded) 84.6 (25.8 m)

Draft, (designed) 59.7 ft. (18.2 m)
 Draft, (scantling) 60.7 ft. (18.5 m)
 DWT (at design draft) 142,000 mt
 DWT (at scantling draft) 146,000 mt
 Speed 12 knots
 Main engines MAN B&W 6S60MC
 Total installed power 16,680 bhp
 Generators B&W Holeby, 2 sets x 1,900kW
 Main engine controls : Nabtesco, M-800-III
 Coatings Tin free antifouling coating for external shell,

ICCP & Sacrificial anode
 Ballast control system Electric deepwell pump, 2sets x 1,800m³/h
 Radars Furuno, FAR-2827/2837S
 Echo Sounders Furuno, FE-700
 Auto Pilot Yokogawa, PT500A
 VDR Samsung, SVDR
 AIS Furuno, FA-100
 GPS Furuno, GP-90
 GMDSS Furuno /SP radio, SP3110

SatCom Nera, Saturn Bm II
 Mooring equipment External turret mooring system
 Crew 68
 Fire extinguishing systems Deck - Foam, E/R - Inergen
 Fire detection system Saracom, T890/T290
 Heat exchangers Donghwa Entec 2 sets x 4,911,000 kcal/h
 Motor starter ABB, MNS (Insum)
 Lifeboats Freefall type, 2 sets x 40p
 Liferafts Inflatable type, 8 sets x 20p + 2sets x 10p

Chikyu: Deep Drilling Vessel

Chikyu is a state-of-the-art scientific drilling vessel that is designed to drill to 7,000 m below the seabed at approximately 2,500 m water depth. Built at Mitsubishi Heavy Industries for more than \$500 million, Chikyu's first scheduled assignment will be in the Nankai Trough, a Pacific Ocean zone between two tectonic plates that have produced powerful earthquakes through Japan's history. When it begins service as scheduled in 2007, it could be the first vessel to drill to the earth's mantle, and is intended to play a major role in the Japanese effort to protect the country from the devastation associated with earthquakes. It is equipped with the Riser drilling system that has achieved success in oceanic oil drilling, and is designed to shield the vessel against eruptions of



methane gas and pressurized fluids, while allowing for the retrieval of valuable core samples. In addition, the vessel's Dynamic Positioning System (DPS) is designed to keep the vessel on position, counteracting the drift from wind, waves and sea current. The 210 m, 57,000 ton ship can efficiently remain on station using its GPS and six azimuth thrusters. There are four integrated research areas on the vessel that house multiple research facilities for physical, scientific, and biological analysis by using the sampled core (cylindrical sediment and/or rock sample) and the drilled hole.

The main objectives of D/V CHIKYU is to drill through the earth's crust and reach the mantle, where no one has ever explored before, to open the door for direct understanding the relationship between global-scale environmental change and mantle processes. The key is the ship's mammoth drill, which operators say is capable of boring nearly 4.5 miles into the ocean floor, far deeper than the 2,111-m hole achieved by the U.S.'s drilling vessel Joides Resolution.



Photo courtesy of Sandra Cannon



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Promitheas Main Particulars

Length, o.a.	820.2 ft. (250 m)
Length, b.p.	784 ft. (239 m)
Breadth, molded	137.8 ft. (42 m)
Depth, molded	74.5 ft. (22.7 m)
Design draft, molded	50.5 ft. (15.4 m)
Flag	Bahamas
Gross	66,910
Displacement	137,100
Lightweight	20,000
Deadweight, design	117,050
Deadweight, scantling	117,050
Speed, service (90 %MCR output)	15.1 knots
Cargo capacity	140,400 cu. m.
Heavy oil	3,650 cu. m.
Diesel oil	590 cu. m.
Water ballast	44,300 cu. m.
Daily fuel consumption (tons/day)	86.8
Classification society and notations	Bureau Veritas, I+HULL, +MACH, Oil Tanker ESP, Unrestricted Navigation, +VeriSTAR-HULL, +AUT-UMS, VCS, ICE Class IA
% high-tensile steel used in construction	41
Main engine	Hyundai-B&W 7S60MC-C
Output of each engine	22,610 BHP
Propeller	24.3 ft. (7.4 m)
Mooring equipment	Pusnes
Cargo pumps	3 x Shinko
Cargo control, Ballast Control system	Damcos
Complement	12 Officers; 18 Crew
Bridge control system	Kongsberg
Fire detection system	Consilium
Radars	3 x Furuno



Promitheas

The 116,000 DWT Ice classed P/C **Promitheas** built at Hyundai Heavy Industries Co., Ltd. (HHI) was delivered to Tsakos, Greece on August 7, 2006. The ship has one continuous freeboard deck from stem to stern with transverse bulkheads and three longitudinal bulkheads in way of the cargo space.

Promitheas is designed to carry three grades of cargo simultaneously, handled by three steam turbine cargo pumps, each delivering 3,000 cu. m./hr. and housed in a pump room at the forward of

engine room. The cargo and ballast valve's control systems are hydraulic medium pressure.

The cargo and ballast control systems of the ship are electro-hydraulically operated. Cargo control and monitoring covers ullage measurement, operation of pumps, inert gas systems with manual control also available. Radar beam type level gauges have been fitted to cargo tanks, with electro pneumatic type level gauges used in the ballast tanks.

The ship to have six cargo oil tanks, one pair of slop tanks and water ballast

tanks surrounding cargo oil tanks to be arranged. Double bottom and double hull construction to be arranged throughout cargo oil tanks with longitudinal framing.

The vessel is, among others, equipped with the highly advanced navigation system that supports integrated bridge operations of the ship such as route planning, maneuvering for collision and grounding avoidance and navigation monitoring.

The vessel measures 820.2 x 137.8 ft. (250 x 42 m) with a 74.5 ft. (22.7 m)

depth and a 50.5 ft. (15.4 m) design draft. The ship is powered by a Hyundai-B&W 7S60MC-C main engine with an MCR output of 22,610 bhp at 105 rpm, enabling it to sail at a service speed of 15.1 knots. Electric power is supplied by three Hyundai Himsen diesel generators with an output of 1,050 kw and one(1) 150 kw emergency generator.

The Ship is classed by Bureau Veritas, I+HULL, +MACH, Oil Tanker ESP, Unrestricted Navigation, +VeriSTAR-HULL, +AUT-UMS, VCS, ICE Class IA.

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Admiral's Legacy Outlives Itself

By Edward Lundquist

Few people in history have made the impact on naval affairs as Hyman G. Rickover. Rightfully known as the "father of the nuclear navy," he rose through the ranks to become a vice admiral and the director of nuclear propulsion long after his contemporaries retired and long after many of his superiors tried to get rid of him.

His legacy is a series of engineering marvels, successive classes of nuclear submarines, carriers and surface combatants, all able to operate for sustained periods of time at high speeds without the need to refuel. For a submarine to do this without having to come up for air is nothing short of revolutionary. When Commander Eugene P. Wilkinson, USN, ordered the lines hauled aboard USS Nautilus (SSN 571) and shifted colors on Jan. 17, 1955, he signaled, "Underway on nuclear power." Naval warfare was forever changed.

Five decades later, 213 total nuclear power warships have been commissioned. Currently there are 82 active nuclear powered warships, all of them the result of Rickover's vision and leadership. Whether it was the right way or the wrong way, Rickover did things his way. Irascible, brusque and annoying,

he was also brilliant and inscrutable. For some, Rickover was feared and despised. For them, his legacy will remain his arrogant, abusive, condescending behavior. But the only way to change a navy is with very strong will and very strong leadership, and Rickover supplied both.

President Richard Nixon, speaking at the 1973 promotion of Rickover to four-star admiral, remarked on the Navy's superb technological accomplishments. "Polaris, Poseidon, Trident. No one can ever speak of these breakthroughs without thinking of Admiral Rickover."

"I don't mean to suggest by that that he is a man who is without controversy," said Nixon. "He speaks his mind. Sometimes he has rivals who disagree with him; sometimes they are right, and he is the first to admit that sometimes he might be wrong. But the greatness of the American military service, and particularly the greatness of the Navy, is symbolized in this ceremony today, because this man, who is controversial, this man, who comes up with unorthodox ideas, did not become submerged by the bureaucracy, because once genius is submerged by bureaucracy, a nation is doomed to mediocrity."

"Human experience shows that peo-

A Sailor waits patiently to tend lines as USS Hyman G. Rickover (SSN 709). Rickover completed its final deployment that included port calls to Haakonsvorn, Norway, Faslane, Scotland, and Rota, Spain. (U.S. Navy Photo by Mass Communication Specialist Seaman Kelvin Edwards)



ple, not organizations or management systems, get things done," Rickover once wrote. Rickover lamented that officers or civilian managers were assigned to another job before the results of their work could become evident. Although many tried to marginalize or fire him, he stayed in his job many years, cultivating strong support on Capitol Hill, so he was able to see his programs develop to fruition, from land prototypes to successive classes of ships. He ran the naval reactors pro-

gram with what he called "courageous impatience." His hand was in everything. When he was in charge, he personally selected every officer that served in nuclear power, imposing a series of difficult and sometimes bizarre interviews, and directed the rigorous year-long training the officers received before they started their other training or arrived at their first ships. Rickover challenged them to be the best, and they furthered his insistence for total quality before the quality movement was popu-

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larized. He promised Congress that he would ensure the integrity of his program, and demanded personal integrity of everyone involved with it. While Rickover was demanding of his subordinates, he expected them to speak their mind. "One must create the ability in his staff to generate clear, forceful arguments for opposing viewpoints as well as for their own," he said. While today's nuclear propulsion systems have benefited from constant improvement, they are essentially the same propulsion systems that Adm. Rickover delivered decades ago. The result of his legacy stands out: the U.S. Navy's nuclear propulsion program to this day has never had a reactor accident. There have been submarine incidents, but not because of the nuclear propulsion plant.

Rickover overcame inertia and red tape to bring his Naval Reactors group together with the Special Project Group then developing the Polaris missile. The missile team had figured out how to launch a strategic missile from underwater, and needed a submarine designed and built to do it. The Navy hierarchy said it would be at least a five to seven year effort, maybe longer. Rickover made it happen in less than three.

Although past mandatory retirement age, he remained secure in his position because of his strong ties with influential lawmakers. But it wasn't until 1982 that Secretary of the Navy John Lehman made him retire at age 82. It was with modest reluctance, and perhaps still smarting from being ousted, that a retired Admiral Rickover attended the Aug. 27, 1983 christening and

launching of the Los Angeles-class submarine named for him (the lead ship of the class, USS Los Angeles (SSN 688) just turned 30). I was at the event which took place at the Electric Boat Shipyard in Groton, CT. He wasn't a man who sought honors. Few living men before him had naval ships named for them. But his wife, Eleonore, was the sponsor for the boat. It was she who broke the traditional bottle of champagne over the bow to send the boat into the water. So he had to be there. In her remarks at the launching, Eleonore Rickover acknowledged the families of the submariners. "They also serve those who only stand and wait," she said.

A year later, on July 21, 1984, the USS Hyman G. Rickover was commissioned at the Naval Submarine Base, just up the Thames River in Groton. Again I was there that day. It rained, I remember. But I also remember watching the way that Admiral Rickover looked at his wife in a very human and endearing way. He passed away in 1986. The submarine that served for 22 years to honor his legacy returned to port for the final time in October 2006. Eleonore Rickover was there to welcome the ship home. The USS Hyman G. Rickover will be deactivated in Dec. 2006. But Admiral Rickover's legacy will steam on.

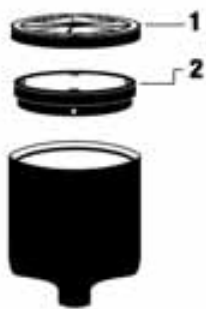
Captain Edward Lundquist, U.S. Navy (Ret.) is a senior science advisor with Alion Science and Technology in Washington, D.C. He supports the U.S. Navy's Surface Warfare Directorate.

This Day in Navy History

- December 2, 1775** - Congress orders first officers commissions printed.
 - 1965** - USS Enterprise (CVAN-65) and USS Bainbridge (DLGN-25) become first nuclear-powered task unit used in combat operations with launch of air strikes near Bien Hoa, Vietnam
 - December 3, 1775** - LT John Paul Jones raises the Grand Union flag on Alfred. First American flag raised over American naval vessel.
 - December 4, 1918** - 1944 - USS Flasher (SS-249) sinks Japanese destroyer Kishinami and damages a merchant ship in South China Sea. Flasher is only U.S. submarine to sink over 100,000 tons of enemy shipping in World War II.
 - December 5, 1843** - Launching of USS Michigan at Erie, Penn., America's first iron-hulled warship, as well as first pre-fabricated ship.
 - December 6, 1901** - First report of Ship Model Basin at Washington Navy Yard issued by Naval Constructor David W. Taylor who designed the basin. First facility of this type in U.S. to test hull shapes.
 - December 7, 1941** - Japanese carrier aircraft attack U.S. Pacific Fleet based in Pearl Harbor, Hawaii.
 - December 8, 1941** - USS Wake (PR-3), a river gunboat moored at Shanghai, is only U.S. vessel to surrender during World War II.
 - December 9, 1938** - Prototype shipboard radar, designed and built by the Naval Research Laboratory, is installed on USS New York (BB-34).
 - December 10, 1941** - Aircraft from USS Enterprise attack and sink Japanese Submarine I-70 north of Hawaiian Islands. A participant in the Pearl Harbor Attack, I-70 is the first Japanese combatant ship sunk during World War II. 1979 - First Poseidon submarine configured with Trident missiles, USS Francis Scott Key (SSBN-657) completes initial deterrent patrol.
 - December 11, 1954** - First supercarrier of 59,630 tons, USS Forrestal (CVA-59), launched at Newport News, Va.
 - December 13, 1775** - Continental Congress provides for the construction of 5 ships of 32 guns, 5 ships of 28 guns, and 3 ships of 24 guns
 - December 16, 1907** - Great White Fleet departs Hampton Roads, VA to circumnavigate the world.
 - December 18, 1965** - River Patrol Force established in Vietnam.
 - December 20, 1822** - Congress authorizes the 14-ship West Indies Squadron to suppress piracy in the Caribbean.
 - December 22, 1841** - Commissioning of USS Mississippi, first U.S. ocean-going side-wheel steam warship, at Philadelphia.
 - December 27, 1777** - Floating mines intended for use against British Fleet found in Delaware River.
 - December 28, 1905** - Drydock Dewey left Solomon's Island, MD, enroute through the Suez Canal to the Philippines to serve as repair base. This, the longest towing job ever accomplished, was completed by Brutus, Caesar, and Glacier.
 - December 30, 1959** - Commissioning of first fleet ballistic missile submarine, USS George Washington (SSB(N)-598), at Groton, Conn.
 - December 31, 1862** - USS Monitor founders in a storm off Cape Hatteras, NC.
 - 1942** - Commissioning of USS Essex (CV-9), first of new class of aircraft carriers, at Norfolk, VA
- (Source: www.history.navy.mil)

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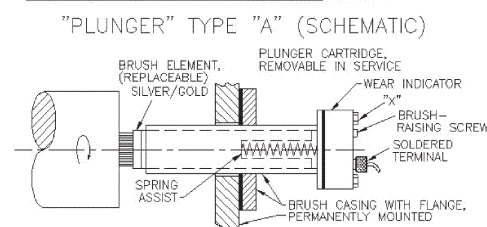
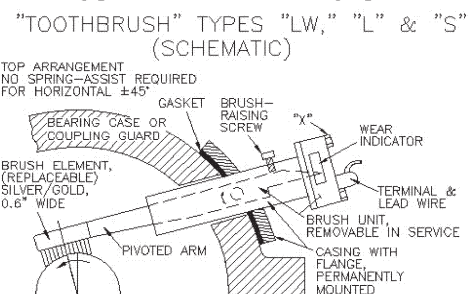
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support, recently opening a new plant in Morgan City, La., to better service North and South American, Canada, and Europe. Ayres Composite Panels offers a range of panel systems for most all fast vessel applications with a complimentary assortment of anodized aluminum extrusions for an easy installation process. The AYRLITE Panel System combines leading edge lightweight

panel technology with a very high fire resistance that has positioned the company as a leader for interior bulkhead systems and casework for the marine industry worldwide. The company's key products are Type Approved to the International Maritime Organization (IMO) SOLAS "C" Class, MED "Wheelmark" Type Examined and United States Coast Guard (USCG).

Ayres has been involved in Commercial Ferry Projects worldwide as well as projects with some of the worlds leading Navies with the development of new fast deployment and response vessels and Patrol Vessels. All of these projects are weight and fire critical in nature, all of which requires a high quality product for the interior outfitting.

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Tank Cleaning Video

Gamajet Cleaning Systems released a new video highlighting a better way to clean all sizes and types of tanks, vessels and totes. Presented in detail is the technology of impingement cleaning and its application in various industrial applications, along with Gamajet's complete line of cleaning machines and systems. Highlighting Gamajet's customer-driven response to industry cleaning needs each product is featured in operation, and comprehensive operational and technical data is included.

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Level Measuring for Shipping on the Rhine

The BIBO Regio is a bilge de-oiling boat on the Rhine, which collects this bilge water in a buffer tank. The OPTIFLEX TDR meter from KROHNE is used to monitor the level. The buffer tank is 2.8 m high and can contain 18 cu. m. of bilge water. As the Rhine Navigation Administration Basel was happy with the KROHNE level meters used up to now, they exchanged an older model for the current generation of OPTIFLEX type meters.

For more information, e-mail
TZimmerling@krohne.de



IPDSteel Pistons

IPD announced the latest addition to

its line of IPDSteel Cast Steel Articulated (two-piece) pistons with the Caterpillar 3406E engine series application. IPD offers a variety of cylinder kits, engine overhaul kits as well as many additional items such as bearings, valve train products, water pump repair kits and gasket sets for these engines. Other previously released IPDSteel pistons include the 3116 & 3126 engine applications.

For more information, e-mail
partsmaster@ipdparts.com

Level Measurement in Fuel Barges

MTS Systems Corp., Sensors Division's M-Series magnetostrictive level sensors are designed to provide precise measurements of hazardous materials being carried by fuel barges as required by the European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN). Using only one probe for temperature, material and water levels, the M-Series provides an additional safety barrier by monitoring both the level and temperature of the hazardous substance, allowing the barges to safely ship high volumes of petroleum, kerosene, diesel, oil, LPG and other hazardous chemicals. With a non-linearity of 0.035% and a repeatability of 0.01%, the M-Series Level Sensors are maintenance-free with no recalibration needed and are available in digital and analog formats. The M-Series Analog sensor has a gauge order length of 500mm to 12,000mm and an output of 4-20mA with HART-Protocol. The M-Series Digital sensor has a gauge order length of 508mm to 18,300mm and is network-compatible. Both the M-Series digital and analog versions have TEX safety approvals for zones 0 and 1.

For more information, e-mail
Adrian.toffen@mts.com

AXSMarine Upgrades AXSDry

AXSMarine announced the release of an upgraded version of its AXSDry suite, which has been made fully compatible with the latest version of Microsoft Windows Internet Explorer 7.0. It also features a new and improved Port Database, which contains information on approximately 9,000 ports; for the 400 to 500 most



frequented ports, details include berth descriptions/restrictions, DA information, and more. The upgrades bring improved functionality, new data presentation (such as DA information and daily bunker prices), and a fresh new look and feel.

For more information, e-mail
support@axsmarine.com

New Naval Connector

AB Connectors is launching a new naval connector featuring shells made from marine bronze to improve corrosion resistance and strength. The MK35 high-density screw coupling connector will replace the MK18 connector. The MK35 connector has been developed from the American Mil - C - 38999 Series III specification and is interchangeable with the standard connector.

For more information, e-mail
abi@geometrypr.co.uk



Walker CCE Airsep

Walker Engineering's New CCE AIRSEP system is a closed crankcase systems for marine diesel engines. Recently adopted as standard equipment for the new Cummins QSB and QSC marine engine series, the system offers a high-efficiency, replaceable coalescing filter, an integrated turbo silencer, and a washable air filter, making the "3-in-1" compact package.

For more information visit
www.walkerairsep.com



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Pape Retires from MAN Diesel SE

Fritz Pape (65), Deputy Chairman of the Board of MAN Diesel SE, retired on October 31, 2006. Pape has been part of the company since 1966, having spent 13 years as a Member of the Board. His successor, Dr. Georg Pachta-Reyhofen (51) has been in charge of the company since July 1, 2006 in his role as Chairman of the Board. He is also a Director of MAN AG, Munich.



Following graduation as an engineer in 1966, Pape began his career as a production engineer at MAN. From 1973 onwards, Pape was responsible for the entire mechanical processing of diesel engines. He then took over as head of engine building and rose in 1988 to become head of the entire production department. In 1993, Pape was appointed to the Board of MAN Diesel and remained there until his retirement, latterly as Deputy Chairman of the Board. He was simultaneously Member of the Management Board of MAN AG, Munich.

Northrop Grumman Promotes Granata

Northrop Grumman Corporation's Newport News sector has promoted Bob Granata to program director for the refu-

eling and complex overhaul of the nuclear-powered aircraft carrier USS Theodore Roosevelt (CVN 71). Granata is responsible for overseeing the cost, schedule, planning and work performance for the ship's one and only refueling in its 50-year life span. Planning for the project will take place over the next three years, with the carrier scheduled to arrive at the shipyard in 2009. Granata earned a bachelor's degree in sociology from the University of the State of New York and a master's degree in management from the State University of New York (SUNY) Maritime College. He is pursuing a doctorate in engineering management and is a member of the Project Management Institute. Granata lives in Chesapeake, Va.

Aker Yards, Cruise & Ferries Appointments

Aker Yards announced several executive sales and marketing appointments for its Cruise & Ferry business in the wake of its acquisition of the French yards in Saint Nazaire and Lorient earlier this year.

Juha Heikinheimo is in charge of Sales and Marketing in the Cruise & Ferries Business Area, and he reports to Yrjö Julin, President.

Carl-Gustaf Rotkirch is in charge of the sales function in Finland and Arnaud Le Joncour in France. Both are also appointed as members of the local management teams. They report to Heikinheimo. So do the other sales man-

New Master of Marine Engineering (MMarE) Degree

The United States Merchant Marine Academy has launched its Master of Marine Engineering (MMarE) degree program. Establishment of the MMarE degree program is in recognition that higher education is vital to keeping marine engineers ready to face critical challenges and that advanced education is an important factor in ensuring the competitiveness of their employers. The program offers a unique opportunity for practicing marine engineering professionals to advance their technical education and careers while continuing in their current capacities. The MMarE course focuses on the application of advanced technical concepts and skills. It addresses the real-world problems and challenges facing designers, builders and operators of vessels and marine structures, and those involved in the design and manufacture of ship-board components. Subject experts teach a 36-credit combination of core and elective courses in which the concepts and designs available to the world market are discussed and analyzed. Through the use of a combination of synchronous and asynchronous distance-learning technologies, the program is accessible to all students with access to an appropriate home or office computer. Applications for the program are now being accepted for the academic year that will begin September 2007. Applications are accepted on a rolling admissions basis. Additional information is available at the United States Merchant Marine Academy's web site www.usmma.edu/gradcourse.

agers, Didier Bourdin, Håkan Enlund, Jean-Yves Fustier, Paavo Lohi, Kari Pulli, François Sieur, Johan Snellman and Hannu Tuomela.

Eero Mäkinen is in charge of Marketing, reporting to Heikinheimo.

Kai Levander, reporting to Mr Heikinheimo, is in charge of Naval Architecture. Carole Pavaut has been appointed as Manager of Naval Architecture in Saint Nazaire, Tuomas Routa in Turku and Jukka Vasama in Rauma respectively. They report to Levander. Alain Buck is in charge of Tender Costing, and he reports to Heikinheimo. Buck also heads Tender Costing in France, while Ilkka Jussila heads the Tender Costing in Finland. He reports to Buck. Vesa Marttinen is in

charge of Lifecycle Services (LCS), which has resources in Finland, France and the United States. Heikki Sipilä is appointed to be in charge of LCS Projects & Services. He reports to Marttinen. The area sales responsible, also reporting to Mr Marttinen, are Messrs Jarmo Seppälä / the Americas, Mr Francois Lally / the Mediterranean and Mr Dan Westerlund / North Europe and Asia. All five mentioned above are members of the LCS management team.

The Sales & Marketing management team of Aker Yards, Cruise & Ferries consists of Juha Heikinheimo, Alain Buck, Arnaud Le Joncour, Kai Levander, Vesa Marttinen, Eero Mäkinen and Carl-Gustaf Rotkirch.

Wärtsilä-Run Research Receives EU grant

The European Union has chosen a research consortium coordinated by Wärtsilä to receive a EUR 1 million grant to develop the use of methanol-consuming fuel cells to provide electrical power to marine vessels. The project is entitled "Validation of a Renewable Methanol Based Auxiliary Power System for commercial Vessels" (METHAPU).

The main purpose of the project is to develop and validate renewable-fuel-based technology on board a cargo vessel involved in international trade. Wärtsilä's task in the project is to study the suitability of a methanol-based fuel cell system on board the cargo vessel. A further important aim of the project is to lay the technical groundwork to support the introduction of the regulations necessary to allowing the use of methanol as a marine fuel. The specific components of the technology to be validated are methanol fuel bunkering, distribution, storage system and a solid oxide

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fuel cell system that consumes methanol. The consortium's research will deal with the SOFC unit of 250 kW-class and the focus is on marine application issues, as well as the unit's safety and reliability aspects. For marine validation purposes a smaller 20 kW unit will be installed on board a Wallenius Marine carcarrier. The 20 kW unit will be factory-tested, laboratory-tested and approved before installation. "The construction and operation of this research unit running on renewable methanol will open up attractive opportunities for using sustainable fuels for fuel-cell-based distributed generation and auxiliary power units in large ships. In particular, this is an interesting option for reducing ship emissions when harboring," said Ercco Fontell, General Manager, Fuel Cells, at Wärtsilä.

The consortium consists of world-class organizations including Wärtsilä Corporation, Lloyd's Register, Wallenius Marine, the University of Genoa and Det Norske Veritas AS.

Hapag-Lloyd Signs Deal with GL

Hapag-Lloyd and Germanischer Lloyd signed a framework agreement which covers the classification of and statutory attendance to the units sailing under GL class.



Dr. Hermann J. Klein (left), Member of the Executive Board Germanischer Lloyd, and Adolf Adrion, Member of the Executive Board Hapag-Lloyd.

This move places the partnership between GL and Hapag-Lloyd on a new and innovative footing. The agreement will automatically include all Hapag-Lloyd newbuildings classed by Germanischer Lloyd, resulting in a considerable reduction in administrative procedures. Over 40 percent of the worldwide container ship fleet is sailing under GL class.

New Shipboard Warning System

Northrop Grumman won a contract from the U.S. Coast Guard Research and Development Center and its sponsor, the Office of Naval Research, to develop an electro-optic based system — the Detection and Unambiguous Warning System (DUWS) — intended to warn surface vessels and aircraft in violation of ship protection zones of U.S. Navy and Coast Guard vessels at anchor or in port.

\$24.6m Deal for CVN 79

Northrop Grumman received a \$24.6m planning and design contract for CVN 79, the second aircraft carrier of the CVN 78 Class. The Newport News sector will perform the work, which includes planning, feasibility studies, system development, engineering services and other design efforts.

Marlink Extends Reach

Marlink will provide a combination of global maritime satellite communications to Valles Steamship Ltd. to meet the company's business requirements and support its crew morale and welfare program. Marlink provides both Inmarsat and Iridium satellite communications along with e-mail and traffic

accounting services to the Valles' fleet consisting of seven tanker and three bulk carrier vessels. Valles also has three new build Aframax tankers on order. Valles is equipping all of its vessels with Inmarsat Fleet F77 terminals using Marlink airtime and value added services to meet the ever-growing requirement for at-sea data communications.

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This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR assumes no responsibility for errors. If you are interested in having your company listed in this Buyer's Directory Section, contact Mark O'Malley at momalley@marinelink.com

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BOATBUILDER

Gladding Hearn, 1 Riverside Ave., Somerset, MA 02725
Willard Marine Inc., 1250 N. Grove St., Anaheim, CA 92806

BOLLARDS

Anchor Marine & Industrial Supply, PO BOX 58645, Houston, TX 77258

BULKHEAD SEALS/PANELS

CSD North America, 880 Candia Rd., Unit 10, Manchester, NH 03109

CAD/CAM SYSTEMS

Autoshop Systems Corp., 611 Alexander Street, Suite 312, Vancouver, BC V6A 1E1, Canada, 604-254-4171, 604-254-5171, sales@autoshop.com, Contact: Ross Muirhead, www.autoshop.com
Creative Systems Inc., P.O. Box 1910, Port Townsend, WA 98368

CAPSTANS

Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, 228-832-7655, 228-832-7675, sales@coastalmarineequipment.com, Contact: Ralph Waguespack, www.coastalmarineequipment.com

CARGO MANAGEMENT

Autoshop Systems Corp., 611 Alexander Street, Suite 312, Vancouver, BC V6A 1E1, Canada, 604-254-4171, 604-254-5171, sales@autoshop.com, Contact: Ross Muirhead, www.autoshop.com

CFD SOFTWARE

CD-Adapco, 9401 General Dr., Ste 131, Plymouth, MI 48170

COATINGS/ CORROSION CONTROL/ PAINT

International Paint Co., Stonegate Lane, Felling, Gateshead, Tyne and Wear NE10 0JY, UK

NAPASCO, INC., 213 Main Project Road, Shriever, LA 70395, 985-449-0730, 985-449-0740, napasco@napasco.com, Contact: Pam Bartell, www.napasco.com

Sea Coat Technology, 11215 H Jones Road West, Houston, TX 77065

COMMUNICATIONS

David Clark, PO Box 15054, Worcester, MA 01615
L-3 Communications, 6000 Fruitville Road, Sarasota, FL 34232

COMPUTER/ COMPUTER SOFTWARE

Omega Engineering, One Omega Dr., Stamford, CT 06907

CONTROL SYSTEM-MONITORING/STEERING

Kobelt Manufacturing Co., Ltd., 8238-129 Street, Surrey, BC V3W0A6, Canada

L-3/TANO-EDI, 759 Hill Street, New Orleans, LA 70121, 504-831-9800, 504-833-4119, guy.hardwick@l-3com.com

Omega Engineering, One Omega Dr., Stamford, CT 06907

COUPLINGS

American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884, 863 324 2424, 863 324 4008, vulkanusa@vulkanusa.com, www.vulkanusa.com
Mapeco Products, 91 Willenbrock Rd., Unit B, Oxford, CT 06478

CRANE - HOIST - DERRICK - WHIRLEYS

DMW Marine, LLC, 1123 St. Matthews Road, Chester Springs, PA 19425, 610-827-2032, 610-827-1199, dw@dmwmarine.com, Contact: Douglas M. Weidner, www.dmwmarine.com/

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Imes, Inc., 5139 Brook St., Suite E, Mont Claire, CA 917063

DECK MACHINERY- CARGO HANDLING EQUIPMENT

Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, 228-832-7655, 228-832-7675, sales@coastalmarineequipment.com, Contact: Ralph Waguespack, www.coastalmarineequipment.com

DMW Marine, LLC, 1123 St. Matthews Road, Chester Springs, PA 19425, 610-827-2032, 610-827-1199, dw@dmwmarine.com, Contact: Douglas M. Weidner, www.dmwmarine.com/

Hyde Marine Inc, 28045 Ranney Parkway G, Cleveland, OH 44145-1144

Nabrico Marine Products, 1050 Trinity Road, Ashland City, TN 37016

Norwegian Maritime Equipment AS, BOX 244, NO-5480 HUSNES, Norway

DIESEL ENGINE OVERHAUL

Fincantieri Marine Systems, 800 Principal Court, Suite C, Chesapeake, VA 23320

DIESEL ENGINE- SPARE PARTS & REPAIR

Mariso USA, Inc., 12783 Capricorn Dr., Stafford, TX 77477

DIESEL FUEL INJECTORS

Interstate Diesel, 4901 Lakeside Avenue, Cleveland, OH 44114-3996, 800-321-4234, 216-881-0805

DOOR LOCKS

The Brass Works Inc., P.O. BOX 566, DeLand, FL 32721, 386-943-8857, 386-943-8810, info@marinedoorandcabinhardware.com

DOORS- MARINE & INDUSTRIAL

Diamond/Sea Glaze, 19372-94th Ave, Surrey, BC V4N 4E4, Canada

USA Sliding Doors, Inc., 650 Trabold Rd., Rochester, NY 14624, 585-429-4600, 585-429-4606, info@usaslidingdoors.com, Contact: Mr. Robert Weiland, www.usaslidingdoors.com

EDUCATION

Massachusetts Maritime Academy, 101 Academy Drive, Buzzards Bay, MA 02532

EMPLOYMENT

Military Sealift Command, PO BOX 120, CODE APM-124, VIRGINIA BEACH, VA 23458-0120, 1-888-SEALIFT, webmaster@msc.navy.mil, Contact: Audra Lamb, www.msc.navy.mil/

ENGINES

Fairbanks Morse, 701 White Avenue, Beloit, WI 53111
Fincantieri Marine Systems, 800 Principal Court, Suite C, Chesapeake, VA 23320
Markisches Werk Halver GmbH, Box 1355, Halver D-58543, Germany

ENVIRONMENTAL SOLUTIONS

Hyde Marine, 28045 Ranney Parkway G, Cleveland, OH 44145-1144

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Anchor Marine & Industrial Supply, PO BOX 58645, Houston, TX 77258

FIRE & SAFETY PRODUCTS

Western Fire & Safety, 2446 NW Market Street, Seattle, WA 98107

GALLEY EQUIPMENT

Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431

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Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, 228-832-7655, 228-832-7675, sales@coastalmarineequipment.com, Contact: Ralph Waguespack, www.coastalmarineequipment.com

HVAC

Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431

INSULATION

Superior Energies, 3115 Main Ave., Groves, TX 77619
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INTERIOR MATERIALS

Thermax - Fipro, 3115 Range Rd., Temple, TX 76504, 8132642656, 8132642507, sales@thermaxmarine.com, Contact: John Hutchison, www.thermaxmarine.com

INTERIORS

Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431

JOINER, WALL SYSTEMS, CEILING SYSTEMS, DOORS

Thermax - Fipro NA, 3115 Range Rd., Temple, TX 76504, 8132642656, 8132642507, sales@thermaxmarine.com, Contact: John Hutchison, www.thermaxmarine.com

JOYSTICKS & POTENTIOMETERS

Feteris Components USA, 4703 Murat Place, San Diego, CA 92117

LIFEBOAT TESTING

Imes, Inc., 5139 Brook St., Suite E, Mont Claire, CA 917063

LIFEBOATS/RAFTS

Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169

LIFESAVING EQUIPMENT

C.M. Hammar AB, August Barks Gatan 15, 421 32 Vastra Frolunda, Sweden

Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169

LOAD CELLS

Omegadyne Inc, 149 Seltzer Ct, Sunbury, OH 43074, 740 965 9340, 740965 9438, info@omegadyne.com, Contact: Alfred Friere, www.omegadyne.com

MARINE ENGINEERING

Delta Marin, Kurokatu 1, Raisio FIN-2100, Finland

MARINE EQUIPMENT

Waterman Supply, P.O. Box 596, Wilmington, CA 90748

MARINE HAZARD RESPONSE

Marine Respose Alliance LLC, 1102 SW Massachusetts St., Seattle, WA 98134-1030

MARINE PRESSURE TRANSDUCERS

Omegadyne Inc, 149 Seltzer Ct, Sunbury, OH 43074, 740 965 9340, 740965 9438, info@omegadyne.com, Contact: Alfred Friere, www.omegadyne.com

MARINE TRANSPORTATION

SEACOR Marine, Inc., 5005 Railroad Ave., Morgan City, LA 70380

MARITIME TRAINING & SCHOOLS

Marine Safety International, Marine Terminal, Laguardia Airport, NY 11371

MONITORING SYSTEMS

Bulldog Technologies Inc., 11120 Horseshoe Way - Suite 301, Richmond, BC V7A 5H7, Canada
Micad Marine, 5731 McFadden Ave, Unit B, Huntington Beach, CA 92649

MOTOR PROTECTION

Marine Safe Electronics, 261 Milway Ave. #12, Concord, Ontario L4K 4K9, Canada

NAVAL ARCHITECTS, MARINE ENGINEERS

Bristol Harbor Group, Inc., 103 Poppasquash Rd., Bristol, RI 02809, 401-253-4318, 401-253-2329, design@bristolharbargroup.com, Contact: Greg Beers, P.E. - President, www.bristolharbargroup.com

CDI Marine Co., 9550 Regency Square Blvd, Ste 400, Jacksonville, FL 32222
Delta Marin, Kurokatu 1, Raisio FIN-2100, Finland

Jamestown Marine Services, Inc., 1084 Shennecossett Road, Groton, CT 06340

JMS Naval Architects & Salvage Engineers, 1084 Shennecossett Rd., Groton, CT 06340, 860-448-4850, 860-448-4857, jms@jmsnet.com, Contact: Blake Powell, VP, www.jmsnet.com

R.J. Mellusi & Co., 71 Hudson St., New York, NY 10013

Schrider & Associates, Inc., P.O. Box 2546, Daphne, AL 36526, 251-621-1813, 251-626-1814, mikes@schrider.com, Contact: Michael Schrider

Harvey Gulf Marine, 3817 Spencer St, Harvey, LA 70058

SEACOR Marine, Inc., 5005 Railroad Ave., Morgan City, LA 70380

Oil Spill Response

Marine Response Alliance, 1102 SW Massachusetts St, Seattle, WA 98314-1030

Paints and Anti Foullants

International Paint Co., Stonegate Lane, Felling, Gateshead, Tyne and Wear NE10 0JY, UK

Sea Coat Technology, 11215 H Jones Road West, Houston, TX 77065

Pipe Fittings/Cuttings/Connecting/Systems

W & O Supply, 3485 Evergreen Ave., Jacksonville, FL 32208

Pipe Leak Repair

CSD North America, 880 Candia Rd., Unit 10, Manchester, NH 03109

Portable Ventilators

Americ Corp, 785 Bonnie Lane, Elk Grove Village, IL 60007

Preventative Maintenance

Marine Safe Electronics, 261 Milway Ave. #12, Concord, Ontario L4K 4K9, Canada

Professional Society

SNAME, 601 Pavonia Ave, Jersey City, NJ 07306

Propulsion Equipment

Fincantieri, Diesel Engine Div., GMT, Bagnoli della, Rosandra 3334 Trieste, Italy

Hamilton Jet, 20 Lunnis Road, Po Box 709, Christchurch 8004, New Zealand

Markisches Werk Halver GmbH, Box 1355, Halver D-58543, Germany

Radiation Detection

Nucsafe, 765 Emory Valley Road, Oak Ridge, TN

Remotely Operated Vehicles

VideoRay LLC, 580 Wall St, Phoenixville, PA 19460, 610-458-300, 610-524-9846, info@videoray.com, Contact: Chris Gibson, www.videoray.com/

Rope-Manila-Nylon-Hawsers-Fibers

Atlantic Cordage, PO BOX 30, Avenal, NJ 07001-0030

Rotating Equipment

Seaworthy, 22 Main Street, Centerbrook, CT 06409

Safety Products

Western Fire & Safety, 2446 NW Market Street, Seattle, WA 98107

Sanitation Device- Pollution Control

EVAC North America Inc., 1260 Turret Dr., Rockford, IL 61115

Satellite Communications

Seawave, 76 Hammarlund Way (Tech 3), Middletown, RI 02842

Seating

H.O. Bostrom, 818 Progress Ave., Waukesha, WI 53186, 262.542.0222, 262.542.3784, johnbostrom@hobostrom.com, Contact: John Bostrom, www.hobostrom.com

Security

Bulldog Technologies Inc., 11120 Horseshoe Way - Suite 301, Richmond, BC V7A 5H7, Canada

Shafts

American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884

Ship Design

AVEVA, Inc, 10370 Richmond Ave, Houston, TX 77042

SNAME, 601 Pavonia Ave, Jersey City, NJ 07306

Ship Repair

R&R Marine Fabrication & Drydock, 7200 HWY 87 EAST, Port Arthur, TX 77642

United Marine Services, Po BOX 22077, Beaumont, TX 77720, 4098330744, 4095473815, Lrichardson@ATT.net

Shipbuilding-Repairs, Maintenance, Drydocking

Cotecmar, KM 9 VIA A MAMONAL ZONA INDUSTRIAL, CARTAGENA, BOLIVAR 6911, Colombia

United Marine Services, Po BOX 22077, Beaumont, TX 77720, 4098330744, 4095473815, Lrichardson@ATT.net

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This is a naval architect/marine engineer position encompassing a wide range of naval architecture and marine engineering skills. This is a hands-on position, requiring job site engineering support at the Foss Seattle and Rainier yards and at 3rd party sites. This position will primarily support shipyard production, sales and estimating, as well as Foss fleet maintenance, repair, conversion, and new construction projects. This position requires strong communication skills with Foss clients and internal divisions. This position also requires a strong understanding of marine classification society rules and regulatory requirements and the ability to generate calculations, reports, and drawings using traditional methods and modern computer software.

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- Provide professional engineering analysis, and other technical & operational consultation and assistance to Foss Shipyards' management and production "teams", commercial customers, & other divisions of Foss Maritime Company.
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- Implement a formal project management approach to managing specific jobs, as directed by the Director, Engineering.
- Assist Shipyards management with "special projects". Assume the duties and responsibilities of Shipyards Quality Assurance Supervisor. Provide technical support for development of both preliminary and detailed cost estimates for commercial shipyard activity and Foss Maritime Company projects, as required.

SKILLS AND ABILITIES:

- Provide workable & cost effective solutions to various engineering, production, and project management issues, including calculations, drawings, and sketches utilizing CAD.
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- Perform trim and stability calculations and reports for marine vessels and floating equipment using USCG regulations, ABS, DNV, IMO, and SOLAS;

- Generate design and modification drawings using AutoCAD to support design, modifications, design studies, and contract drawings;

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- ABS, DNV, USN, & USCG regulatory requirements as necessary for the design, construction, repair, and modification of small to medium sized commercial and military vessels.
- Ship repair and fabrication methods, shop practices, industry standards, cost estimating, customer requirements and general business practices. General knowledge of a wide range of commercial vessels, with specific emphasis on small to medium vessels including towing vessels, barges, work boats, passenger vessels, and floating equipment;
- Marine operations in general, including knowledge of tug and barge operations as

required to allow intelligent and constructive interface with all aspects of marine operations and commercial customers.

JOB CONDITIONS:

- Job is performed primarily in an office environment with frequent on-site visits to shipyard facilities, dry-docks and vessels.
- Must be able to access all areas of shipyard and company property including Administration building and Terminal, during all types of weather. Must use shipyard safety equipment, such as a hard hat and safety glasses.
- Work involves daily interactions with shipyard administrations, crafts, commercial customers and Foss Management and Executives.
- Physical requirements include ability to sit for extended periods of time, light lifting, and ascending/descending stairs. Also, need to be able to move about aboard vessels, including traveling up and down ladders and crawling tanks.
- Extended travel is not generally involved; however, regular short term travel is required to visit clients, for vessel surveys and shipchecks and to visit Foss's Rainier, Oregon Shipyard. Some international travel may occasionally be required.
- Work beyond an 8 hours day/5 day work-

week is required as necessary. Occasional overnight travel and on-call status is required.

EDUCATION:

- B.S or M.S in Naval Architecture and/or Marine Engineering required. Washington or other EIT required. Washington Professional Engineers License in NA/ME preferred.

If you would like more information on this position or if you would like to apply for this position, contact Lisa Sulock, Foss Maritime Company, 660 West Ewing Street, Seattle, WA 98119, Fax: 206-270-4899, fossjobs@foss.com.

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Lisa Sulock
Foss Maritime Company
660 W Ewing Street
Seattle WA 98119 USA
Phone: 2062814713
Fax: 2062704899
Email: fossjobs@foss.com
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Marine Engineer - Total Lubricants USA, Inc

A subsidiary of TOTAL, S.A., one of the largest oil companies in the world, TOTAL Lubricants USA, Inc. has manufacturing and office facilities in New Jersey, North Carolina, and Tennessee.

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Human Resources
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Linden, New Jersey 07036

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International Maritime Company

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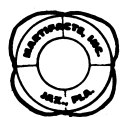
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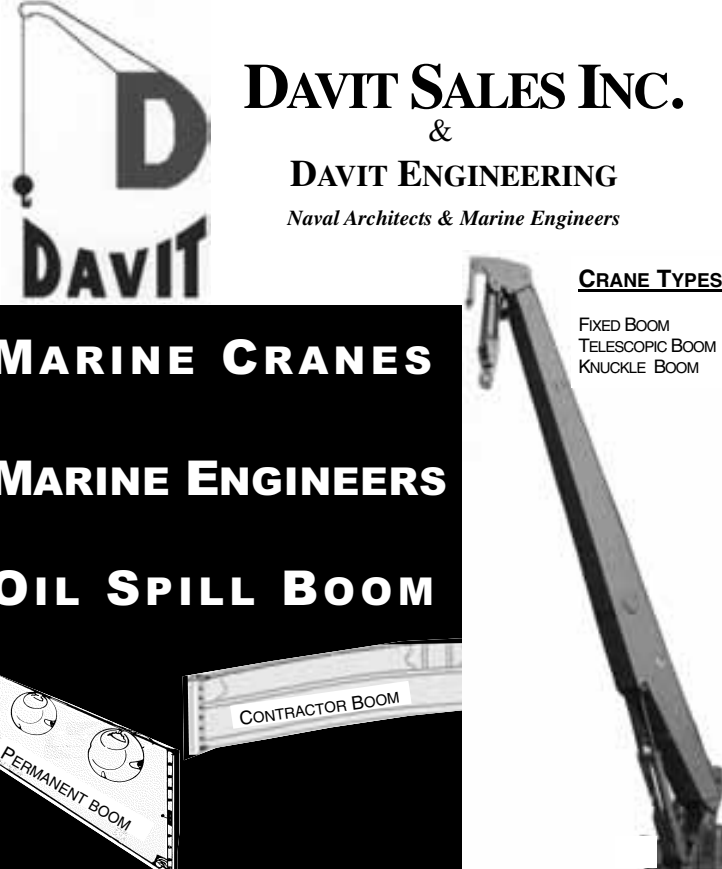
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