

April 2005

MARITIME REPORTER AND ENGINEERING NEWS

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Offshore Technology Annual

Floating LNG Units

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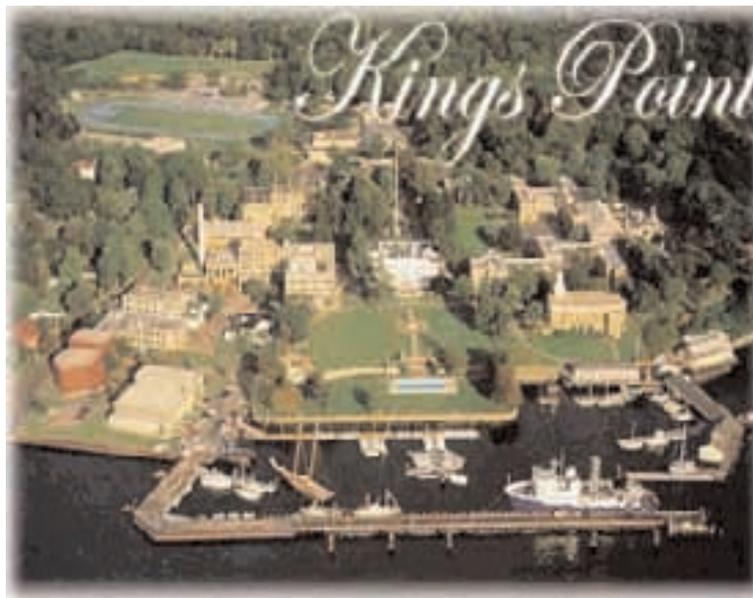
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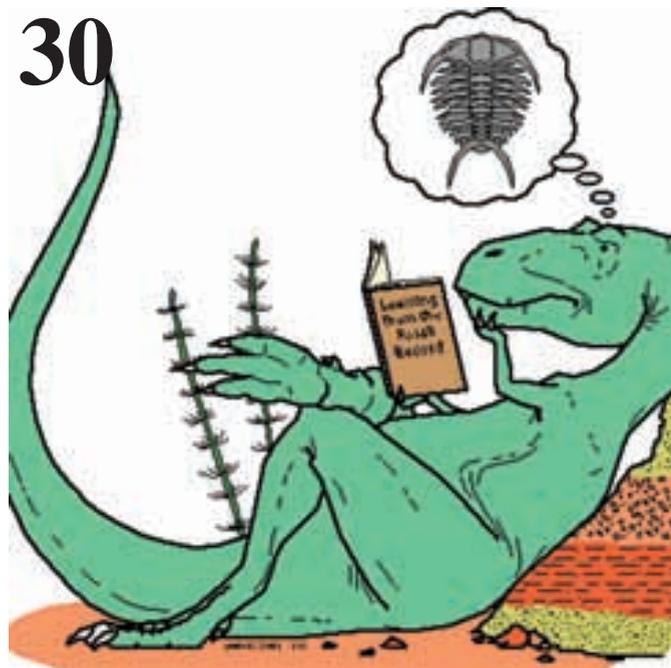
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NEW YORK

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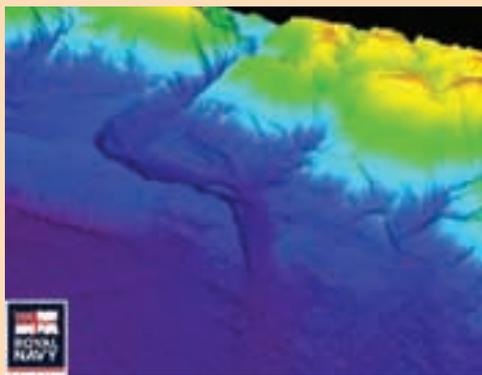
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Leading Off

First Seafloor Maps of Tsunami Earthquake Zone

A powerful, high-precision multibeam echosounder system, jointly developed by the U.S. Navy and SeaBeam Instruments, Inc. over a decade ago, provided the world with its first images of the ocean floor near the epicenter of the Asian tsunami. The SASS IV system installed aboard the UK Navy's oceanographic survey vessel, HMS Scott, is a low-frequency, high resolution sonar system that collects and processes seafloor depth data, over a wide swath, in near real-time. Following the 9.0 magnitude quake that occurred on December 26, 2004 the Scott deployed to the area and quickly collected a significant amount of bathymetric data. The data was then used to create 3-D images that scientists are still evaluating to further their understanding of the earthquake and assist in the prediction of such events in the future. The SASS seafloor images, recently released by the UK



Ministry of Defense (MOD), show enormous "scars" more than 6 miles wide and newly formed ridges up to 1,500 meters (4,950 feet) high that were thrust up when the India tectonic plate collided with and pushed underneath the Burma plate. The SASS IV is a unique ocean mapping system used by both the U.S. and U.K. Navies to survey deep-ocean areas around the globe. SeaBeam Instruments, Inc. was contracted by the Navy to design and deliver major components of the SASS systems in the 1980's and 1990's. In 1999, SeaBeam Instruments, Inc. was acquired by L-3 Communications and is currently a product division of L-3 Communications Klein Associates of Salem, NH. The company continues to spearhead the evolution of multibeam technology and has recently introduced its latest generation commercial multibeam system, the SEA BEAM 3000, which allows users the same ability to create accurate high resolution maps of the seafloor at all depths and in near real-time.

Maritime Meanings

Crackerjack A sea dish consisting of preserved meat or soup, mixed with broken ship's biscuit and other ingredients; other dishes well-known to the seafarer were "burgoo" (boiled oatmeal porridge seasoned with salt, sugar, and butter, and said to derive from the Vikings); "dandyfunk" (broken ship's biscuit and molasses); "lobscouse" (a stew consisting of salt meat, potatoes, broken ship's biscuit, onions, and available spices); and "sea pie" (a favorite, consisting of meat and vegetables layered between crusts of pastry). The generic word for these odds and ends of food leftovers was manavins, of unknown origin and variously spelled. From its earliest nautical meaning of tidbits of food, it came to mean small matters, extra fresh food belonging to whale-fishers, any small object, and the odd change remaining at the end of the day in the railway booking office (recorded 1887). The word is used in its earliest sense by Rolf Boldrewood in his Australian classic Robber Under Arms (1888). The colloquial meaning has changed considerably. Crackerjack (sometimes written "crackajack") now refers to a person of marked ability, or something exceptionally fine, or to some event of note.

Source: *An Ocean of Words: A Dictionary of Nautical Words and Phrases*, by Peter D. Jeans; Birch Lane Press, 1999

Taking One for the Team



On sea trials in Chesapeake Bay, 1964.

The Navy plans to send one of its own - the retired aircraft carrier USS America - to the bottom of the ocean in a series of explosion tests which are designed to provide invaluable data for the construction and outfitting of the next generation of aircraft carriers, the Associated Press reported. The Navy will spend \$22 million on tests that will span several weeks, starting with a tow approximately 300 miles off of the east coast, and ending with its sinking in approximately 6,000 feet of water. The tests that will be closed to the press and the public's eyes. USS America was commissioned in 1965, decommissioned in 1996, and has spent the last nine years moored with other inactive warships at a Navy yard in Philadelphia.



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Editor's Note

As I approach the completion of my fourth decade alive, I recently came to the conclusion that I'm getting old. I do not seek sympathy or encouragement from those older, nor jeers and jokes from those younger, as it has nothing to do with "40". However my body's ability — or more accurately its lack thereof — to rebound after strenuous "weekend warrior" activities is diminishing. Case in point: this winter, in an attempt to help my son learn snowboarding, I, too jumped in for a lesson, and am now contemplating writing a book entitled "The Bunny Slope That Kicked My _ _ _!"

As seems to be my fate, however, just when things seem particularly bleak — and believe me, they seemed especially bleak for about a week after my stint on that Pennsylvania mountain — along comes something to provide equilibrium. On this occasion it is paleontologists **Robert B. Witrock's** story on page 30, "Hunting for Oil with Microfossils," that did the trick.

In studying creatures that lived and died hundreds of millions of years ago, scientists are using the information to more efficiently help companies discover and recover hydrocarbon resources. (There's something about "hundreds of millions" that puts a human lifespan in perspective). This month's edition, our annual look at the Offshore Industry in conjunction with the Offshore Technology Conference held in Houston, is literally packed with articles, analysis and information as to the direction and long term prospects of offshore oil production. I hesitate here to predict an upturn — and the phrase "offshore boom" is in exile for sure — for those that make their living in the oil patch are mystified as to why persistent \$50/barrel prices have not resulted in a frenzy of activity. However, there are many signs that business is ramping up. LNG is (or should be) on the top of many agendas, as the demand, production and supply of liquefied natural gas, and the resultant business opportunities, are expected to rise rapidly. New government incentives to drive deepwater oil exploration is expected to stir new interest in these tracts, and the Minerals Management Service predicts that oil production in the GOM will rise to a record two million barrels per day in 2006, and that it could reach 2.25 million bpd by 2011. (See related story on page 29)

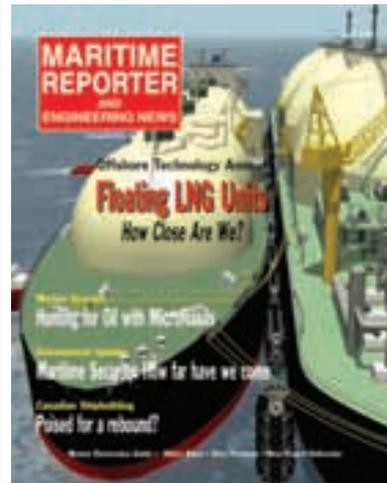


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On the Cover



On the cover is an artist's rendition of the proposed Cabrillo Port — a floating LNG offshore vessel measuring 938 x 213 ft. (286 x 65 m) — to be located approximately 21 miles offshore of California from the City of Port Hueneme. Cabrillo Port will house three spherical storage tanks into which the LNG is pumped from delivering carriers. See related article on page 34

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MARITIME REPORTER

AND
ENGINEERING NEWS

www.marinelink.com

ISSN-0025-3448
USPS-016-750

No. 4

Vol. 67

118 East 25th Street, New York, NY 10010
tel: (212) 477-6700; fax: (212) 254-6271

Founder: John J. O'Malley 1905 - 1980
Charles P. O'Malley 1928 - 2000

Maritime Reporter/Engineering News is published monthly by Maritime Activity Reports, Inc. Mailed at Periodicals Postage Rates at Waterbury, CT 06701 and additional mailing offices.

Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime Reporter/Engineering News, 118 East 25th Street, New York, NY 10010.

Publications Mail Agreement No: 40024966
Return Undeliverable Canadian Addresses to
Circulation Dept. of DPGM
4960-2 Walker Road
Windsor, ON N9A 6J3

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Spain Introduces New Military Shipbuilder

The new Spanish military shipbuilder, Navantia, has been unveiled by **Pedro Solbes**, the Spanish government's second vice-prime minister and economics minister, along with **Enrique Martínez Robles**, the Chairman of the state holding company Sociedad Estatal de Participaciones Industriales (SEPI), and the Chairman of the new company, **Juan Pedro Gómez Jaén**. The company, specializing in the design, construction and integration of military ships, is owned by SEPI and is the result of the desegregation of Izar's military activities in line with the agreement reached in order to make publicly-owned shipyards viable.

Navantia's activities include naval construction, propulsion and energy, ship repairs, military and civil platform control systems as well as weapons. It is expected that up to 20 percent of the company's entire activity will be devoted to civil applications. The new company directly inherits more than 250 years' experience in the construction, maintenance and conversion of the Spanish Navy's ships. Over the last three decades this has meant very close collaboration in the progressive and tough processes involved in strengthening the Spanish fleet.

In the year 2004 Navantia's integrated production centers enjoyed a turnover of approximately 1.1 billion Euros. These production facilities are staffed by a workforce of approximately 5,562 based on the Ferrol Estuary (Ferrol and Fene), the Bay of Cadiz (Cadiz, Puerto Real and San Fernando) and Cartagena, with the headquarters being situated in Madrid.

Navantia is also developing a policy of collaboration with other domestic and

foreign companies through strategic product alliances for the design and sale of projects and is actively participating in innovation using internationally recognised technologies. The company currently forms part of the Afcon Consortium alongside U.S. companies

such as Bath Irons, the US Navy's main shipbuilder, and Lockheed Martin, world leader in the design and development of combat systems. A consortium has also been formed with the French company DCN to develop the Scorpene submarines.



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Color Line, Aker Yards Sign for Cruise Ship

Color Line AS and Aker Yards signed a letter of intent (LOI) for the order of a second ship, a sister vessel to M/S Color Fantasy, the world's largest cruise ship with car decks delivered from Aker Finnyards in December 2004. The contract value is at the same level as for M/S Color Fantasy, approximately 300 million Euro. The agreement is subject to certain conditions, including Color Line and Aker Yards board approval. The contract is anticipated to be made effective within the second quarter of 2005. "We are extremely pleased to continue our strong relationship with Color Line by building this sister vessel to M/S Color Fantasy," says **Yrjö Julin**, President of Aker Finnyards.

The new ship is scheduled to be delivered last quarter of 2007.

Grimaldi Orders Four From Fincantieri

Grimaldi Group Naples, through its companies Industria Armamento Meridionale (INARME) and Grimaldi Compagnia di Navigazione (GRINAVI) has ordered four ships from Fincantieri, with an option for an additional two. The overall value of the order, excluding options, is approximately 360 million

Euros. INARME has ordered two cruise ferries for delivery in 2007 and GRINAVI two RoRo-pax ships, i.e. vessels to transport passengers, trailers and vehicles, for delivery in 2008. The Group also has an option for a further two ships for delivery in 2009.

The main characteristics of the cruise ferries are: length 190 m, maximum deadweight 7,500 tons, passenger

capacity 2,000, passenger cabins 400, lane meters 2,600, maximum speed 28 knots. The main characteristics of the RoRo-Pax vessels are: length 180 m, maximum deadweight 7,500 tons, passenger capacity 1,000, passenger cabins 100, lane meters 2,700, maximum speed 25 knots.

The agreement between Fincantieri and Grimaldi extends beyond the new



Guido Grimaldi (pictured), Chairman of the Group, said "The new order placed with Fincantieri is part of the plan to upgrade and expand our fleet aimed at developing the concept of "highways of the sea" which our Group has made operational in recent years in the Mediterranean. Technologically cutting edge and provided with a full range of comforts, the new ships ordered will enable our Group to offer our customers an increasingly sophisticated range of services". Since 1987, Grimaldi has ordered 23 vessels from Fincantieri.



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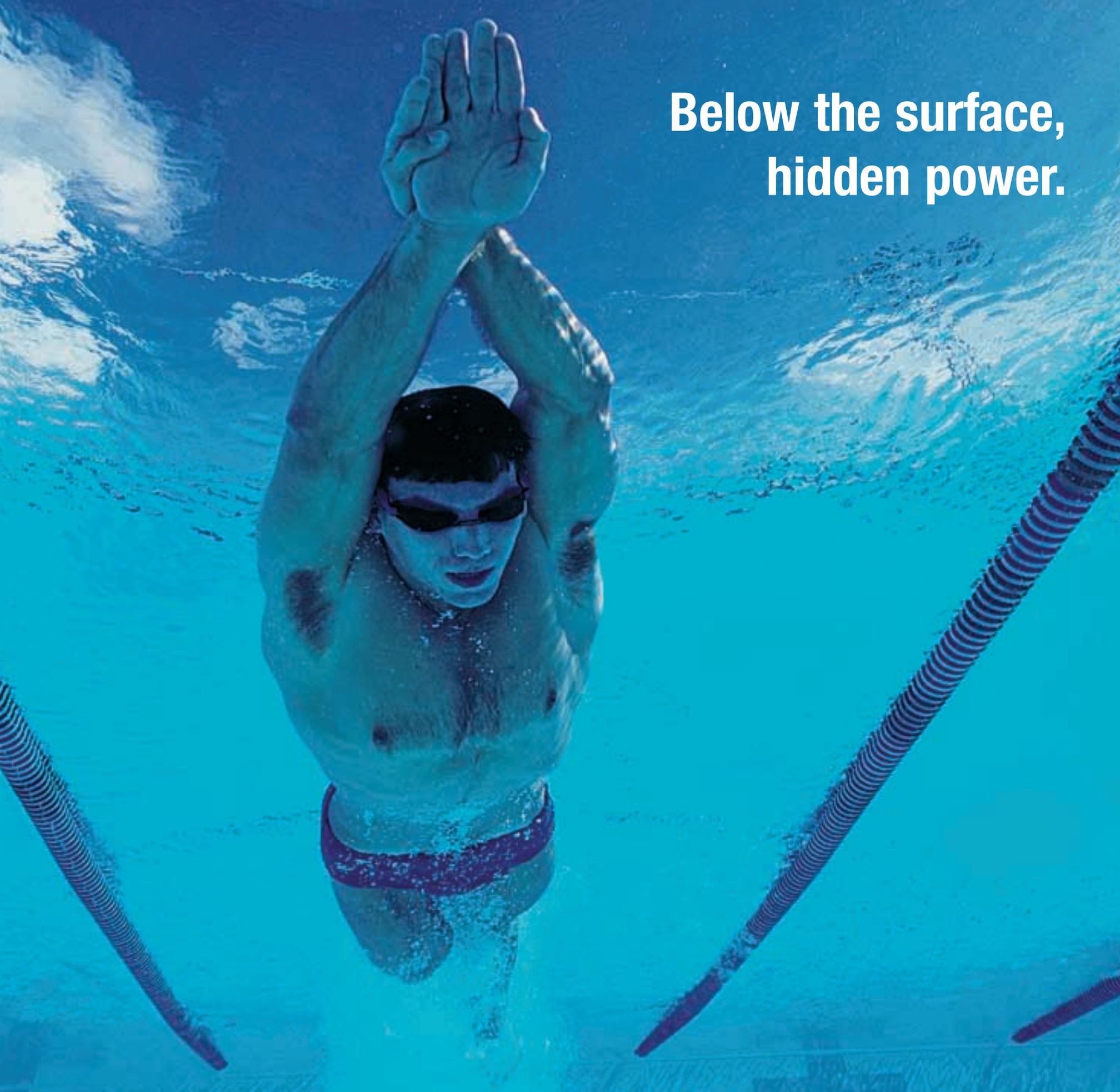
orders, as the companies are aiming to jointly develop new designs, within the framework of which Fincantieri is set to become Grimaldi Group's preferred shipyard. The companies are considering setting up joint programs to enable Grimaldi to maximize its operating and strategic targets and to enable Fincantieri — also by adopting new technologies and including new suppliers and products — to reach design and process economies.

Moreover, Grimaldi is set to draw on the maintenance and repair services of Fincantieri's shipyard at Palermo and of other shipyards, in Italy or abroad, which are able to work in synergy with the yard in Sicily.

New Diesel Science Center



MAN B&W Diesel A/S and Danish power supplier ENERGI E2 entered a joint venture to create Denmark's new attraction in the world of diesel engines. This new diesel science center will be located in the building where visitors



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will find the old diesel engine in the H. C. Ørsted Værket, one of Copenhagen's major power plants, in the southern part of the city. ENERGI E2's mega B&W diesel engine from 1932, which remained the largest engine in the world for approximately 35 years, is still operational. It will be the main exhibit of the

center, together with some of the first B&W engines from the start of the 20th century. The double acting cylinder principle used in this engine is different from today's large two-stroke diesel engines in only one main respect, power is generated by combustion in chambers at both the top and bottom of the cylinder.

The exhibition center will contain many and varied activities and interactive items, such as engine simulators and multimedia presentations. Construction will start in the late summer and will be finished in May 2006. When the new center has been completed, MAN B&W Diesel will move its museum from its

present location at Christianshavn to the new site at ENERGI E2's H. C. Ørsted Værket. This means that many of the highly detailed and moving models of diesel engines, will be transferred to the new facility.

One of the ship models on view will be the M/S Amerika, a ship powered by a 'sister' engine to the one housed in the new center. With six cylinders, each having a 62 cm diameter bore and a 140 cm stroke, this marine two-stroke diesel engine was at the leading edge of ship design. Executive Vice President of MAN B&W Diesel, **Peter Sunn Pedersen**, and President and CEO of ENERGI E2, **Torkil Bentzen**, have just signed the agreement, which makes this diesel attraction possible. Peter Sunn Pedersen: "It is a dream come true. We are creating a location with free access for everyone, a gathering point for anyone interested in the history and development of diesel engines. I hope that it will become a natural place to visit, not least for engineers, marine engineers and students from Denmark and further afield." **Torkil Bentzen** added, "I have the greatest expectations for this joint venture. Diesel engine history is unbreakably tied to that of electricity. It is technical and cultural history worth displaying, and it is a story which both Danes and international visitors should experience."

Tanker Alliance Formed

Euronav announced the conclusion of negotiations between the representatives of Tanklog Ltd. and Euronav pursuant to which there will be a merger of the assets of Tanklog Ltd. into Euronav.

Tanklog is a major player in the Suezmax sector with a fleet consisting of 14 modern double Hull Suezmax tankers, of which five are under construction at Samsung Heavy Industries in Korea with deliveries scheduled in 2006 and 2007 and two modern double Hull Aframax tankers. The Tanklog fleet is under the management of Ceres Hellenic Shipping Enterprises Limited in Greece and is under long-term contractual arrangements with major independent U.S. refiners.

The transaction will take the form of an acquisition by Euronav of the assets of Tanklog valued in excess of \$1 billion. Consideration will be in form of cash, stock and assumption of shipyard payments, which will see Tanklog becoming the second largest shareholder of Euronav at just over 20 percent. The acquisition of stock by Tanklog will be in the form of a new issue and the subscription price agreed between parties is Euro 26 per share. The transaction will leave the existing major shareholders,

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Saverco and Victrix with shareholdings of just over 33 percent and 12 percent, respectively.

Exmar Signs Contracts

EXMAR has signed a newbuilding contract for two Very Large Gas Carriers

at Daewoo Shipbuilding and Marine Engineering Co. of South Korea. The newbuildings will have a capacity of 84,000 cu. m. and the first vessel will be delivered in the first half of 2008. EXMAR currently controls a combined fleet of 60 gas carriers servicing the entire gas product range worldwide.

Euroceanica Acquires Seven Chem Tankers

Euroceanica (UK) Limited agreed to purchase seven modern chemical tankers from Finaval S.P.A., of Rome. The vessels will be chartered back to Finaval for periods of up to one year to

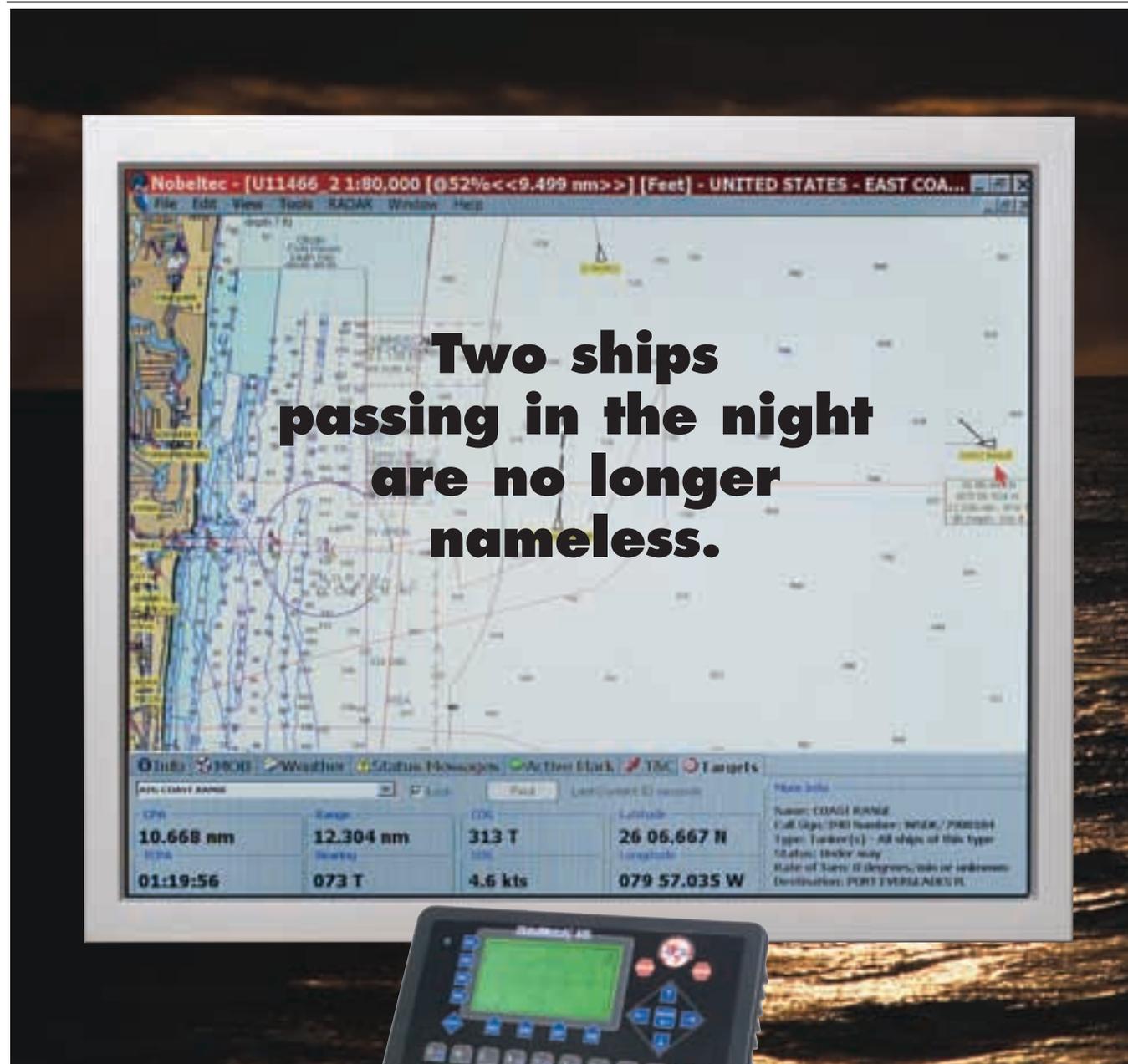
complete their existing charters. It is then the intention of Euroceanica to maintain the chemical tankers within a time charter portfolio with leading international and Italian charterers. The chemical tankers, which all fly the European Flag, are to be technically managed by V.Ships. The Company says it hopes to come to an arrangement with FINAVAL on retaining current crews to continue service on board the vessels.

Vessels to be acquired by Euroceanica (UK) Limited

Name	Year Built	DWT
Isola Atlantica	2000	16,631
Isola Azzurra	1997	13,843
Isola Amaranto	1999	9,931
Giovanni Fagioli	1998	9,554
Isola Ambra	1998	8,053
Isola Corallo	1999	4,470
Isola Mora	1998	3,746

Bulbous Bow Delivered

The bulbous bow of Costa Crociere's new flagship Costa Concordia, due to enter into service by the end of spring in 2006, has been delivered today to Fincantieri's Genoa Sestri Ponente shipyard. The bulbous bow, which left Fincantieri's Ancona yard where it was built, weighs 406 tons, and is 32 m long and 11.5 m high. It was transferred by sea to Sestri Ponente yard where the ship will be completed. The 112,000-ton Costa Concordia will be Italy's largest cruise ship, 290 m in length, with 1,500 cabins and total capacity of 3,800 passengers.



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Lemons, Tiles & False Assumptions



Dennis L. Bryant, Senior Maritime Counsel at the law firm of Holland & Knight, Washington, D.C., is a contributing editor of MR/EN.

The past three and one-half years have undoubtedly provided us with enhanced maritime security, but it has also had its occasional misfires, based largely on false assumptions by those involved in particular incidents.

Establishing Compliance Standards

Following the terrorist attacks of September 11, 2001, the international community quickly realized the significant vulnerabilities present in the maritime transportation system. Over the previous 50 years, the system had evolved into one that was both highly efficient and highly open. It is the openness of the maritime transportation system that makes it at risk for infiltration by terrorists and use as an unwitting tool for terrorist activity. Even before the terrorist attacks in 2001, the U.S. Senate was considering ways to reduce the openness of the system. In 2000, Senator Hollings (D-SC) introduced a bill to establish a program to ensure greater security for United States seaports. The primary focus of the bill was deterrence of crime and cargo theft on the waterfront, but provisions were included for reducing the risk of terrorism. The measure was reintroduced in mid-2001. Following the terrorist attacks, emphasis of the bill was changed from crime to terrorism prevention. The bill was merged with a similar bill in the House of Representatives to become the Maritime Transportation Security Act of 2002. On the international front, State Parties to the International Convention on the Safety of Life at Sea (SOLAS Convention) adopted the International Ship and Port Facility Security (ISPS) Code. The ISPS Code and related amendments to the SOLAS Convention mandated the State Parties to require security plans and enhanced security measures for cov-

ered ships engaged in international commerce and the port facilities servicing the covered ships. The ISPS Code came into effect on July 1, 2004.

Port State Control Measures

Port state control is the process by which a nation exercises limited authority over a foreign vessel in its waters. The purpose of this limited exercise of

authority is to determine whether the foreign vessel is in substantial compliance with applicable international requirements. The foreign vessel's certificates are to be accepted unless there

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Government Update

are clear grounds for believing that the condition of the vessel or its equipment does not correspond substantially with the particulars of any certificates. If the vessel's certificates are invalid or expired or if the condition of the vessel or its equipment do not substantially correspond with the certificate's particu-

lars, the port state control officer is authorized to exercise control measures with regard to the vessel. The usual control measures consist of: requiring corrective action prior to returning to that nation; requiring the vessel to proceed elsewhere for repairs; denying entry into port; detaining the vessel; or

monitoring the vessel's operations while in port. The 2002 amendments to the SOLAS Convention include specific control and compliance measures supplementary to the general port state control provisions. For ships in the port of a State Party, specific maritime security control measures are as follows:

"inspection of the ship, delaying the ship, detention of the ship, restriction of operations, including movement within the port, or expulsion of the ship from the port." Such control measures may additionally or alternatively include other lesser administrative or corrective measures.

For ships intending to enter the port of a State Party, the State Party may require the ship to provide information (e.g., an advance notice of arrival) to ensure that the ship is in compliance with applicable maritime security requirements. If the State Party has clear grounds for believing that the ship is not in compliance with those requirements, the State Party may: (1) require rectification of the non-compliance; (2) require that the ship proceed to a specified location in the territorial sea or internal waters of the State Party; (3) inspect the ship in waters of the State Party; or (4) deny entry into the port.

In the first six months that the maritime security regulations have been in effect (1 July - 31 December 2004), the U.S. Coast Guard has taken the following security control actions: 74 detentions; 6 denials of entry; and 14 expulsions from port - for a total of 94 such actions. During this same period, records of the Paris Memorandum of Understanding (MOU) on Port State Control indicate that 77 ships were detained for reasons that included non-compliance with maritime security requirements. Records of the Tokyo MOU are less specific and do not lend themselves to easily determining whether a control measure was undertaken for non-compliance with maritime security requirements as opposed to maritime safety requirements.

One practical problem with the port state control program for maritime security is that, for security reasons, port state control officials (particularly the U.S. Coast Guard) frequently fail to disclose the specific rationale for imposing a control measure. This lack of information sometimes makes it difficult for affected private parties to allocate added costs associated with the control measure. With daily hire rates for modern ships generally exceeding \$25,000 per day, cost allocation can be an important issue.

Misfires

On July 29, 2004, an unnamed bureaucrat in the U.S. Department of Agriculture received an anonymous e-mail reporting that an unspecified harmful biological substance could be found in one of five containers of lemons on the CSAV RIO PUELO, scheduled to arrive in Port Elizabeth, New Jersey the next day from Argentina. The report

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was passed to the U.S. Coast Guard for action. The ship was detained offshore. Officials from the Coast Guard and the Customs and Border Protection boarded the ship and quickly located the containers. Customs wanted to bring the containers ashore and examine them with Vehicle and Cargo Inspection System (VACIS) technology to determine whether any dispersal devices were in the containers. But, by that time, approximately 40 federal, state, and local agencies and authorities were involved. State and local officials insisted that the ship and its suspect containers be kept offshore until all risk of danger was eliminated. The ship was finally allowed to dock and unload its cargo on August 6. As a precaution, the containers were fumigated with chlorine dioxide. No "harmful biological substance" was ever located and it now appears that the original e-mail was probably sent by an economic rival of

either the exporter or the importer of the lemons. By that time though, the lemons were spoiled and had to be incinerated.

The full costs have never been computed, as they were borne by many different organizations, commercial and governmental. The lemons themselves were valued at \$70,000. Demurrage costs for the container ship were probably in excess of \$150,000. Costs incurred by parties associated with the other "innocent" containers on the ship are unknown, as is the cost incurred by all the federal, state, and local agencies involved. Total costs for what some refer to as "Lemongate" probably approached \$1 million.

On September 10, 2002, U.S. Coast Guard personnel were conducting a routine examination of the container ship PALERMO SENATOR when their radiation detectors were activated. A security zone was immediately established

around the vessel, which had recently arrived in Port Elizabeth, New Jersey from Valencia, Spain. The vessel was escorted to anchorage near the Ambrose Light Tower where it was fully examined by personnel from the Coast Guard, Customs Service, FBI, Department of Energy, and U.S. Navy Seals. It was eventually determined that the radiation was being naturally emitted by a container carrying clay tiles from Italy. Low level radiation is sometimes found in clay deposits. It has been reported that the vessel operator incurred demurrage costs well exceeding \$50,000 while the vessel was being examined. Other costs are unknown.

On August 8, 2002, Customs Service personnel in the Port of Miami were conducting a random x-ray examination of a container that had arrived from Israel. The x-ray and other non-intrusive tests revealed what appeared to be munitions. The bomb squad was called

in and the container was carefully opened. Inside, along with other household goods, were two metal flower pots. One was made from a spent 155 mm artillery shell and the other was made from part of an exploded test missile. Neither was dangerous, but a portion of the port was shut down during the inspection. It was eventually learned that the items belonged to an Israeli citizen relocating to the Miami area. He had acquired the items in Israel and converted them into conversation pieces for his home. Costs incurred in this partial shutdown of a major U.S. port have not been computed.

At about 8:30 pm on Wednesday, January 26, 2005, Customs and Border Protection officers in the Port of Los Angeles were performing a routine inspection of the container ship TOLEDO, which had arrived from Gwangyang, South Korea. The officers were alerted by their personal radiation



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Government Update

detectors (worn on the belts) to the possible presence of radioactivity. The greatest intensity of radiation was found near the overhead of the storage room in the engineering spaces. The area was secured and the Radiation Assistance Program (RAP) team was called in from the Department of Energy facility in Las

Vegas. By noon on January 27, the source of the radiation was confirmed to be cobalt in the device used on board to test fire detection and suppression equipment. The ship and its cargo were delayed almost a full day.

Customs sometimes requires cargo (mostly containers) to be unloaded for

unscheduled examination at the first U.S. port of call, rather than at the ultimate port of discharge. Customs bases this action on its analysis of the cargo, its origin, routing, the parties involved, and intelligence reports. This "box pulling" may result in added costs of \$10,000 or more, not including subse-

quent costs due to delayed departure from the first U.S. port and delayed arrival at subsequent ports.

These are all examples of unanticipated costs and delays that can be incurred by fully compliant ships and cargoes. The cost of non-compliance can be expected to far exceed the cost of compliance.

Partial Solution

So as to minimize the risk of non-compliance with applicable maritime security requirements, it is recommended that your company utilize a vigorous maritime security program. This consists of meeting and, in some cases, exceeding the minimum standards provided for in the ISPS Code and the USCG regulations. It also means requiring your partners in the marine transportation system (e.g., ship owners and operators, exporters, importers, shippers, non-vessel operating common carriers, etc.) to also fully participate in the program. A chain is only as strong as its weakest link - and in this area, having a weak link can be fatal for all involved.

So as to minimize the risk that your company will bear the cost of a non-compliant event, it is recommended that you include in your charter parties, bills of lading, and other relevant documents specific provisions regarding which party is responsible for compliance with which maritime security requirements and who bears the burden of added costs resulting from any non-compliance. One can never foresee all the possible future events, but one can anticipate certain generalities and provide for their occurrence. Such careful drafting now is certainly preferable to the throw of the dice when a judge has to allocate damages without meaningful guidance from the parties. Be careful - it's an uncertain world out there!

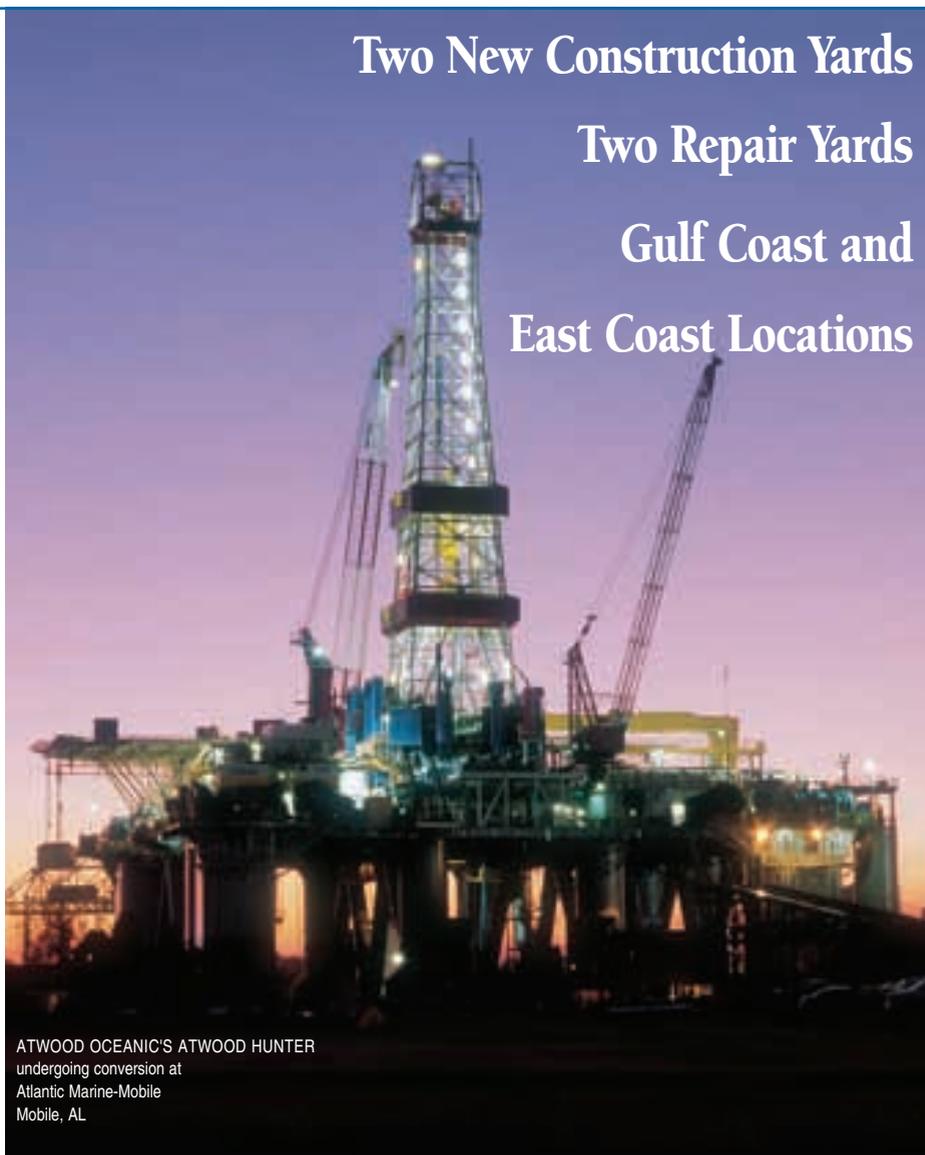
ERRATA

In the article "Tuns, Tons & Tonnage" (MREN, February 2005), I should have said that deadweight tonnage is the weight of the cargo plus the weight of the fuel, lube oils, water, provisions, paint, tools, supplies, spare parts, and crew/passengers. Lightweight tonnage is the weight of the ship as delivered from the yard - the hull, machinery and fittings fully constructed, but with minimal fuel, supplies, and spare parts. Displacement is the weight of the ship with everything on board (deadweight plus lightweight) and is equal to the weight of the displaced water. I apologize for the error and for any confusion engendered.

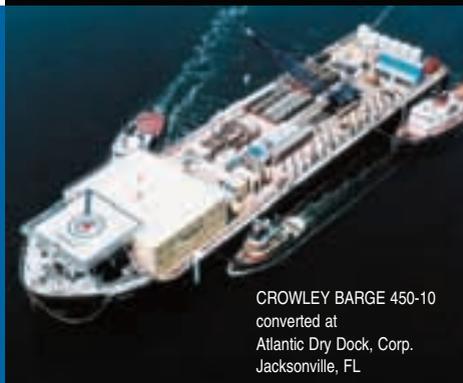
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Dunkerque Pilots Get New Boat

Dunkerque Pilots have taken delivery of Pilotine XIV, its third VT Halmatic Nelson 48/50 pilot boat. The new boat is powered by twin 331 bkW (450 mhp) Volvo Penta D12 engines and achieved 23 knots on sea trials. Pilotine XIV is similar to the fleet of Nelson 48/50 pilot boats recently built for ABP Southampton, but incorporates a number of features demanded by the French Marine Marchande and by the pilots



Main Particulars

Length, o.a.	50 ft. (15.2 m)
Beam	14.7 ft. (4.5 m)
Draft - full load	4.3 ft. (1.3 m)
Displacement - full load	23.4 tons
Engines	Volvo Penta D12-450 (331bkW)
Speed	23 knots

themselves. Perhaps the most notable addition is the 420 mm diameter circular NIBs fender incorporated into a recess in the hull and deck molding.

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NASSCO Delivers BP Oil Tanker



National Steel and Shipbuilding Company delivered the Alaskan Explorer, the second of four Alaska-class double-hull oil tankers being built for BP Oil Shipping Company, USA. Alaskan Explorer joins sister ship, Alaskan Frontier, which was delivered in August 2004 and is delivering oil from Alaska to West Coast ports, including BP refineries in Los Angeles, Calif., and Cherry Point, Wash. The third ship will be delivered in late 2005 and the fourth ship in 2006.

These double hull ships are designed for a life of 35 years and their deck structure has a life of 50 years. The diesel-electric propulsion system, with redundant engines, shafts and screws, is designed to increase reliability and reduces air emissions and maintenance

downtime. The ships use seawater instead of oil to cool and lubricate their propeller shafts, eliminating the possibility of accidental oil leaks. Their cargo piping, normally installed on the deck, is run inside the cargo tanks, to reduce the risk of small spills.

The ships are 287 meters (941 feet)

long, with a beam of 50 meters (164feet) and a capacity of 1.3 million barrels of oil.

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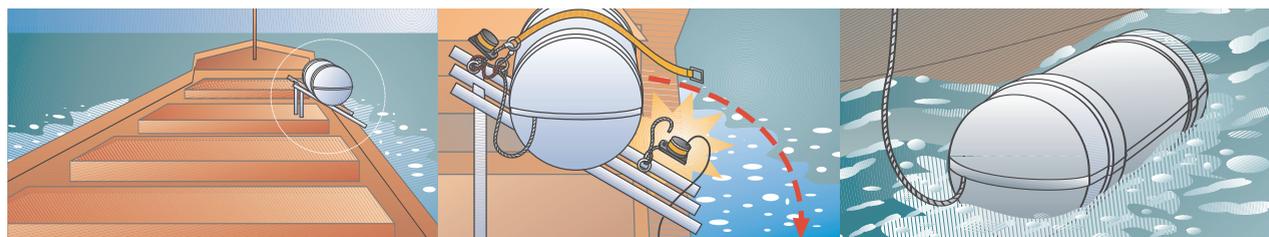





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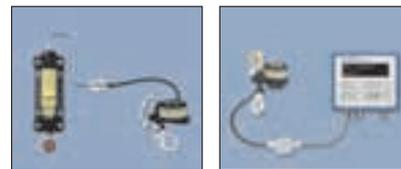
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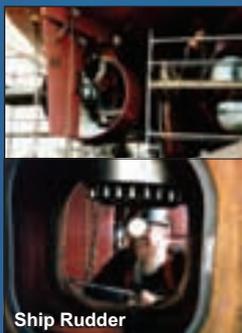
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Authorities Mull Panama Canal Expansion

The Panama Canal is nearing full capacity and should seriously consider expansion to continue to be a major player in world trade, according to maritime experts and Canal customers at the Panama Maritime VII Conference, held February 20-23. Participating in the event were Panamanian President Martin Torrijos, Secretary General of the International Maritime Organization (IMO) Efthimios Mitropoulos, and several representatives of the Panama Canal Authority (ACP), including Administrator/CEO **Alberto Alemán Zubieta**. For the past two years, the ACP has commissioned research and studies related to the Canal's modernization and the future of the maritime industry, including whether to expand the waterway.

At this time, a final decision on whether to expand the Canal has not been made. An expansion of the Canal could involve the construction of a new set of locks that would create a third lane of traffic, serving to increase current capacity and afford a wider passage for larger vessels. The Panama Canal's capacity is now approximately 93 percent. Maritime authorities addressing the conference included: **Captain Wei Jiafu**, President and CEO of COSCO Group and ACP Advisory Board member; **Gerhard E. Kurz**, President and CEO of Seabulk International and ACP Advisory Board member; **Peter G. Drakos**, President of Connecticut



Maritime Association; **Giora Israel**, Vice President of Strategic Planning of Carnival Corporation; **Christopher Cho**, Partner of Lee and Ko; Iria I. Barrancos, Deputy Judge of First Maritime Court of Panama; and **Mike Watson**, President of the American Pilot Association and Vice President of the International Maritime Pilot Association.

Navy Materials Expert Honored

The Washington, D.C. Chapter of the American Society of Materials International awarded the **George Kimball Burgess Award** to **Dr. Appajosula Srinivasa Rao** for his work in materials. Dr. Rao's contributions to materials engineering include developments relevant to corrosion, metallurgy of materials, electric drive propulsion systems, engineered ceramics for high temperature structural applications, diamond and diamond like carbon coatings for nuclear reactor applications and alternate energy sources for vehicular transportation. Among his achievements: He was first to develop a technique to examine the progression of corrosion at the interface "in situ"; he developed a new chemical rust removal process; he demonstrated that very hard brittle ceramics-based superconductors can be engineered using superplastic-forming technology; he engineered a new aluminum-based superconductor for electrical power applications; and he designed and developed techniques to produce more reliable ceramic components with a uniform microstructure.

Tamburrino is New NAVSEA Exec Director

Naval Sea Systems Command (NAVSEA) selected **Pat Tamburrino** as the organization's new Executive Director — NAVSEA's senior civilian position. "Pat brings experience doing business with and among the Pentagon senior leaders - both Flag and SES," said Vice Adm. **Philip M. Balisle**, commander. "He has a solid background in the intricate workings of the Pentagon, NAVSEA and the Program Executive Offices- from both an organizational and programmatic point of view."

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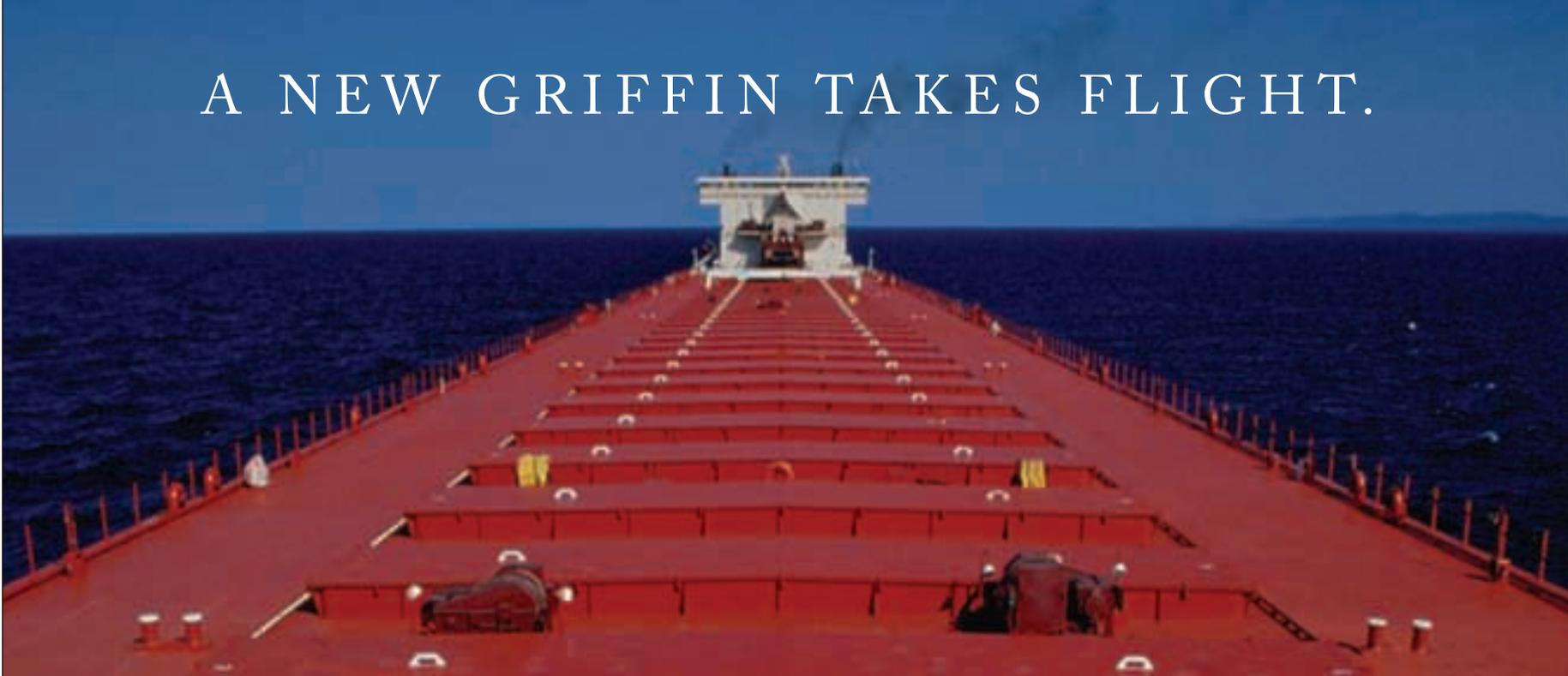
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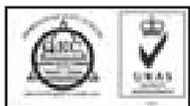


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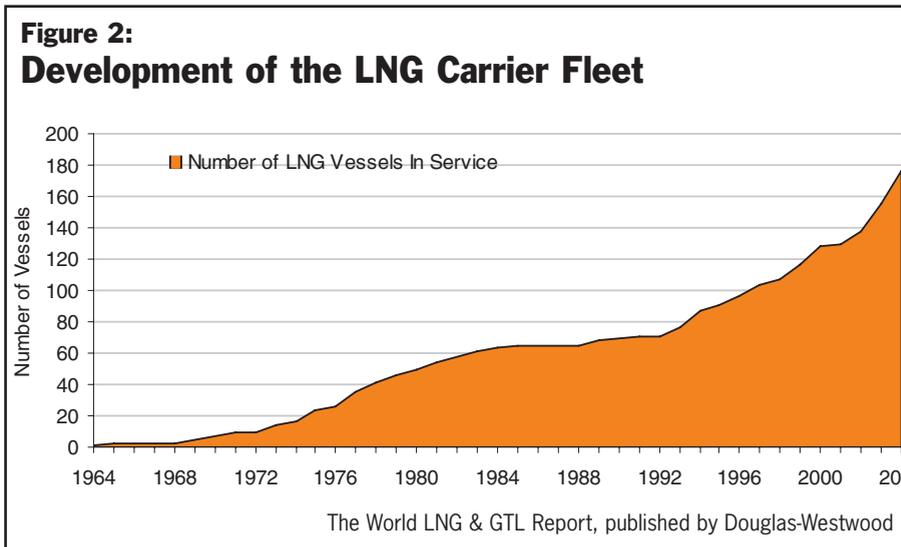
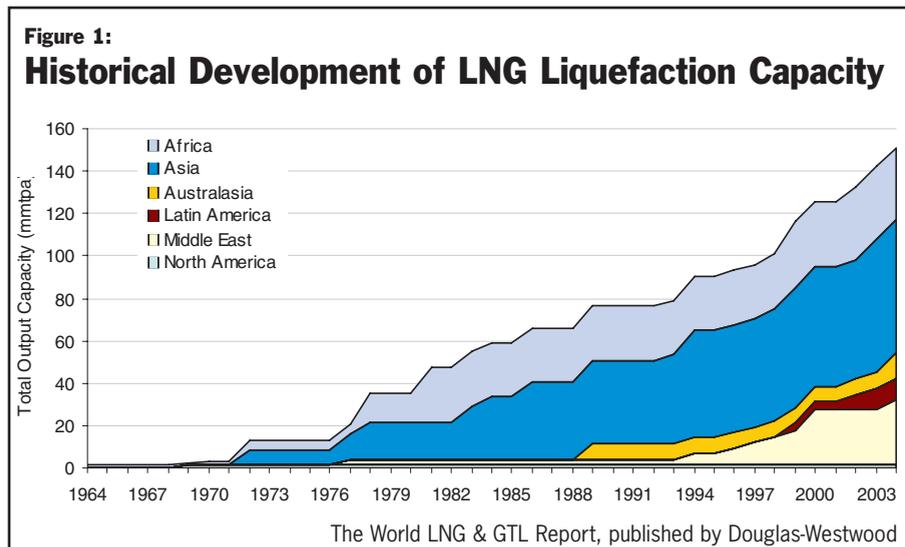


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A \$67 Billion Market:

LNG Plants, Terminals and Vessels 2005-2009



The World LNG & GTL Report, published by Douglas-Westwood, forecasts strong growth in expenditure on new LNG plants and terminals. In this article, the author presents some of the thinking behind the report.

The level of interest in the LNG business continues to grow. Recent years

have seen the completion of some major high-profile LNG projects, particularly around the Atlantic Basin. While demand remains strong in the traditional Asian markets, much attention is now being directed to the opportunities arising from the new and potentially vast Atlantic Basin LNG market. Meanwhile, the limits of domestic gas production in

North America and Western Europe are becoming clear and gas import demands are rising. LNG is increasingly a method of choice in satisfying growing gas demand in these regions, and following the success of the plants recently established in Nigeria and Trinidad & Tobago, a wave of new projects has emerged that demonstrate a potential for

serious market growth over the next five years.

The Development of the LNG Sector

Gas liquefaction technology has its roots in the 19th century, pioneered by individuals such as Michael Faraday and Karl Von Linde. However, the worldwide LNG trade began in earnest in the 1960s when, following a number of test shipments across the Atlantic to prove the concept, the first commercial LNG trade began between Algeria and the UK. Although the UK may have led the way in adopting LNG technology, the region in which the LNG business really took off was Asia. Japan, which had no gas production of its own, was very quick to adopt the new technology, and was soon followed by countries such as South Korea and Taiwan. Meanwhile in Western Europe the technology was also adopted, albeit to a much lesser extent, to import gas from Africa. The historic development of LNG liquefaction capacity is shown in Figure 1. (left)

The last five years has seen a 20 percent increase in global LNG output capacity, from 126 million tons per annum (mtpa) in 2000 to 151 mtpa in 2004. A number of factors are driving this growth on both the demand-side and supply-side. These include:

- **A continuing growth in world gas consumption** The IEA forecast that gas consumption will grow at an annual rate of 2.8 percent over the period to 2025, compared to 1.8 percent for oil and 1.5 percent for coal. Gas will account for 28 percent of global energy use by 2025.

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Over the next five years we anticipate that over 120 new carriers will be constructed. Capital expenditure associated with these new vessels is forecast to be nearly \$22 billion.

- **Strong import demand** Many of the major gas-consuming nations of the world have either very little gas production of their own (e.g. Japan, South Korea) or have developed and drawn down their own reserves to the point where they are now past peak production and will have to increasingly rely on imported gas (e.g. USA, UK).
- **Monetization of stranded gas reserves** Significant amounts of natural gas reserves are located a long distance from the end market, or have no nearby pipeline infrastructure. Without access to markets, the produced gas is either flared or re-injected. LNG offers an access mechanism, a method of monetizing these gas reserves and reducing the environmental impact that is associated with gas flaring.
- **Technological advances** Advances in liquefaction technology have led to a fall in the level of capital expenditure that is required to construct new plants. LNG carrier prices have also fallen dramatically. This reduced cost of LNG developments opens up opportunities to employ LNG technology where previously it might have been considered economically unviable.

LNG Carriers

There are currently more than 170 LNG tankers in operation. Only a small number of shipyards are capable of building LNG tankers, due to the complexity of the vessels and the high levels of quality control required. They are by far the most expensive type of cargo vessel, costing around three times the price of an oil tanker of similar tonnage. Figure 2 (left) shows the development of the LNG carrier fleet.

In the past, it has been normal practice for vessels to be dedicated to particular projects on long-term contracts, but spot trading is emerging as an increasingly significant element and is now thought to account for around 11 percent of total LNG trade.

There are three main types of vessel design that have evolved and are currently in use; the Kvaerner-Moss Spherical System, the Gaz Transport Technigaz (GTT) membrane type, and

IHI's Structural Prismatic design. The Membrane system is the most widely adopted and is used in around 48 percent of the current vessels in service. The Kvaerner-Moss spherical system accounts for 47 percent of containment systems in use

Capital Expenditure: Trends and Forecasts

Figure 3 (on page 29) shows the levels of capital expenditure that we forecast will be required to complete new LNG facilities over the 2005-2009 period. The dates refer to the year of start-up for

the terminal. In practice, however, the contractual payments relating to the projects identified will often be made in installments and will most likely be spread over a number of years, not confined to a single year. For the sake of clarity and transparency we do not



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attempt to try and reflect this situation in our forecasts. Instead we focus on attempting to indicate the value of the new LNG facilities that come into use each year.

The overall trend is one of strong market growth, and global Capex on LNG developments over the 2000-2009 period is expected to total over \$67 billion - almost three times the amount spent

over the previous five-year period.

LNG Export Facilities

Over the 2000-2004 period the data indicate that 28.5 mmtpa of liquefaction capacity was brought onstream by new LNG export facilities, and that the capital expenditure associated with constructing these facilities (excluding upstream costs, but including all termi-

nal costs — plant, storage, marine facilities, etc.) totaled some \$7.7 billion. For the 2005-2009 period it is forecast that new liquefaction facilities coming onstream will lead to a massive increase in global LNG output capacity, requiring Capital Expenditure of over \$30 billion.

LNG Carriers

Activity in the newbuild LNG carrier

market is dominated by shipyards in Asia, the region having constructed nearly all of the LNG carriers that entered service between 2000 and 2004. Over the next five years we anticipate that over 120 new carriers will be constructed. Capital expenditure associated with these new vessels is forecast to be nearly \$22 billion.

Analysis of our data indicates that the average price of LNG vessels delivered over the previous five-year period fell from over \$220 million to as low as \$162 million in 2002. The fall in price over this period was largely due to intense competition between shipyards in the Far East, Korean shipyards in particular. Although vessel demand is expected to be strong over the period to 2009, the market is expected to remain competitive, with the entrance of Chinese yards into the market a point of particular interest. We therefore expect prices to remain at the current, historically low, levels.

LNG Import Terminals

A significant growth in spending is also forecast for import terminals. Over the 2000-2004 period an estimated \$7 billion was spent on new LNG import and regasification facilities. Global additions to import capacity over the forecast period are expected to result in the construction of as many as 40 regasification terminals. An estimated Capex of \$14.5 billion will be required to bring this additional capacity online.

The LNG industry is renowned for its diligent standards and has an excellent safety record, albeit not entirely without incident. However, public perception about the risks of LNG often appears to be misconceived and as a result local opposition to new facilities is common, and perhaps now more vigorous given the continuing worries over terrorism. This seems to be a particular problem in North America and Western Europe.

The impact of these difficulties may well be that more operators choose to locate import facilities offshore. The World LNG & GTL Database currently lists seven offshore LNG receiving terminal prospects for the 2005-2009 period, including ChevronTexaco's 'Port Pelican', Woodside and Crystal Energy's 'Crystal Clearwater', Shells 'Gulf Landing' and Excelerate Energy's 'Energy Bridge' developments, all of which are located in the Gulf of Mexico, along with BHP Billiton's 'Cabrillo Port' near California, and ChevronTexaco's 'Puerto Coronado' development offshore Tijuana in Baja California, Mexico.

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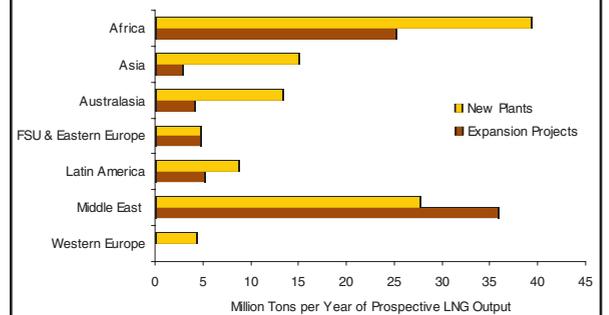
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About The Author

Steve Robertson is a market analyst for Douglas-

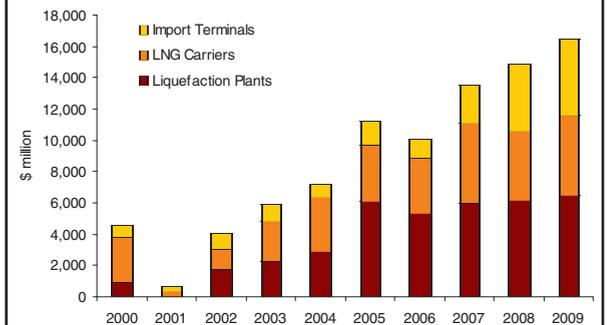
Westwood and is lead author of The World LNG & GTL Report 2005-2009. Previously he had undertaken research on the firm's projects for investment banks and contributed market analysis to a number of DWL studies including The Subsea Processing Gamechanger Report, The World Offshore Drilling Report and The World Floating Production Report. Steve holds a BSc in Computing and Economics and prior to joining Douglas-Westwood worked in the defence and financial sectors. He is a member of the Institute of Petroleum and the Society for Underwater Technology.

Figure 3: Announced Plans - Prospective Additions to LNG Output Capacity 2005-2009



The World LNG & GTL Report, published by Douglas-Westwood

Figure 4: Capital Expenditure on LNG Facilities 2000-2009



The World LNG & GTL Report, published by Douglas-Westwood

SEMCO Embarks on Big FPSO Tow



Semco Salvage & Marine early this year was contracted to tow the FPSO Kizomba B from Ulsan, Korea, to offshore Luanda, Angola. The tow was performed on behalf of Hyundai Heavy Industries (HHI). As in the case of the earlier tow of sister FPSO Kizomba A, this voyage is being executed by three tugs: the sister tugs Salvanguard and Salviscount (165 tons bp) and the 110 tons bp Salvigour. An additional tug of 146 tons bp, Salvana, will escort the spread from Singapore onwards. The tow departed Ulsan on January 30 and is expected to arrive offshore Luanda towards the end of April. On arrival, Semco is contracted by HHI to perform positioning and deck operations in respect of the moorings. This work includes a review of procedures and engineering. This project phase will be performed in alliance with Offshore Dynamics Ltd (ODL) and SWG Australia (deck operations). Semco will deploy up to five tugs for the positioning. The fifth tug, the 110 tons bp Salviant, will join the spread prior to arrival, together with a team of positioning masters and deck operations crew.

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Incentives to Drive GOM Production for a Decade

New incentives to encourage energy companies to explore and develop difficult-to-reach areas of the Gulf of Mexico will help boost peak oil production in the gulf by 43 percent and natural gas production by 13 percent over the next decade, Assistant Secretary of the Interior for Land and Minerals Management **Rebecca Watson** said.

"Energy companies are responding positively to new incentives offered under the President's Energy Plan that allow them to tap into pockets of oil and gas in areas of the gulf that otherwise would not be economical to produce," Watson said at a news conference where she released the Minerals Management Service's first-ever 10-year energy projections for the gulf.

Oil production in the Gulf will increase to a record 2 million barrels per day by 2006, compared to the current rate of 1.5 million barrels per day, and could reach 2.25 million barrels a day by 2011, according to MMS projections.

Since 2001, the administration has continued incentive programs for deep-water areas of the gulf and introduced new incentives for other areas. The most recent incentives announced by Interior Secretary **Gale Norton** in January, offer developers royalty relief to tap into pockets of natural gas deep under shallow waters in the gulf that otherwise would be too costly and financially risky to attempt. "The Gulf of Mexico delivers more oil and gas to the U.S. market than any single domestic or foreign source, but many older, easier-to-reach fields have passed their peak. Exploration has shown more gas can be produced at

deeper depths under existing shallow water infrastructure; and oil can be produced at tremendous depths-many miles beneath the gulf's surface," Watson said. "To help ensure our future energy security, we need to reward developers for the huge risks they take when they explore in deep-water and deep-shelf areas."

"A rise in deep water oil production is fueling this dramatic increase, and almost 80 percent of Gulf oil production in 2011 is expected to come from this resource rich region," Watson said. "We expect our greatest oil production to come from the deep water region of the Gulf; while in the case of natural gas, both the deep-water and the shallow-water deep shelf hold the most promise."

The MMS long-range projection of deep-water projects that industry has

indicated they intend to pursue shows oil production in that region will drive the increase in the coming years. After these projects reach their production peaks, MMS believes that the anticipated 2 million barrels of oil per day level can be maintained if operators commit to developing existing discoveries and continue to explore the deep water frontier.

Gas production in the Gulf is expected to show some decline in the short-term as old fields begin to be exhausted and then to show an increase again as new wells in deep-shelf and deep-water areas come into production. Projections show that natural gas production will rebound beginning in 2008 and will reach more than 13 billion cubic feet per day in 2011.

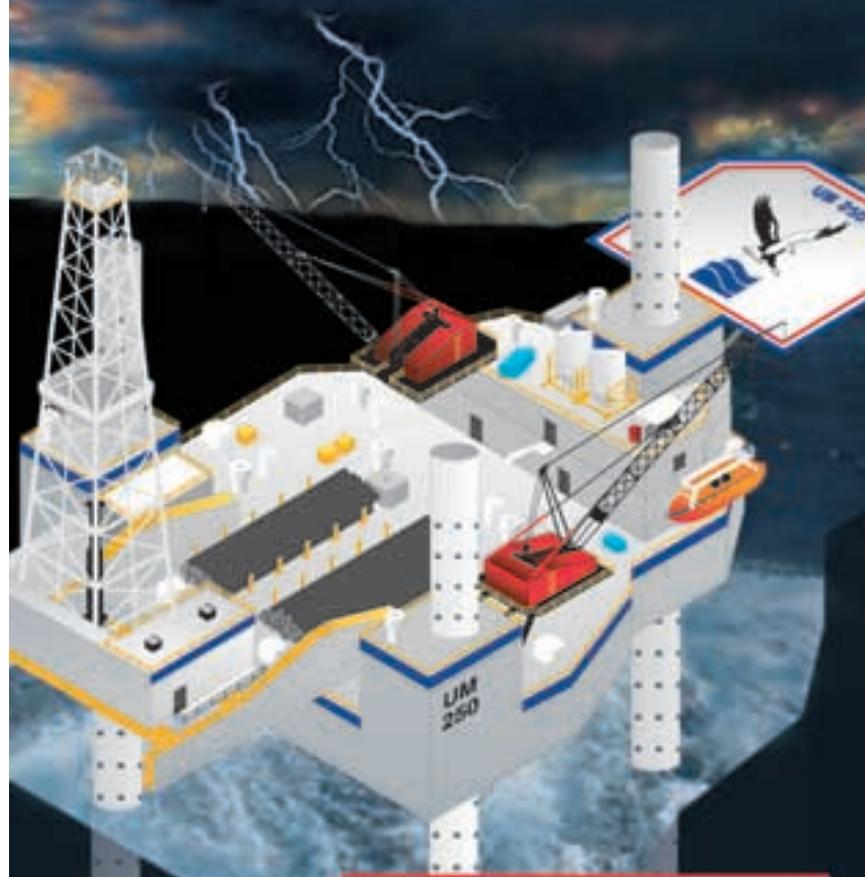
Gulf of Mexico natural gas production is slightly more than 12 billion cubic feet per day. The Minerals Management Service forecasts that total Gulf natural gas production levels will decrease slightly by 2007 to just over 11 billion cubic feet per day. However, MMS projections show that natural gas production will rebound beginning in 2008 and will reach more than 13 billion cubic feet per day in 2011. This year's production estimate by MMS is based on a new methodology. In addition to surveying oil and gas companies, MMS analyzed recent deep water discoveries and projected deep-water reserves. This method enabled MMS to forecast Gulf production 10 years into the future instead of the previous standard five-year projection. The 10-year production forecast is available in the new MMS publication Gulf of Mexico Oil and Gas Production Forecast: 2004-2013 (MMS OCS Report 2004-065).

<http://www.mms.gov/Assets/PressConference11152004/2004-065.pdf>

"We expect our greatest oil production to come from the deep water region of the Gulf; while in the case of natural gas, both the deep-water and the shallow-water deep shelf hold the most promise."

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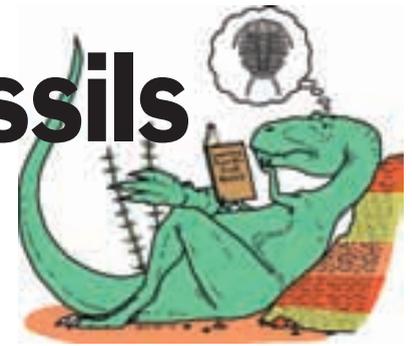
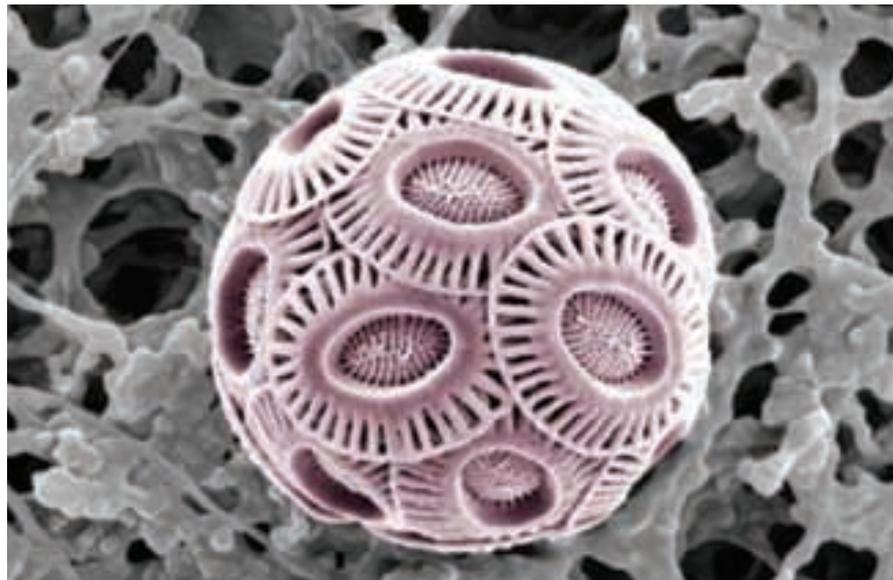
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By Robert B. Witrock, Paleontologist,
Offshore Resource Evaluation
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The study of ancient fossil life, known as paleontology, is helping geoscientists at the Minerals Management Service (MMS) obtain a clearer picture of relative historical earth events and, in turn, making the search for hydrocarbon resources easier. As scientists ascertain the chronologic ages of paleontologic events, they can then describe the nature of geologic processes that occurred in the area.

Fossils, which are found in the sediment layer or "strata," provide clues as to the depositional environment, where

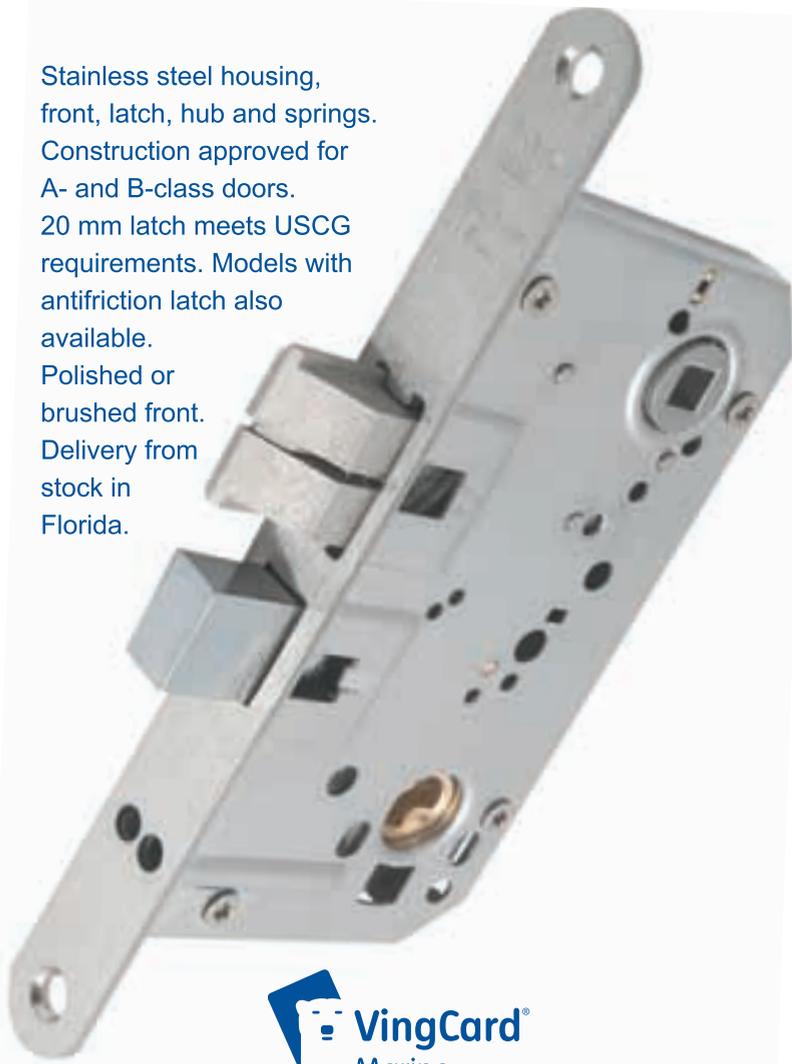


the organisms lived, and the geologic time when the surrounding sediment was deposited. Estimates of the age of fossils in the strata in which they are found, as well as in layers above and below, are calculated according to basic geologic principle - older strata and fossils are found below younger layers and

A scanning electron microscope (SEM) photo of the coccolith *Emiliana huxleyi*.

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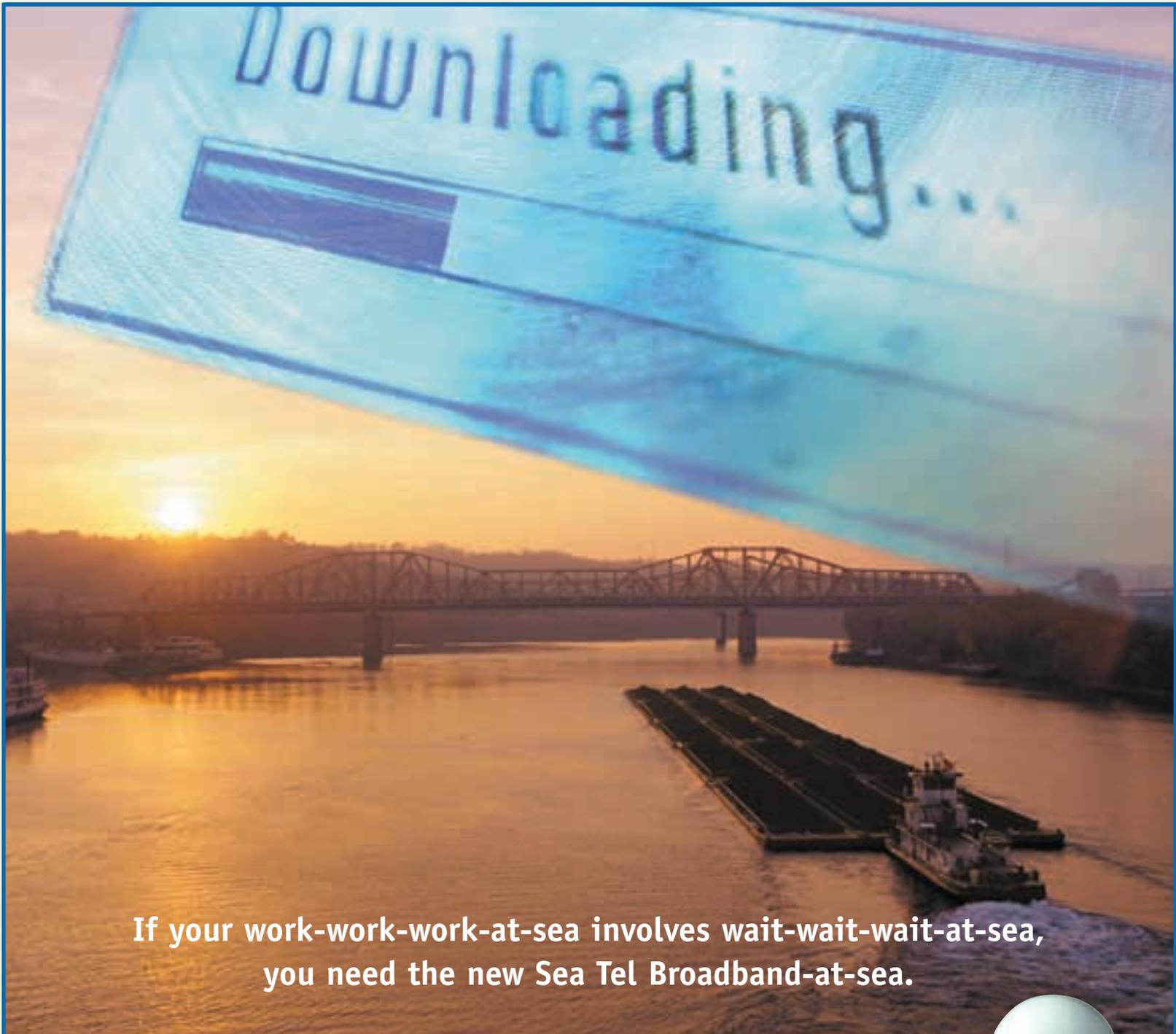


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4,15,03. ¹Source: KVH website ²Source: Delta Communications website

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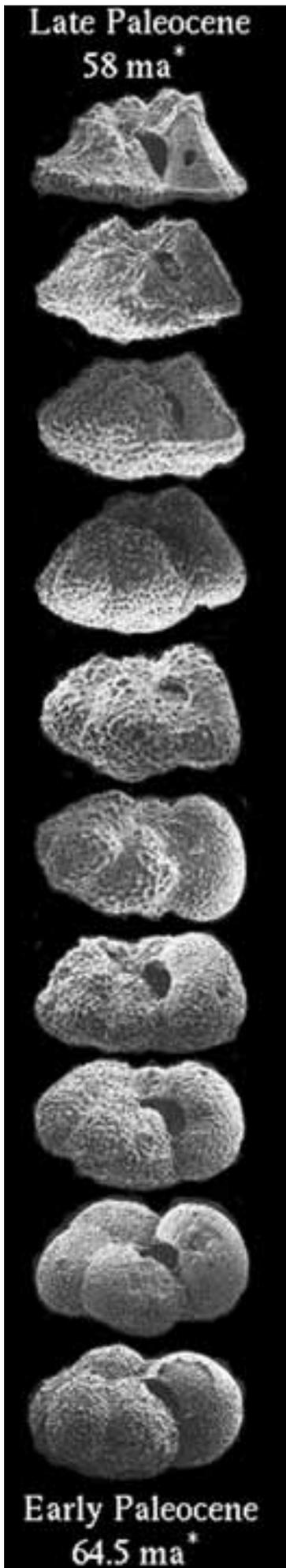
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fossils. Using this principle, geoscientists can determine the "relative age" of the fossil. Once fossils are identified, the group of species found together at a given layer within the sediment or rock can be compared with other well-known successions of rocks. This analysis is known as biostratigraphy, the separation of rock units on the basis of the description and analysis of the fossil species they contain. Relating the fossils at one stratigraphic level in one area to those in another area at the same level is known as correlation. The ideal fossil for biostratigraphic correlation, known as the marker or index fossil species, is one that is easily identifiable, abundant, prevails

over a wide geographic area, and evolves rapidly. For biostratigraphic analysis, samples are collected from wells. The samples are labeled by well depth and location. While most fossils are destroyed during the drilling process, microfossils remain intact and are identified. A paleontological report is then made, listing the important foraminifera and coccoliths and the depth at which they were found. The paleontologist transfers this fossil information into a database where the paleo information from a particular well is correlated with adjacent wells, determining the timing of events. Looking at groups or the assemblage of fossils in the well, a paleontologist can determine what the approximate water depth, or paleobathymetry, was at the time of deposition. This critical information reveals much about the depositional environment, its organic productivity, and the potential for forming hydrocarbons. Using certain fossil species that indicate the age of sedimentary strata, and other species that reveal the water depth, the geoscientist reconstructs time slices and cross-sections to tell the geologic history of the area being studied. The paleontologist can generate various paleo maps that often coincide with sedimentation and structural trends. Integration of microfossil data with seismic and well log data leads to a more complete assessment of hydrocarbon development and reservoir delineation. The paleontologist plays detective with beautiful microfossils, searching for critical clues left untouched or unseen for millions of years. With geologists and geophysicists applying the fossil evidence as age controls onto seismic sections, well logs, and structure maps, those tiny microfossils provide an essential framework for regional geologic history...and petroleum fields in particular.

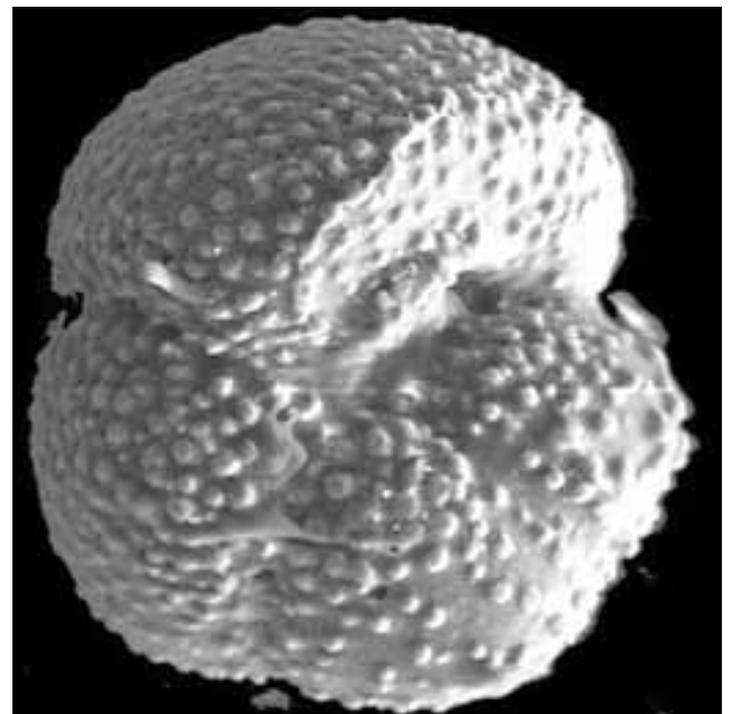
LEFT: An example of the rapid evolutionary changes in foraminifera over 6.5 million years, from the early Paleocene (64.5 million years ago), at the bottom, to the late Paleocene (58 million years ago), at the top.

RIGHT: The foraminiferan microfossil Globorotalia.



ABOVE: Reconstruction of a Middle Cambrian (505 million years ago) sea bottom based on fossils found in the Burgess Shale in British Columbia.

(Reproduced, with permission, from the January/February 2005 edition of Ocean Science, Volume 2, Issue 1, a publication of the Minerals Management Service)



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RELIABILITY TO THE EXTREME

Moving LNG Offshore: Is it Viable?

The industry is beginning to take a serious look at FLNG units, some of which use ship-like technology. What are the issues to consider?

New environmental regulations aimed at reducing CO2 emissions, as well as the increasing value of gas, are prompting operators of gas and oil fields to look for new ways of making remote gas fields economically viable. The industry has turned towards the idea of floating LNG (FLNG) units, and several innovative solutions are beginning to gain momentum. FLNG storage and regasification facilities, which remain permanently on station and are connected to the grid ashore via an undersea pipeline, have been put forward as one viable option. They can act as buffer storage facilities, receive LNG from shuttle tankers and offload gas to a nearby pipeline via a turret/swivel and riser arrangement. Another concept involves fitting an existing LNG ship with regasification facilities. In this scheme, the ship hooks up to an offshore buoy system, regassifies its own LNG cargo and pumps it into a pipeline ashore. One potential limitation of this system would be the

(Continued on page 36)



FLNG Focus: Cabrillo Port

Cabrillo Port - located approximately 21 miles offshore of California from the City of Port Hueneme - is designed to provide an abundant supply of energy. Cabrillo Port is a floating offshore vessel, similar in shape and general design to an ocean-going ship, that measures 938 x 213 ft. (286 x 65 m). Cabrillo Port will house three spherical storage tanks into which the LNG is pumped from delivering carriers. Each tank has a storage capacity of 41,678 tons of liquid, or the equivalent of about 2 billion cu. ft. of natural gas - for a total equivalent of 6 billion cu. ft. of natural gas. Eight regasification units on Cabrillo Port will regasify up to 1.5 billion cu. ft. of natural gas per day. However, normal output will be approximately 800 million cu. ft. per day. Liquefied natural gas will be transferred by ship at Cabrillo Port, converted back into natural gas while offshore, and shipped via pipelines and connect to the Southern California Gas Company's onshore natural gas pipeline distribution system that has been safely delivering natural gas to homes and businesses in Ventura County for decades.

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Keppel Fels Cleans Up

Keppel Fels, the wholly owned subsidiary of Keppel Offshore & Marine Ltd (Keppel O&M), has been on a good roll to start the new year, logging a number of significant orders and perhaps serving as a harbinger of good times to come for all that serve the offshore market. To recap:

- The company won contracts worth more than **\$543.5 million** from A.P. Moller — Maersk A/S (Maersk) to build four jackup rigs. The four new high efficient jackup rigs are of the CJ 50 design from Marine Structure Consultants. They can operate in water depths of up to 350 ft., and drill high-pressure wells of down to 30,000 ft. The first rig is

expected to be completed in fourth quarter 2007, while the rest will be delivered consecutively in half-yearly intervals thereafter. Mr. **Choo Chiau Beng**, Chairman & CEO of Keppel O&M, said, "This is the largest series of jackup contracts that Keppel FELS has secured from a customer at any one time."

- Keppel FELS won a **\$128.8 million** contract for the construction of a KFELS B Class jackup rig for Seatankers Management Co Ltd (Seatankers). The jackup, built to Keppel FELS' proprietary design, incorporates the latest design and engineering concepts. It is capable of drilling down to 30,000 ft. in water depths of up to 400

ft. It is to be delivered in 3Q 2007.

- The company secured a contract from Odfjell Invest (Odfjell) for a repeat KFELS B class jackup rig for **\$121 million**. This contract follows from Odfjell's exercise of its option which was given to it when it signed the contract for the first rig in March 2004. The jackup rig is scheduled for delivery in the second quarter of 2007. Like the first rig, this new rig is designed for operation in water depths up to 350 ft., drilling down to 30,000 ft. and accommodating 110.

- Finally, Keppel FELS received an **\$85 million** contract from Diamond Offshore Services to upgrade the semi-



Keppel Fels won contracts worth more than \$543.5 million from A.P. Moller - Maersk A/S (Maersk) to build four jackup rigs.

submersible rig Ocean Endeavor. Completion of the upgrade is scheduled for fourth quarter 2006.

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Deepwater LNG Port Receives First Discharge



On March 19, 2005, the first liquefied natural gas (LNG) tanker commenced discharge at the newly completed LNG deepwater port. The new facility of Excelerate Energy's Gulf Gateway Energy Bridge (Energy Bridge), which is located 116 miles off the south coast of Louisiana, consists of a terminal to receive, store, and re-gasify LNG, and a pipeline to transport this natural gas to existing offshore gas-gathering stations. Energy Bridge was the second applicant to receive approval under the Deepwater Port Act of 1974, as amended by the Marine Transportation Security Act of 2002.

Rowan Sells Boat Purchase Options

Rowan Companies assigned its operating lease agreements and sold the purchase options it held on four anchor-handling, towing and supply boats. Net proceeds to Rowan from the assignment and sale were approximately \$21 million. Rowan obtained the boats in 1999 and 2000 through charter agreements that gave the company an option to purchase each boat at the conclusion of the lease term in March 2005. The boats were fully-crewed by the charterer, but managed by Rowan to provide towing and supply services for the company's drilling operations and for third parties. Rowan continues to operate two addi-

tional boats under operating lease agreements without purchase options that expire in May, at which time the Company will exit the marine vessel business. **Danny McNease**, Chairman and Chief Executive Officer, commented, "Rowan originally entered the marine vessel business to ensure our customers that a modern fleet was available to service both our drilling rigs and their operations. We believe that commitment has been satisfied, and we are exiting the business with a substantial one-time financial gain."

Prime Marine Offers Big Cutting Tool

Prime Marine Services announced the availability of the new Prime Marine 48-in. hydraulic cutting shear, the latest in cold cut technology.

The new 48-in. hydraulic cutting shear was put to work immediately by Horizon Offshore to salvage a platform toppled by Hurricane Ivan. The platform was in approximately 200 ft. of water. Horizon made over 41 cuts from 18 to 39-in.; the 39-in. cut was a multi-layer compound pipe.

Prime Marine Services, Inc. currently has a 24-,30-,36-,and 48-in. models available for rent at its new facilities in Broussard, La.

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Deepwater Operation of BOP from HiPAP

Deepwater Frontier is the first vessel to install the 3000 m MF (Medium Frequency) Acoustic Control System (ACS). In fact, the request to Kongsberg Maritime from Transocean for an ACS for BOP that could be operated from the



HiPAP transducer down to 3000 m of water depth, initiated the development of the system. The new ACS, named

ACS 433 replaces an existing BOP control system delivered by another manufacturer. ACS 433 will, in an emergency situation, control and monitor the operation of six BOP valves via an acoustic control link.

A complete delivery consists of: Redundant subsea control system; Battery operated portable surface control transceiver; Subsea transducers; Dunking transducer; BOP simulator for testing and verification; and software for operating the BOP control system from HiPAP MMI.

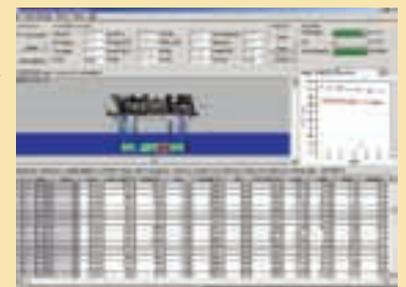
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Autoload-Rig: Stability Software for Semi-submersibles

Stability software for oilrigs should not only solve present day technical issues related to strength and stability, but should also consider the role stability plays in the business of oilrig operations management. Autoload-Rig has successfully made this link. Autoload-Rig accomplishes this link by integrating with other systems. Thus, when Autoload-Rig calculates stability and strength parameters, all possible loading information is considered. Some of the key features that define this software include:

- a 3-D model of the rig that includes all buoyant parts of the vessel, all tanks and void spaces as the basis of calculations
- manual input or tank sensor connection to update all tank levels
- auto-ballast to calculate level in four tanks to meet target draft, trim, and heel
- weight dialogue tree structure grouping of lightship (non-editable), deck loads, anchor chain, steel catenary riser (SCR) tension loads, etc.
- manual and sensor input of anchor chain and SCR
- draft sensor connection for correction of model to actual floating condition
- manual or sensor input of wind
- compartment damage simulation
- drag and drop cargo on a graphical representation of the deck.
- interface with office or third party booking systems to ensure all loaded and discharged weights are 100% accounted
- alarms for hydrostatic values and margins to limiting curves and values
- reports tailored to meet customer requirements

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(Continued from page 34)

need to leave the LNG ship alongside for several days during the regasification process, reducing the number of cargoes it could carry and perhaps increasing the overall number of ships required to serve a particular project. This would clearly be a factor for an operator to consider. The most sophisticated solution currently being proposed is a floating production, storage and offloading (FPSO) unit connected directly to a gas wellhead or linked to a number of platforms. The vessel would receive natural gas via a turret and riser arrangement, liquefy it and store it onboard. The products would be offloaded to shuttle tankers using an LNG offloading system specifically designed for marine environments. All of these solutions present an engineering challenge that can only be overcome by combining the best technologies from both the marine and offshore sectors.

FLNG unit versus LNG ship

There are distinct differences between the design of current LNG carriers and the projected specifications of FLNG units, which will require careful consideration in order to preserve safety of construction and operation. FLNGs will need to have greater storage capacity than that currently afforded by conventional LNG ships. This may affect the choice of containment system configura-

tion, size and type, also taking into account anticipated loads and sitespecific ocean data. Sloshing aspects will have to be carefully considered, as FLNGs will experience an almost unlimited range of loading conditions, as opposed to LNG ships, which traditionally have a fairly limited range of operational loading conditions. The choice of mooring system will be significant, as different systems impose varying loads on hull structures. Several types of station-keeping systems are available, including internal and submerged turrets, external turrets, buoy, fixed spread mooring and dynamic positioning. Offshore transfer systems are subject to continuous loads due to the interface between the floating unit and the tanker, as well as the environment. It is envisaged that liquefied gas cargo transfer will be accomplished with loading arm systems, either side-by-side or in tandem. One perceived disadvantage of the loading arm system, however, is the difficulty associated with remaining connected in long swells and higher sea states. Whereas the topside of an LNG carrier may be limited to a compressor or electrical room, FLNGs will be required to support complex liquefaction and gas processing trains with a combined weight of up to approximately 45,000 tonnes. Such deck area and structural requirements will have an impact on both the size of hull and the type of cargo tanks that can be used.

Structural analysis and design will have to take into account all appropriate loading combinations including dynamic loading, hull deflection, environmental loads and fatigue loads. Although LNG is the common cargo for both LNG carriers and FLNGs, operations are far more complex and safety critical for the latter. FLNG designs should be subjected to risk assessment in order to identify potential hazards, to determine risks and to establish means of mitigating for potential events such as LNG or gas release, fire, explosion and cryogenic spillage. Processing and transporting liquefied gas at sea requires special engineering techniques and contingency measures to minimize the inherent risks. The prospect of the industry designing, building and installing such installations has prompted Lloyd's Register to prepare and publish its Guidance Notes for Classification and Certification of Floating Offshore Liquefied Gas Installations. The guidance notes focus on certain technical aspects relating to FLNG design including class notation; hull, mooring and topside aspects; LNG processing and containment; safety and risk-based assessments; fabrication; testing; and in-service surveys.

Source: Lloyd's Register, Horizons, Issue 10, December 2004. For more information contact **Trevor Welham**, Principal Civil Engineer, Energy and Transport, Lloyd's Register at trevor.welham@lr.org

Tidewater to Sell Six Vessels

Tidewater entered into a Letter of Intent to sell up to six of its KMAR 404 class of Anchor Handling Towing Supply vessels. The sale price, if all six vessels are ultimately sold, will amount to \$202 million and result in a reported financial gain of approximately \$80 million. The transaction, as structured, calls for multiple closings throughout 2005 on five of the vessels as they end existing charters. The sixth vessel will be sold during 2005 if certain conditions are attained. Culmination of the transaction is subject to the buyer's inspection of the vessels and its securing adequate financing during the period ending April 1, 2005, and the parties entering into a definitive agreement by April 15, 2005. "This opportunity, which was presented to Tidewater by an international group, reflects the overall improved level of drilling and exploration activity in the North Sea. If the transaction is successfully culminated, we will have monetized a portion of our prior investment in large deepwater Anchor Handling Towing Supply Vessels at an attractive price. Moreover, with the soon to be completed delivery of the second of our large Anchor Handling Towing Supply vessels from our Chinese new construction project, and the projected delivery of the balance of three more vessels scheduled during 2005, we will continue to own the necessary modern deepwater vessels to take advantage of international business opportunities as they continue to develop," said **Dean Taylor**, Chairman and CEO of the company. Tidewater Inc. owns and operates nearly 570 vessels, the world's largest fleet of vessels serving the global offshore energy industry.

Rigdon Takes Delivery of Seventh PSV



Rigdon Marine recently received the M/V Conti, the seventh of ten GPA 640 platform supply vessels being built at Bender Shipyard in Mobile, Alabama. Mrs. **Patti Guice**, wife of **Billy Guice**, Vice President of Marketing for Rigdon Marine (both pictured above) christened the vessel before it dispatched for contract work in the Gulf of Mexico. "We are extremely please that the M/V Conti was immediately dispatched to support the worldwide offshore activities of a prominent oil service company," said **Larry Rigdon**. "This recent deployment continues to reinforce the numerous advantages of the GPA 640 PSV including increased fuel efficiency, superior station-keeping via our ABS-classed DPS-2 system and increased liquid mud capacity in self-cleaning, cylindrical cargo tanks." Rigdon Marine is scheduled to take delivery of sister ships M/V St. Louis in April, 2005; M/V Toulouse in June, 2005; and M/V Esplanade in August, 2005.

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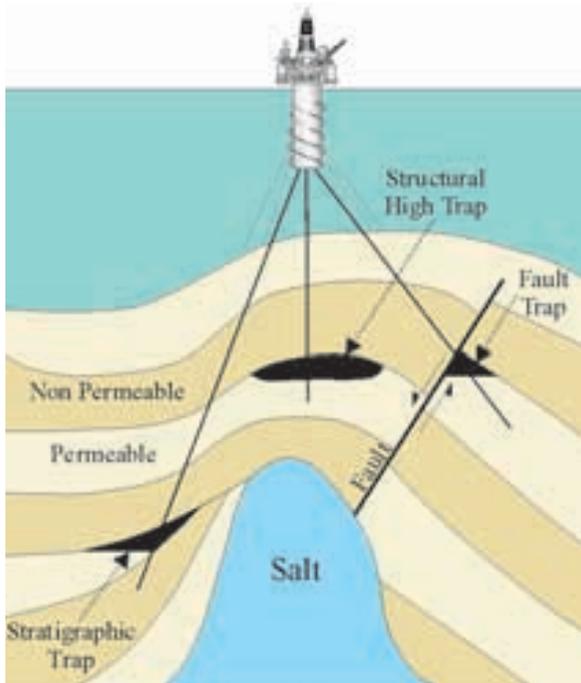
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Searching for Oil and Gas

Prospecting With New Tools

The search for oil and gas is a challenge that carries a high financial risk. Wells may cost more than \$50-70 million each and be drilled to nearly six miles below the ocean's surface. In the early days of energy exploration, discoveries were often a matter of luck. Even today, the U.S. Energy Information Administration estimates 13% of all holes drilled in the U.S. do not find commercial quantities of oil and gas (down from 37% in 1973). Advanced geophysical and geological tools such as three-dimensional seismic imaging, sophisticated well-logging tools and techniques, computer-based petrophysical analysis, and paleontology reduce the risk associated with locating oil and gas reserves.

In the past, geoscientists had to rely on two-dimensional seismic data interpretation to define potential hydrocarbon prospects. The images scientists assembled were useful, but less than complete. Today, however, advanced three-dimensional seismic data are providing a more detailed understanding of a prospect. Seismic data are obtained by using hydrophone or geophone receivers. These receivers record the time it takes for a signal or sound wave (caused by an air pulse) to travel from the source to the receiver. As the



signal or wave travels, it reflects off the layered sediments it encounters and returns to the receiver. The source and receiver are then moved in a grid pattern

across an area as the process is repeated.

The data generated through this method are then processed to yield a three-dimensional image or "picture" that represents the subsurface strata and geologic features (faults, salt domes, etc.) in the area of investigation. By estimating the velocity of sound through the various subsurface strata and the travel time of the signal from the source to the receiver, the depth to a particular reflector can be estimated. Geoscientists then translate the seismic data into maps, cross-sections, and three-dimensional models of potential hydrocarbon accumulations or prospects.

In the evaluation of a new lease block, exploratory wells may be drilled to test subsurface strata and structures for potential hydrocarbon accumulations. Logs obtained from these exploration wells (see figure on page 3) provide information that can enhance the three-dimensional seismic picture of the area. Well logs are continuous recordings of specific physical properties of the subsurface strata encountered during drilling of an exploratory well. Such logs may be obtained by wireline logging, which consists of lowering a logging tool into a well and recording data as the tool is raised from the bottom of the well. Logs can

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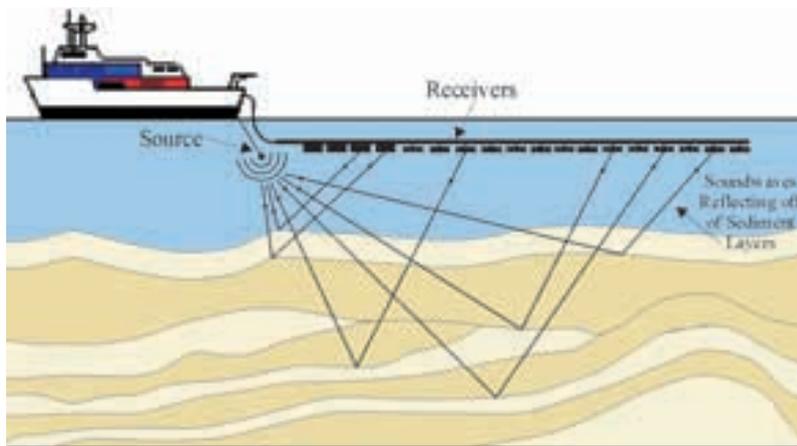
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Detailed petrophysical analysis is a vital and necessary step in the exploration for the development of oil and gas prospects.

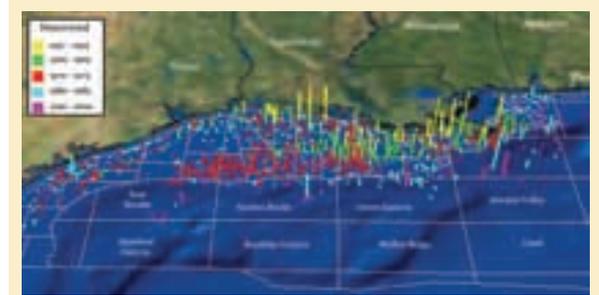
Paleontology also provides the geoscientist with tools to use in the hunt for hydrocarbons. The study of microfossils by paleontologists provides additional clues to the geologic history of a hydrocarbon prospect. The type of fossils found in a potential field can help scientists determine the age and depositional environment of the strata or structure being

also be generated by recording data as the well is drilled. The MMS has about 300,000 logs from 44,000 wells in the Gulf of Mexico.

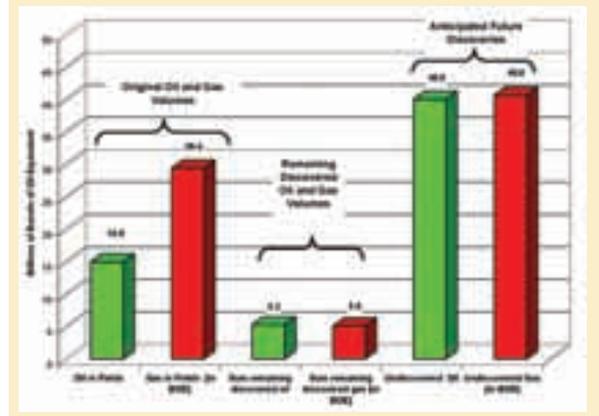
Logging tools can measure the temperature, electric potential, density, radioactivity, velocity, resistivity, and conductivity of the rock formations they encounter. These measurements are used to determine the petrophysical characteristics - porosity, permeability, and water and hydrocarbon saturation - directly related to the oil and gas producing potential of the rock. These evaluations are necessary not only to identify the rock type and hydrocarbon-bearing reservoirs but also to identify the type of hydrocarbon (i.e., gas, oil, condensate), and to determine the volume of hydrocarbons in place and the volume of hydrocarbons that can be successfully extracted from a reservoir.

explored. Today's geoscientists use many tools in the exploration for hydrocarbons beneath the seafloor. Each tool provides its own unique insights into the subsurface. As technology advances, refinements are made and more advanced tools are developed. The result is a more accurate and cost-effective means of oil and gas exploration.

(Reproduced, with permission, from the January/February 2005 edition of Ocean Science, Volume 2, Issue 1, a publication of the Minerals Management Service)



Minerals Management Service's (MMS) public lease sale on the Outer Continental Shelf (OCS) is just a part of MMS' efforts to manage natural energy resources. The GOM OCS Region is divided into thousands of three- by three-mile blocks. Twice a year at scheduled, public lease sales, interested oil and gas companies submit sealed bids for each nine-square-mile block they wish to lease. Bids for each block are announced and the highest bid noted. It is then that MMS's Resource Evaluation team must determine whether the fair market value is reflected in the highest bid. In 2004, MMS evaluated bids on 908 tracts in the Gulf of Mexico (GOM).



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Conrad Aluminum Delivers its First Crew Boat

In her first weeks of operation, the most recent addition to Diamond Services black-hulled fleet of crew boats, was working out of Port Fourchon, La. Diamond's senior Capt. Tracy Frederick was in command of the DP-1 boat. Asking a visitor to remove his shoes before walking on the immaculate non-skid maroon-red wheelhouse floor, he said, "This is a lot of boat to handle. When I have to put a man up on production platform and I have to set the stern right alongside, but that is where these jets are so good. The maneuverability is so fast and accurate, there is no delay because the gear is always turning and I just use the bucket and throttle. On the wheel there is only about a quarter turn and you have full thrust to port or starboard. You can drive it like a car."

Tracy makes it sound easy but when you look out from his rear controls over more than 130-ft. of boat between there and the stern you realize that he is maybe not taking enough credit for his own skills. The jets, that Tracy is refer-



Ready to leave Port Fourchon for the off shore rigs.

ring to are four Hamilton HM-721 waterjets powered by four Cummins KTA38-SQ. M. mains producing 1,350 hp each at 1,900 rpm and turning through ZF 2550 marine gears. It is a much proven engine package about which Tracy is equally enthusiastic having worked with the same engines on

Diamond Services' six-year old Mr. Steven.

Design credits on the boat go to A.K. Suda of New Orleans with construction at the new Conrad Aluminum, LLC yard in Amelia near Morgan City, La.. In fact the boat carries the yard's 001 builder's plate. The 180 x 32 x 14.6-ft. boat also

Mary Grace Main Particulars

Owner	Diamond Services
Builder	Conrad Aluminum LLC
Designer	A.K. Suda
Classification	ABS
Length	180 ft.
Breadth	32 ft.
Depth	14.6 ft.
Main engines	4 x Cummins KTA38-SQ. M.
Power	5,400 hp
Waterjets	Hamilton HM-721
Gears	ZF 2550
Gensets	Cummins
Bowthruster	Thrustmaster

carries 39,000 gallons of fuel, 68,000 gallons of water and up to 300 tons of freight on her 112 x 26-ft. cargo deck. Seating is provided for 70 passengers in the main deck cabin and accommodation for up to nine crew members is in the hull.

In addition to its dynamic positioning system and full suite of electronics, Tracy is pleased with the Fanbeam Laser Radar 4.1 station keeping system that takes reflected signals from a rig and interfaces with the DP system to maintain real space positioning, "Last night I was using the Fanbeam in a 13 knot



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This Isn't Your Father's Coast Guard Manual

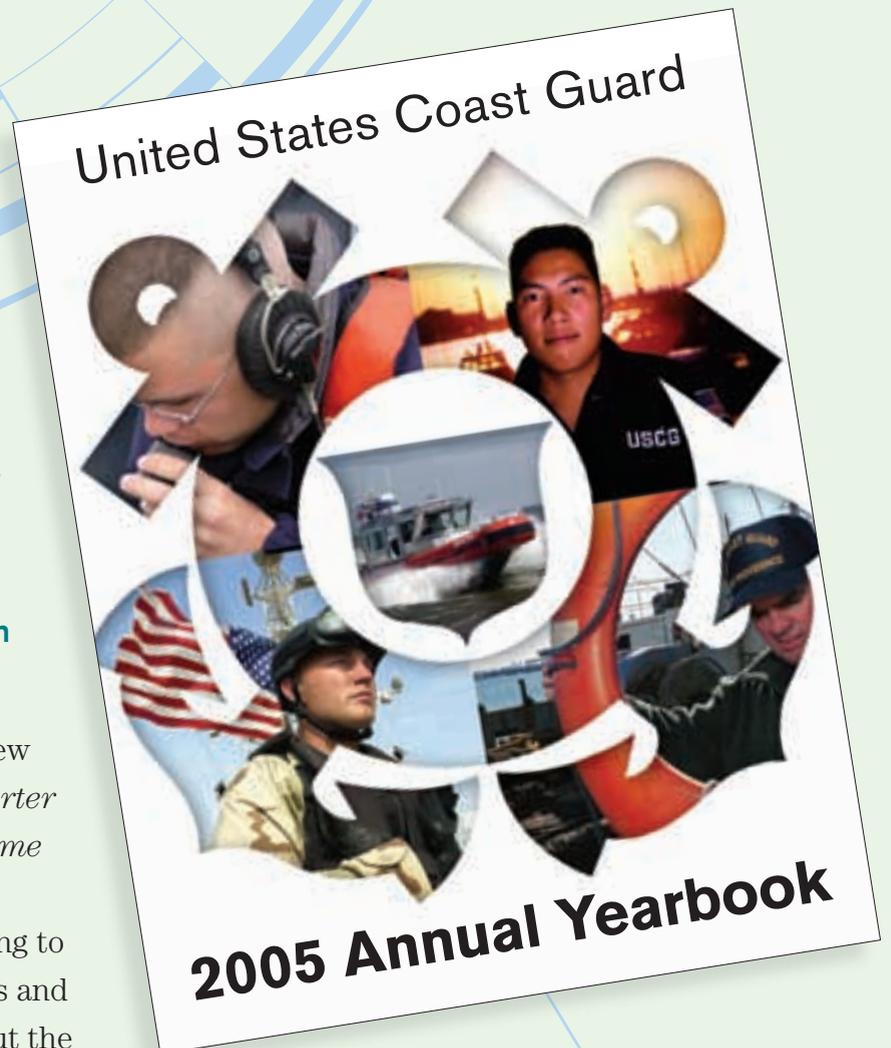
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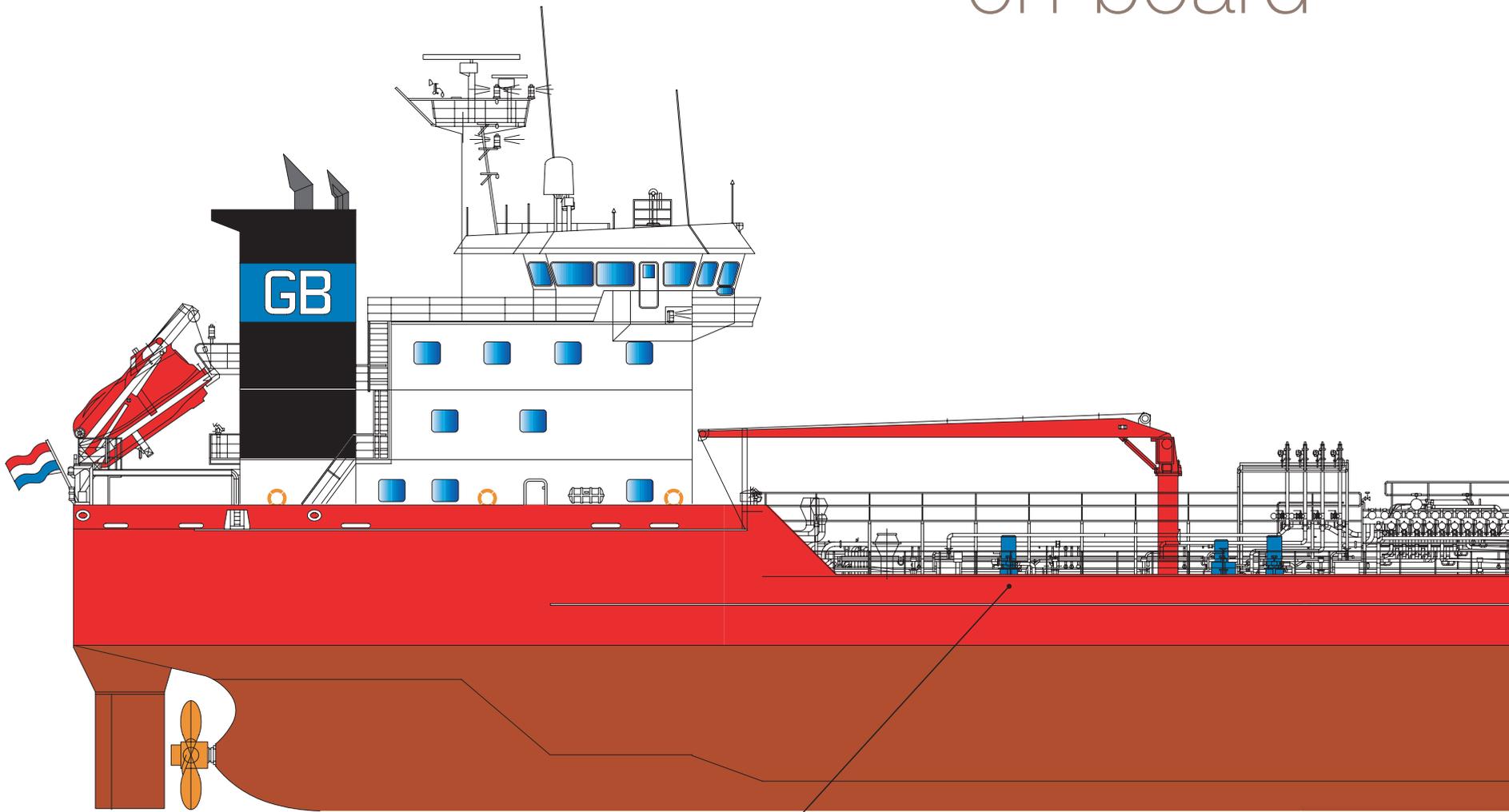


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Gunclean Toftejorg systems

Broere Shipping uses fixed SSt 40T dual-nozzle tank cleaning systems for cargo tanks, plus rotary spray heads for hard-to-clean spaces like pump domes and entry hatches. With rotary spray heads in place, there is no need for manual cleaning with a high-pressure gun before entering the tank.



Broere Shipping also uses:



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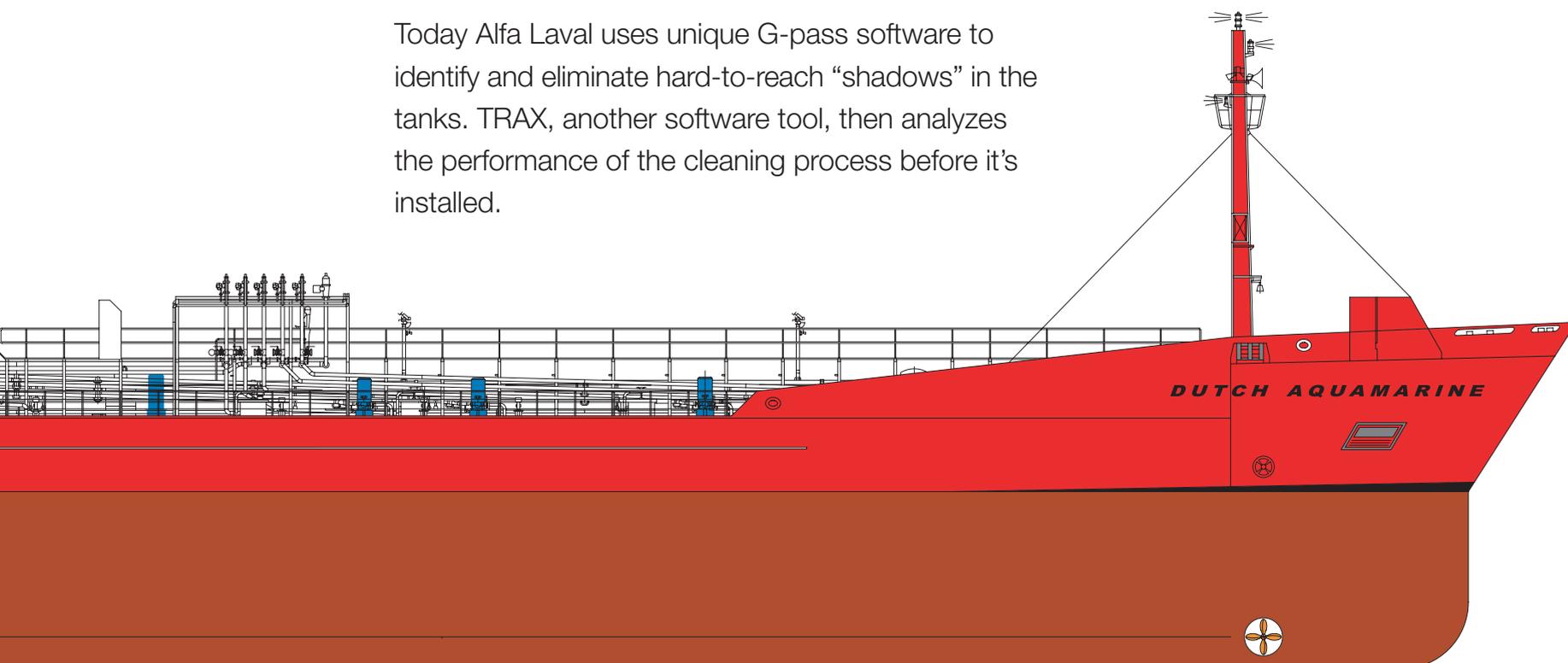
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Alfa Laval can be found on board most ships and offers harbour support worldwide. Our products include systems for tank cleaning, heating, cooling, filtration, separation, desalination, fuel conditioning and waste treatment. As a leading supplier, we strive for the most efficient, reliable and environmental solutions. Our drive is the partnership with our many customers – together we set the standard.

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With a top reputation in chemical transport, Broere Shipping makes no compromises on tank cleaning. They choose Gunclean Toftejorg solutions from Alfa Laval.

Today Alfa Laval uses unique G-pass software to identify and eliminate hard-to-reach “shadows” in the tanks. TRAX, another software tool, then analyzes the performance of the cleaning process before it’s installed.



“Alfa Laval’s strength lies in designing installations for total performance,” says Karel Vinke, Broere Cargo Superintendent. “From shadow drawings to final installation, Alfa Laval has given us full support.”

Today, Broere Shipping is more effective than ever. With optimal cleaning and no downtime, their Gunclean Toftejorg systems help keep business on track.

To learn more about Gunclean Toftejorg systems or the Broere Shipping installations, visit our website.



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wind under the rig. It takes bearings off the rig and keeps us within one foot on our position. It's all kind of new to me," He smiles, "So I'm not sure how it works, but it works, great."

Located in the vessel's hull, the galley and mess area continue the maroon and white color scheme from the wheel-

house. Aft of this crew staterooms line the companionway. At the end a watertight door opens on a laundry/utility room. Aft of that the boat's Twin Cummins 6CTA8.3-DM gensets producing 125 kw of electricity each provide ship's service power, some of which will power an electric, 100-hp

bowthruster from Thrustmaster. The boat has two 1,000-gpm fire monitors supplied by a pump driven off an independent Cummins 6CTA8.3 engine. The vessel is classed ABS Loadline and USCG certified Subchapter T.

The engine room is well laid out with good access to all four main engines.

Chief Engineer **Jerry Reynolds** has been six years with Diamond Services and is happy with the company and Port Captain Kenny Guidry for their support while he worked up from deck hand. He is also happy with his engine room, "I've worked all the engine makes and you don't have the mechanics coming out to the boat as often with these," he maintains.

Jerry works a regular four weeks on and two weeks off. Tracy often puts in more time than that, saying, "When I'm on a beautiful boat like this it is my second home."

That may explain the reason that a new deck-hand being shown around the vessel is told, "This boat is named the Mary Grace but really it could be the Tracy Grace."

For more information on the companies in this report, circle the appropriate number on the Reader Service Card in this edition.

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Hamilton Jet	42
Thrustmaster	43
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Next Generation Supply Vessels



UT-Design in Rolls-Royce has undertaken a complete review of offshore vessel design.

The latest development from the Rolls-Royce marine stable is the UT 770-series of platform supply vessels, a vessel designed to provide the shipowner and charterer with a range of vessels which are economical to operate, to be effective tools and to provide a safe environment for their crews.

"A clear requirement has been to make working and living conditions on board as safe and comfortable as possible," said chief designer **Sigmund Borgundvaag**.

The design is tailored so that cargo is carried as near the point of minimum motion as is feasible, on a working deck with high and protective bulwarks. Stabilizing tanks above the main deck provide optimal roll reduction and also form a safety buffer between the working deck and the superstructure, reduc-

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ing the risk of injury or damage from swinging crane loads.

The superstructure itself is shaped to give a distinctive profile but this is far from just a matter of styling. The layout is designed to provide an exceptionally good view in all directions from the bridge, low wind resistance and good spray shedding qualities to cut the amount of water and spray on deck in bad weather. An additional benefit of the new superstructure is that it has more strength using less material. Inside is the functional wheelhouse and spacious and comfortable quarters for the crew.

The design specification calls for accommodation to cruise ship standards in a low motion environment free of noise and vibration.

The deck is prepared for new systems designed to reduce the amount of manual work and to safeguard the crew when moving and securing cargo.

One such measure is the automatic sea fastening system developed by Rolls-Royce which provides for moving cargo about the deck and for unmanned locking of containers.

Another is the liquid and bulk cargo discharge stations, situated at the side walkways. These incorporate the Odim automatic bulk hose connection station that enables hose connections to be made with a minimum of manual handling. A highly functional oil recovery

system can also be installed.

UT 776E

A good example of the next generation vessels is the UT 776E. This is a 93m long PSV with a cargo deck area of about 1040 sq. m. Its deadweight at maximum draft is approximately 5,000 tons, of which over 3,000 tons can be carried on deck.

It can carry pipes, liquid cargo and cement/barite and it is designed also for safety standby and oil recovery, while options enable it to be configured for fire-fighting, helicopter landing, ROV operations and be fitted with a 150 ton offshore crane, a 300 ton A-frame and extra accommodation.

Tankage is provided for fuel, water, mud, brine, methanol and special products. The bulk handling system has a capacity of 400 cu. m. and there are also tanks for 1,000 cu. m. of recovered oil.

Although other propulsion systems can be selected, the E version of the UT 776 as standard has diesel electric propulsion with four generator sets totalling either 6,960 kW or 8,700 kW and Azipull thrusters for efficient propulsion.

With two tunnel thrusters and a swing-up

azimuth thruster at the bow all rated at 883 kW the vessel meets DnV AUTR requirements for dynamic positioning.

The economical cruising speed is 12 to 16 knots and the maximum speed is more than 17 knots, depending on load.

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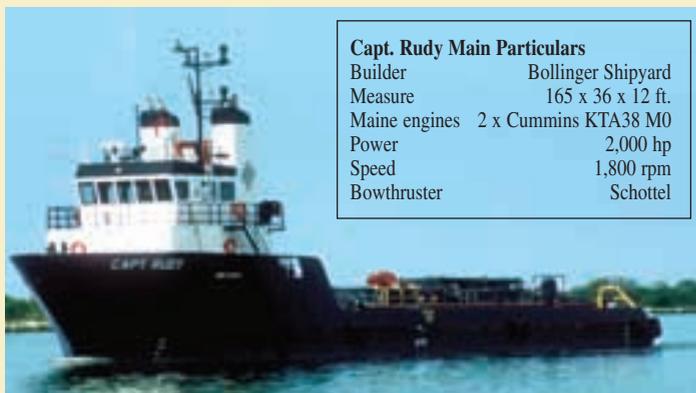
Boat Pride Onboard New Seahorse Marine Supply Boat

Nothing speaks to the quality of a boat more strongly than her skipper's pride of command. That pride is clearly evident when Capt. Philip Gaudet shows a guest through the M/V Capt. Rudy an immaculate new boat from Bollinger Shipyards' Lockport, La. facility. At 165 x 36-ft. with an 12-ft. molded depth, this is an expanded version of Bollinger's successful 145-ft. mini supply boat with the greater part of its length aft of the three story deck house. However entering the galley from the 110 x 30-ft. cargo deck one finds oneself in an ample but cozy galley and mess area.

Down from there takes one to the engine room where the boats main engines, a pair of 1,000 hp Cummins KTA38 M0 delivering a combined 2,000 hp at 1,800 rpm hold the central place in an equally immaculate and well laid out engine room. Forward of the main engines a Cummins N14 drives a

270 bhp Schottel bow thruster. Electrical power is provided by a pair of Cummins 6CTA-powered 99 kW generators. A walkway leads aft between the liquid mud tanks with combined capacity of 1,250 barrels. Tankage is built in for 57,200 gallons of fuel, 64,200 gallons of potable water and 44,000 gallons of methanol or jet fuel. The deck can accommodate 506 long tons of cargo.

Taking his guest up to the spacious wheelhouse, further reason for Capt. Gaudet's pride is apparent in the spacious pilot house with well laid out DP-linked fore and aft controls. From the aft controls the visibility aft to the stern is clear and unobstructed. Designated a mega-mini supply boat, the craft is named for Capt. Rudy Lefort who captained the first Bollinger 145-foot mini supply boats.



Capt. Rudy Main Particulars	
Builder	Bollinger Shipyards
Measure	165 x 36 x 12 ft.
Main engines	2 x Cummins KTA38 M0
Power	2,000 hp
Speed	1,800 rpm
Bowthruster	Schottel



Capt. Philip Gaudet in engine room and wheelhouse.



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Bourbon PSV Named

In early February Ulstein held a ceremony for the naming of Bourbon Topaz, a new PSV for Bourbon Offshore Norway, and a significant event in that it was the first time Ulstein Verft AS delivered a vessel to Bourbon Offshore Norway. Bourbon Topaz" will be officially delivered to the shipowners Bourbon Offshore Norway in February., has previously expressed his great expectations for the vessel, which he believes will secure Bourbon good jobs.

"The vessel is a pure platform supply vessel and can operate in this market around the world, though I believe that yard number 267 from Ulstein Verft will probably start its career in the North Sea," said **Jostein Sætre**, Bourbon Offshore Norway's managing director. "The construction has been good and professional. We have great expectations with respect to the design, but it remains to be seen how the vessel functions in sea trials and in ordinary operations," he continued. Bourbon Offshore Norway is a growing shipowner. The

company is owned by Groupe Bourbon, who has expressed an ambition to be world leaders within the offshore segment. The company took over an older offshore/supply fleet through the acquisition of Havila Supply in 2003. Many of the older vessels have now been sold, while at the same time the company has contracted new ones. The average age of their vessels is six years. The company is French owned, but is locally anchored in Herøy, Norway. "Bourbon Topaz" will be the ninth platform supply vessel (PSV) in the fleet. Sætre says that it means a lot to the company that they are able to participate in, develop and strengthen the maritime cluster in the region of Sunnmøre at the west coast of Norway. The effect of this has been, among other things, a second contract with Ulstein Verft: three months after the vessel is delivered the shipyard will begin work on constructing and equipping a new ULSTEIN P105 for the company, the tenth PSV in a row.

Circle 37 on Reader Service Card



Captain **Arnar Steinsvik**, Godmother **Hannelore Måseide** and managing director of Bourbon Offshore Norway, **Jostein Sætre**, in front of yard number 267 at Ulstein Verft. The platform supply vessel, an ULSTEIN P105, was designed by Ulstein Design.

Bourbon Topaz Main Particulars	
Length, o.a.	86.2 m
Width	19 m
Depth from main deck	8 m
Max speed	16 knots
Generator power	7,300 kW
Cargo Capacities	
Deadweight	4848 tons
Deck cargo (G = 1.0 m above deck)	2820 tons
Cargo deck area	960 sq. m.
Tank capacity fuel oil	1375 cu. m.
Tank capacity freshwater	1010 cu. m.
Tank capacity drilling water	580 cu. m.
Tank capacity ballast water	1520 cu. m.
Tank capacity brine	635 cu. m.
Tank capacity mud	837 cu. m.
Tank capacity slop	313 cu. m.



(Photo Credit: Harald M. Valderhaug)

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All Vessels located at Bayou Vista Mooring
501 Highway 182 E.
Bayou Vista, Louisiana
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950K

M/V Joe G Jr
170' 4-Point Mooring Vessel

REGISTRATION Official Number: 511366
Builder: Mangrove Shipyard, 1987
Purchased: 1997
Refurbished: 1997 @ approx cost of \$1,200,000 to bring vessel into USCG and ABS certification
Repaired: 2000 @ approx cost of \$1,000,000 - vessel grounded; all main engines, engines and generators, electrical, alarms, marine gears, etc. renewed or replaced; shafts, wheels, and 1/2 bottom renewed, etc.
Rets: 2002 @ approx cost of \$1,100,000 - Fairpoint package, crane, and A-frame installed on vessel
Gross Registered Tons: 281
ABS: International Load-line Ocean Service
DIMENSIONS
Length Over All: 170 Ft
Beam: 38 Ft
Depth: 15 Ft
Draft at Load Waterline: 12 Ft
Clear Deck: 2,010 Sq Ft
MACHINERY
Main Engines: (2) Detroit Diesel 16V149NA / 2,000 BHP
Generators: (2) Detroit Diesel 8V71 / 99 kw Delco
Bow Thruster: Wesmar BT-150 / 150 BHP
MOORINGS SYSTEM
Winches: (2) Double Drum, air actuated, waterfill type, with level-wind system, powered by a Detroit Diesel 671, with a 3-speed Allison power shaft transmission. Monitored by closed-circuit video system.
Line-Pull: 50,000 lbs @ 1st layer on drum
Cable Capacity: 5,000 ft of 1-1/8" wire rope on each drum
Anchors: (4) 8,000 lb Danforth A-FRAME
30 Ton Capacity
Clearance between legs: Approx 23 Ft
Overhang from stern: Approx 12 Ft
Height from deck: Approx 30 Ft
(1) 10,000 lb Air Tugger / 1,400 Ft of 5/8" wire rope
(1) 10,000 lb Air Tugger / 300 Ft of 1/2" wire rope
Approx depth: 4 Part Block - 200 Ft @ approx 30 Tons
Approx depth: 4 Part Block - 300 Ft @ approx 20 Tons
Note: These are working strengths. Extreme caution must be taken when lifting. Breaking strengths are significantly higher.
PERFORMANCE
Maximum Speed: 12 knots @ 100 GPH
Cruising Speed: 10 knots @ 87 GPH
Standby 0 knots @ 3 GPH
CAPACITIES
Deck Cargo: 414 LT
Ballast Water: 133,830 USG
Fuel Oil: 115,304 USG (2,760 bbls)
Potable Water: 43,600 USG (1,038 bbls)
DECK CRANE
(1) 15 Ton hydraulic, pedestal-mount, 60-Ft telescopic boom, 15 Tons @ 0 Ft / 5 Tons @ 42 Ft / 4 Tons @ 60 Ft
ACCOMMODATIONS
23 inside vessel with (2) one-man rooms for supervisors / company-man.
16 in 2 USCG and ABS approved self-contained crew quarters.
Air conditioned throughout.



650K

M/V Beau G
180' Supply Vessel

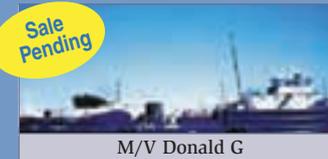
REGISTRATION Official No: 598461
Builder: St. Louis Shipbuilding, 1978
Purchased: 1995
Refurbished: 1995 @ approx cost of \$725,000 to bring vessel into USCG and ABS certification
ABS: International Load-line Ocean Service
Gross Registered Tons: 292
DIMENSIONS
Length Over All: 180 Ft
Beam: 38 Ft
Depth: 14 Ft
Clear Deck
Length: 125 Ft
Width: 30 Ft
Draft at load waterline: 12 Ft
MACHINERY
Main Engines: (2) EMD 12V645-E2 / 3,000 BHP
Generators: (2) Detroit Diesel 8V71 / 99 kw Delco
Auxiliary: (1) Detroit Diesel 8V71; Bulk / Liquid Mud Pump PTO
Bow Thruster: (1) Detroit Diesel 8V71 / Harbor Master BT450 300 BHP
CAPACITIES
Deck Load: 495 LT @ 540 lbs / sq ft
Dry Bulk: 4,000 Cubic Ft in 4 tanks
Liquid Mud: 45,780 USG (1,090 bbls)
Calcium Chloride: 45,780 USG (1,090 bbls)
Ballast Water / Drill Water: 136,500 USG (3,250 bbls)
Potable Water: 33,000 USG (786 bbls)
Fuel Oil: 82,300 USG (956 bbls)
ACCOMMODATIONS
12 Passengers and 5 Crew in 6 Air Conditioned Staterooms
TV / VCR
Walk-In Cooler / Freezer
Washer / Dryer
ELECTRONICS
This vessel has a full complement dual electronics package including auto pilot and back-up communications radio



900K

M/V Jeannie G
190' Anchor Handling

REGISTRATION Official No: 553457
Builder: American Marine, 1973
Purchased: 1996
Refurbished: 1996-1997 @ approx cost of \$1,250,000 to bring vessel into USCG and ABS certification
Refurbished: 2003 @ approx cost of \$650,000 - Overhauled both main gears, shafts, deck winch
ABS: International Load-line Ocean Service
Gross Registered Tons: 330
DIMENSIONS
Length Over All: 190 Ft
Beam: 38 Ft
Depth: 16 Ft
Clear Deck
Length: 96 Ft
Width: 30 Ft
Draft at load waterline: 14 Ft - 3 in
MACHINERY
Main Engines: (2) EMD 16V645-E5 / 3,750 BHP
Generators: (2) Detroit Diesel 8V71 / 99 kw Delco
Bow Thruster: Harbor Master BT450 / Detroit Diesel 8V71 / 300 BHP
Towing/Anchor Winch: SMATCO 72 Series Double Drum / 300,000 lb line-pull
CAPACITIES
Deck Cargo: 450 LT
Dry Bulk: 3,900 Cubic Ft in 6 tanks
Drill Water / Ballast Water: 76,375 USG (1,818 bbls)
Liquid Mud: 67,820 USG (1,610 bbls)
Fuel Oil: 85,800 USG
Lube Oil: 140 USG
Ship Potable Water: 13,000 USG
Pumpable Potable Water: 27,000 USG
ACCOMMODATIONS
10 Passengers and 9 Crew in 6 Air Conditioned Staterooms
TV / VCR
Walk-In Cooler / Freezer
Washer / Dryer
ELECTRONICS
This vessel has a full complement dual electronics package including auto pilot and back-up communications radio



Sale Pending

M/V Donald G
165' Supply Vessel

REGISTRATION Official No: 516777
Builder: Burton Shipyard, 1968
Purchased: 2000
Refurbished: 2000 @ approx cost of \$2,300,000 to bring vessel into USCG and ABS certification
ABS: International Load-line Ocean Service
Gross Registered Tons: 288
DIMENSIONS
Length Over All: 165 Ft
Beam: 36 Ft
Depth: 13 Ft
Clear Deck
Length: 105 Ft
Width: 28 Ft
Draft at load waterline: 11 Ft
MACHINERY
Main Engines: (2) Caterpillar D336 / 1,800 BHP
Generators: (2) Caterpillar D333 / 99 kw Delco
Auxiliary: (1) Detroit Diesel 6-71; Bulk/Liquid Mud Pump PTO
Bow Thruster: (1) Caterpillar D333 / Harbor Master BT450
200 BHP
CAPACITIES
Deck Load: 450 LT
Dry Bulk: 3,700 Cubic Ft in 4 tanks
Liquid Mud: 50,400 USG (1,200 bbls)
Calcium Chloride: 50,400 USG (1,200 bbls)
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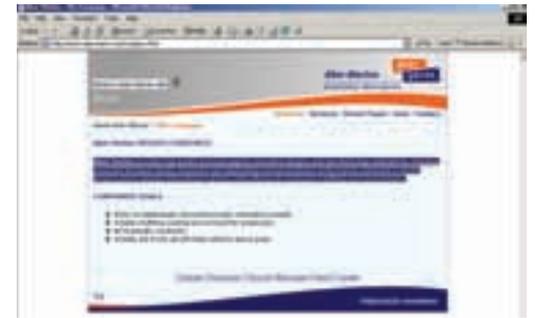


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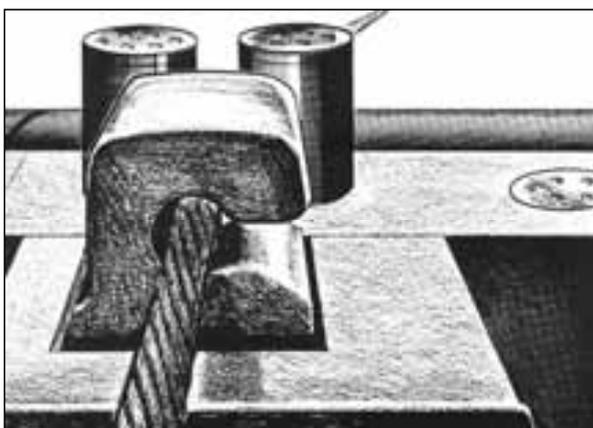
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Shipbuilding in Canada

Unless you are South Korean, Japanese or Chinese, shipbuilding in the spring of 2005 is not an easy livelihood. According to Lloyd's Fairplay these three countries have captured 61 percent of the world's order book. North and South America have three percent combined. It is quite a bleak picture.

It is even more alarming when you consider that fortress North America is surrounded on three sides by major oceans. Historically, Canadians and Americans have relied on these oceans to provide a physical barrier from the political upheavals and wars endemic in Europe and Asia Pacific.

These oceans were the roads that provided the food and industrial material that allowed the allies to prevail in two world wars. They are now the roads that allow our two nations to import the strategic necessities that keep our economies strong. It is self evident that ships will not be replaced as the primary tools for the movement of the world's commerce for the foreseeable future.

A Little History

In 1938 Canada's navy comprised a handful of ships and barely 1,000 personnel with no shipbuilding industry to speak of. By 1945, Canada's Navy included 775 vessels and 90,000 personnel. Some 30,000 ships had been refitted, converted and repaired in Canadian

yards and 65,000 persons were employed in the shipbuilding industry. From 1945 until today there has been a slow and steady decline in the size of the industry. Today there are between 5,000 and 8,000 persons directly employed in the shipbuilding industry.

What has happened since the heady days after the Second World War? Essentially supply has outstripped demand for ships. Global capacity has increased with little regard for the requirements of the market and everywhere government interference and subsidies have been the order of the day. South Korea increased its capacity from nine million deadweight to 27 million deadweight tons in the nineties. China has captured 15% of the international market in only ten years, is building the largest shipyard in the world and plans to be the world's number one shipbuilding nation by 2015. I think it is a safe guess that they are not doing this on their profits from shipbuilding alone.

The shipbuilding industry in Canada has found itself caught in the middle. In the mid eighties government/industry initiatives reduced Canada's capacity by 40 percent. Shipbuilders were left with three policies to assist the industry. First, Canadian shipowners who purchased offshore for use in the domestic trade were required to pay an import tariff of 25%. Second, shipowners who did

build in Canada were entitled to accelerated depreciation on their asset. Third, government fleets were to be constructed, repaired and refitted in Canada.

Meanwhile, with the failure of the OECD agreement to eliminate shipbuilding subsidies, the world's shipyards flourished or failed in accordance with the amount of subsidy and protection they received from their governments.

In 1994, the North American Free Trade Agreement (NAFTA) was launched. In the first four years of NAFTA, trade within North America increased by about 75% and it was considered a resounding success. Unfortunately the Jones act was exempted from NAFTA and the American shipbuilding market closed to Canada. Ironically the reverse is not true and our market remains open to our American friends. A close look at our geography shows immediately why the American market is important to Canadian shipbuilders.

A New Millennium

Perceptions of ships as part of an old outdated economy not worthy of a Canada of the 21st century were the norm in the Canadian government. Except for those few persons who live on the coasts, there is little appreciation, by the average Canadian, of the importance of marine transportation to the

economy. There was and still is even less knowledge of the high-tech complexity of today's ships.

In 2001 the then Minister of Industry, Brian Tobin, commissioned the National Partnership Project to examine the shipbuilding industry and make practical recommendations as to how to get it moving again.

The report made 36 recommendations in 10 different areas. The report was submitted in March 2001 and responded to by government in June of the same year, which has to be a world record.

The outcomes of that report are the foundation of Canada's shipbuilding structure and policy today. The Key issues accepted by the government were:

- A marine branch with responsibility for shipbuilding was established in government;
- A Structured Financing Facility was introduced to help Canadian owners finance ships built in Canada;
- A shipbuilding and Marine advisory committee that examines issues and makes recommendations to the Minister was established;
- Government R&D programs were opened to the shipbuilding industry;
- A technology road map was authorized and completed;
- The report's recommendations on federal fleet procurement were given

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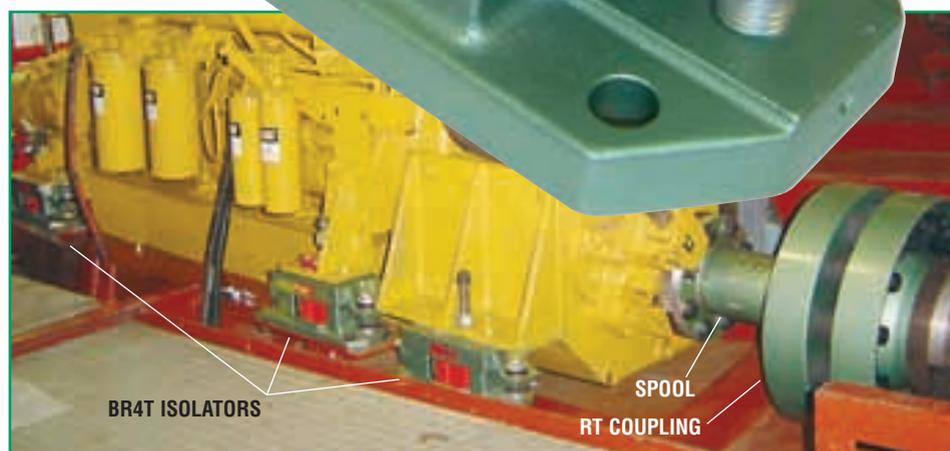
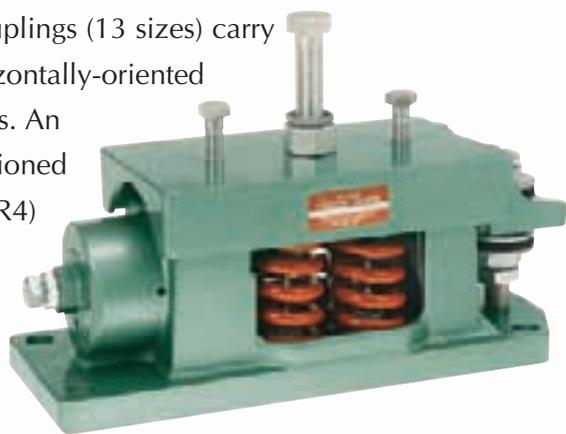
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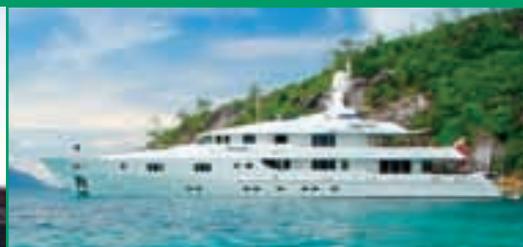
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Ocean Research: 'Teleost'

Mega Yachts: 'Mosaïque'

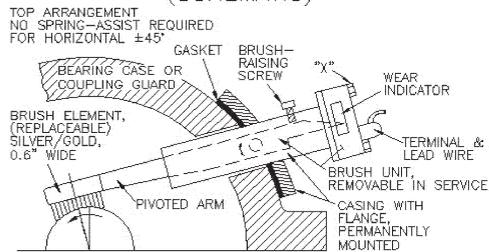
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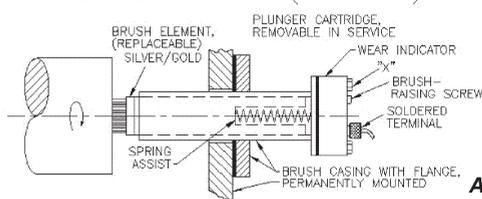
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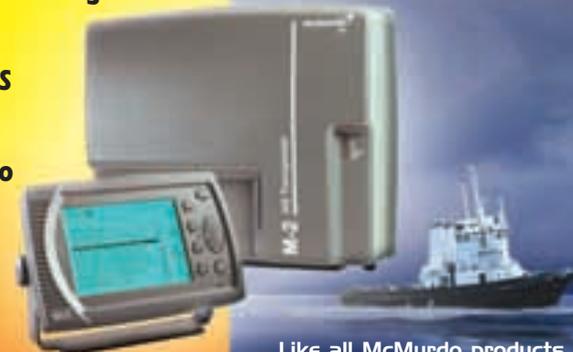
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further study; and

• The government confirmed that government fleets would be continue to be procured, repaired and refitted in Canada subject to a competitive market place.

The one government response that truly disappointed was "The Senior Officials Report on Federal Procurement". The Partnership Report had recommended that the government "eliminate the peaks and valleys of procurement for the Navy and Coast Guard through more effective forward planning and thereby keep order books and employment levels more consistent over the long term".

The Senior Officials report concluded that there was no scope for leveling out procurement. They had completely missed the intent of the recommendation that was to stimulate government to consider a more sensible way to do business, one that promised significant benefits for both government and the industry.

In Canada a shipyard cannot live on government contracts alone. It takes

government and commercial newbuilding in combination with ship repair to run a successful medium to large sized shipyard in Canada. Government newbuilding is key. For it is from a base of government work that a core workforce of talented designers, engineers and technicians can be maintained and from which their expertise can be leveraged into commercial and offshore work.

The Structured Financing Facility is an important building block in the shipbuilding policy. While it has its shortcomings it has been welcomed by the industry. We are at present working with government to see if there is a way to make better use of the financing facility and the provisions for accelerated depreciation.

The present shipbuilding program was put in place for five years. A one-year extension has been granted and it is now due to expire in 2007. A priority short-term task will be to convince the government that the program must be renewed beyond 2007.

About the Author

Vice Admiral **Peter W. Cairns, C.M.M., C.D.** retired in 1994 after 39 years of service in Canada's Navy. His career has had an operational focus with extensive command experience. He is a qualified submarine officer and his sea commands include a submarine, two frigates, a submarine squadron and a frigate squadron. He has had significant international experience having completed tours in the Royal Navy, the United States Navy and on NATO's maritime staff.



VADM Cairns' senior appointments include:

- Director General Personnel Careers Officers where he was responsible for the career management of all officers in the Canadian forces below the rank of General Officer;
- Assistant Chief of Staff Operations to the Supreme Allied Commander Atlantic (SACLANT) in Norfolk Virginia where he was responsible for the production of SACLANT's strategic direction, the planning and execution of all SACLANT sponsored major exercises, the employment of the Standing Naval Force Atlantic and the operation of SACLANT's Undersea Research Centre in La Spezia, Italy;
- Commander of Canada's Maritime Forces Pacific with the responsibility for all areas of operation of the Pacific Fleet;
- Commander of Maritime Command where he served as the senior officer commanding Canada's navy.

In 1997 he accepted the position of President of the Shipbuilding Association of Canada. The Association is devoted to creating a competitive regulatory environment in Canada for shipbuilding, ship repair and the industrial marine sector. In 2001 he served as one of the co-chairs of the National Partnership Project formed to report on the state of shipbuilding and recommend to the Federal Industry Minister measures to reinvigorate the Shipbuilding Industry.

VADM Cairns also serves as President of the Canadian Institute of Marine Engineers, as a Director of the Defence Association National Network, and as a member of the Executive Committee of the Conference of Defence Associations, the Defence Industry Advisory Board, the Germanischer Lloyd Canadian Committee and the Advisory Committee of the Institute of Ocean Technology. In 2003, he was inducted into the Hall of Fame in his hometown of Orillia, Ontario.

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Country Focus: Canada

The Next Five Years

The future health of the industry will be tied to the domestic shipbuilding and offshore oil and gas markets. The demand is starting to build. The government has just announced the largest increase in military spending in decades.

The Navy has just released a "Letter of Interest" calling for interested parties to form teams and identify themselves as competitors for the construction of three "Joint Support ships". A Frigate life extension program and the acquisition of a new surface combatant are in plan-

ning.

The Coast Guard has been given approval of its plan for fleet renewal and money is in the budget to begin this process. The Great lakes fleet must soon abandon its policy of renewing the forebodies of its ships and begin replac-

ing these old vessels. In my view the environmental pressures will demand it. British Columbia Ferries is beginning the renewal of the largest ferry fleet in North America and Marine Atlantic is studying the best way to put new resources on its ferry routes.

There are always some clouds on the horizon. The shipbuilding workforce is older and we have fewer young persons joining the workforce in comparison to other Canadian manufacturing industries. This why newbuilding is so important. It is the prospect of exciting new designs and ships that will attract bright young engineers and technicians into the industry.

Canadian yards do have many strengths. Foremost of these is that we produce fine quality products. Yards have made investments in new processes, automation and robotics and our older work force is very highly skilled.

Canadian Yards know they can compete once they get on a reasonably level playing field with the competition. For example, Robert Allen (Vancouver) designed and East Isle (Prince Edward Island) built tugs are sold internationally. Victoria Shipyards is one of the refit shipyards in the Holland America Signature of Excellence program. The Canadian Patrol Frigate is a shining example of the technical sophistication and know-how of our industry

Conclusion

Shipbuilding is important to Canada. It must be continually emphasized that shipbuilding plays a significant role in the maritime security of Canada. One does not have to be a rocket scientist to realize that without indigenous shipbuilding and repair, Canada will not be able to defend against maritime incursions. We are not in head to head competition with the Asian tigers. We require building only 6 to 12 ships a year to keep our industry robust. We must capture our own domestic market then leverage the expertise gained into the international market. In my view, our strength will prove to be in small ships and offshore modules with a high degree of technical sophistication and complexity.

New Equipment to Detect Ship Pollution

The Canadian government purchased new marine pollution aerial surveillance equipment designed to strengthen Transport Canada's National Aerial Surveillance Program, said Transport Minister Jean-C. Lapierre. The \$2.3 million contract will cover the purchase of the equipment, as well as the onboard

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crew training. "The Government of Canada is committed to preventing pollution from ships and to continuously enhancing the protection of our marine environment," said Lapierre. "This technology will significantly strengthen our surveillance program and help us achieve this goal."

Transport Canada conducts aerial surveillance to detect marine pollution from ships. When such pollution is detected, charges may be laid under the Canada Shipping Act.

Currently, this surveillance relies on visual detection from crew on board an aircraft, who can survey approximately two nautical miles on each side of the aircraft. The new equipment will be able to detect surface anomalies, such as oil, up to approximately 25 nautical miles on each side of the aircraft.

The equipment includes: a side-looking airborne radar; an ultraviolet/infrared line scanner; an Airborne Automated Identification System transponder for receiving ship identity information; a high-resolution digital photography camera and video system with GPS data annotation; and a data processor interface that integrates all systems into one user console to ensure maximum efficiency during routine and emergency situations. Transport Canada acquired the equipment from the Swedish Space Corporation of Solna, Sweden following a public tendering process.

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Hike Metal Products, since its inception in 1963, has prided itself as a diversified builder. Today it builds steel vessels as well as an array of custom, purpose-built vessels in aluminum, includ-

ing: Coast Guard Search and Rescue Vessels, Trimarans, Catamarans, Research Vessels, Sightseeing and Cruise vessels, Ferries, Pollution and Emergency Response vessels, Crew Boats, Supply Boats, Patrol Boats, Pilot Boats, Yachts and Hovercraft.



Currently Hike Metal is keeping busy with its customary array of projects, an orderbook that includes a variety of high speed patrol boats, as well as a 141 ft. Expedition Research vessel, as vessel that will be classified under ABS A1 Commercial Yacht service + AMS and MCA certified. It is being built with a steel hull and aluminum superstructure, constructed in modular sections with some outfit. Once launched the main machinery and superstructure will be lifted aboard and final outfit will be completed.

Circle 26 on Reader Service Card

Mongoose Set Loose

A. F. Theriault & Son Ltd. is ready to introduce a new fast attack craft, the Mongoose series. Offering the combination of speed and stealth while emitting no heat signature, the new Mongoose series will come with standard hull shapes but customized interior, outfitting and weaponry. A. F. Theriault & Son Ltd. is one of the largest, privately owned shipyards in Canada's Atlantic region. This family business was founded in 1938 by Augustin Theriault in an era where wooden 3-masted sailing ships ruled the seas. Today, state of the art fishing boats, pleasure yachts and catamarans, combining old techniques with the latest trends and technologies, are built of steel, aluminum, fiberglass and composites.

Circle 24 on Reader Service Card

Rutter VDR

Rutter is a supplier of voyage data recorders (VDR). Rutter's subsidiary SEA Systems Limited is a leader in automation and control systems engineering for offshore oil and gas production platforms. While marine technology and electrical engineering remain core competencies, the company has taken advantage of crossover opportunities in sectors such as defense and aerospace to grow through logical extensions of its product use and engineering strengths.



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Maritime Reporter & Engineering News

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Circle 213 on Reader Service Card



Organizational Changes at Canada Metal

Richard Summers and **Michelle Tian** have been appointed to new positions at Canada Metal (Pacific) Limited of Vancouver, B.C. Summers holds the position of senior vice president and general manager. From 1997 to 2004, he was vice president of operations at ComNav Marine, where he was responsible for operations, quality, engineering and product development. Tian has been appointed to the newly-created position of marketing assistant. She will manage product and marketing development, advertising and promotions, brand positioning and customer relationships.

Halifax Shipyards



Irving Shipbuilding, Inc. is East Coast Canada's leading company in offshore construction, rig completion, shipbuilding, repair and conversion, fabrication, and total turnkey projects. Historically this capability was utilized for the construction of Semi-Submersible Rigs,

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Circle 17 on Reader Service Card

Drill Ship construction, platform topsides for the Cohasset Project, Sable Project, as well as the Drilling Modules and Utility Shafts for the Hibernia Project, Jack-Up and Semi completion and upgrades. Recent work in 2004 was the 2,500 ton South Venture Deck and

three modules for the deck of the FPSO, Sea Rose.

Circle 20 on Reader Service Card

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Circle 18 on Reader Service Card



room data logging requirements, using intrinsically safe handheld computers. DMSI is a leader in the development and application of technology to enable asset performance improvement. DMSI offers software products that address maintenance management, condition based maintenance, equipment basic care inspections and purchasing and procurement.

Circle 21 on Reader Service Card

LIFE Expands Line

Lunenburg Foundry & Engineering Limited (LIFE) has been providing a wide variety of high quality products since its establishment in 1891. From its location on two waterfront sites on Lunenburg harbor, LIFE has serviced

both local needs and worldwide markets. Today LIFE offers a wide range of services to the yachting and megayacht industry. Lunenburg Foundry has done extensive restoration work on the M/Y Zein from Jamaica. This 1920's vintage motor yacht has been in LIFE's shipyard



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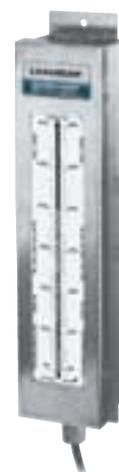
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on two occasions since 2000, going through an extensive refit of her structure and shell plating. Accommodations are planned to be refurbished as well as a full mechanical refit. Also the megayacht Michaela Rose has undergone Lloyd's inspection at the Lunenburg shipyard. Lunenburg Foundry's new indoor yacht refit facility has allowed the company to work year round providing refit work and high quality paint applications. In addition to serving the yachting and megayacht markets, Lunenburg Foundry maintains its traditional ties with the commercial fishing and marine industries on the East Coast of Canada. LIFE's Marine Products are engineered and built to withstand the rigors of the North Atlantic. LIFE's wide line of products can be integrated into packages that are manufactured and may be installed at the plant. Custom work is a specialty at LIFE; engineers are available at the plant to service your specific needs. LIFE employs a variety of experienced craftsmen and tradesmen. Our present workforce includes the following skilled employees: Engineers and Technicians; CWB Certified Welders, Machinist, Pipefitters, Mechanics, Riggers and Shipwrights.

Circle 47 on Reader Service Card

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Circle 22 on Reader Service Card

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Celebrating 75 years of continuous business in 2005, Robert Allan Ltd is Canada's oldest firm of Consulting Naval Architects. From its offices in Vancouver, RAL serves a truly international Client base, providing design and engineering services for a wide array of specialized workboats. Best known for its widely recognized high-performance ship-assist and escort tug designs, the company is also actively designing large anchor-handling tugs, fireboats, ferries, barges, crewboats and fast patrol craft.

Currently RAL has more than 35 vessels under construction around the world, including award-winning Z-Tech tugs, the Rampage Class AHTS, and Odyssey Class Ro-Ro ferries.

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Circle 280 on Reader Service Card

TESMA Expands Into Scotland

TESMA Holding AS is establishing a Scottish company — TESMA UK Limited — in Leith, Edinburgh, and has targeted this summer to begin opera-

tions. The company initially will operate a fleet of 14 gas, product and chemical tankers. TESMA UK will manage a fleet of six LPG carriers and two product tankers currently owned and/or managed by George Gibson & Co. Limited.

An additional six LPG carriers and chemical tankers currently managed by TESMA Denmark will be transferred to the TESMA UK fleet. Initially staff will be employed from Gibson Gas Tankers Limited, but the team will be increased imminently to cope with fleet expansion.

New Joint Venture

Schuyler Rubber of Woodinville, Wash., and Maritime International of Broussard, La., have created a joint venture company, Schuyler-Maritime LLC, which has constructed a manufacturing facility to design and manufacture laminated - or 'cut tire' - rubber fenders in Broussard, La. The facility is designed to service the Gulf and East Coast vessel fender markets, and use the in-house manufacturing capabilities of Maritime International, as well as the designs and expertise of Schuyler.

Circle 1 on Reader Service Card

Garner Promoted at QCI

QCI Marine Offshore, LLC promoted Ed Garner to Vice President of Operations, overseeing all of QCI's operations in the U.S., Mexico, West Africa and South America. Chris Cantele, President of QCI Marine Offshore LLC of Houston, TX, also announced the hiring of David Griffin, former President of Shipboard Electrical and Air, Inc. David will manage the Electrical & Mechanical Group at QCI. In addition, Griffin will play an instrumental role in diversifying QCI Marine Offshore into the shipbuilding & repair industry for both the commercial and government sectors.

Circle 2 on Reader Service Card

L-3 Appointments

L-3 Communications Security & Detection Systems Inc. filled five management positions both in its U.S. headquarters and its European operations. The changes include:

William J. Frain assumes the role of senior vice president of L-3 Communications Security & Detection Systems following **Allen Barber's** promotion to president of the company. **James J. Cataldo** joins L-3 as CFO, bringing more than 25 years of experience both in finance and management. He has worked in the defense industry for Honeywell, Loral, Lockheed Martin, and L-3 Communications ESSCO as vice president of finance & administration.

Steven Williams has been appointed managing director for Europe, Middle East, and Africa (EMEA), and will be

based in L-3's office in Bracknell, U.K. He most recently worked at GE Infrastructure, Security, Homeland Protection as general manager of its U.K. office. **Jay H. Payne** has been hired as vice president of cargo for L-3. He joins the company from Science Applications Intl. Corp. (SAIC), where he was corporate vice president and operations manager of its vehicle and cargo inspection systems. Prior to SAIC, Mr. Payne served for over 20 years as a space operations officer and inventory management specialist in the United States Air Force. **Robert A. Fleck** has been appointed vice president of customer service. He previously worked at AS&E and GE Medical Systems, and has a proven track record of stabilizing situations and growing business operations.

Circle 3 on Reader Service Card

Thrane & Thrane Appointments

Thrane & Thrane, Inc. appointed **George N. Spohn** as the company's new Vice President, Sales & Marketing to strengthen its Virginia Beach based North American sales arm. "In preparation for our exciting BGAN future, we are very pleased to have a capacity such as George Spohn to help us solidify our position," said **Henrik Nørrelykke**, President of Thrane & Thrane, Inc.

Circle 4 on Reader Service Card

New Ciserv Company to Serve Baltic

Wärtsilä Corp. and the BLRT Grupp of Estonia have agreed to set up a joint venture to service ships in the Baltic area. The new company will be named Oü Ciserv BLRT Baltica and will be designed as a one-stop-shop for servicing ships covering all aspects of ship repairs, as well as servicing multiple engine brands, boilers, hydraulics, gearboxes, winches, pipework valves, armatures, propellers, shafting, and other ship equipment.

Circle 5 on Reader Service Card

ESAB Promotes Two

ESAB Welding & Cutting Products announced two promotions within its Information Technology Group. **Danny Young** has been named Manager of E-Business Application Development, and **Matt Reich** has been named Manager of Network Services. Young has been with ESAB since 1998 and has played an integral part in the development of ESAB's E-Business applications. Reich will be responsible for leading the team that oversees ESAB North America's

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data communication infrastructure, network security and help desk. Reich began his career with ESAB in 2002 as a Senior Network Engineer.

Alcotec Names Burns

Thom Burns has been named to the newly created position of National Sales Manager for AlcoTec Wire Corporation, a subsidiary of ESAB Welding and Cutting Products. In his new role, Burns will direct inside and outside sales for North America. Most recently serving as Technical Services and Strategic Sales Manager, Burns joined AlcoTec in 1985.

Brickley Promoted

ESAB Welding & Cutting Products named **John Brickley** regional sales manager for the western region of the United States including Montana, Idaho, Washington, Oregon, Utah, Nevada, California, Arizona, Alaska and Hawaii. Brickley, who joined ESAB in 1999, previously held the position of territory sales manager.

Circle 7 on Reader Service Card

MICAD Marine Joins with PIMSIC Group

MICAD Marine and PIMSIC Group announced a new agreement to provide discounted insurance products to

MICAD Marine customers worldwide. PIMSIC Group will offer MICAD customers the following insurance coverage with up to 20% off:

- Marine Hull and Machinery
- Protection and Indemnity
- Marine Cargo
- Crew Liability and Personal Accident

Circle 8 on Reader Service Card

Barco Chosen for Navy

Barco simulation will install a complete high-resolution digital projection system containing seven BarcoReality 909s with 9-in. CRTs, advanced control and alignment tools, and high-gain screen at Expeditionary Warfare Training Group Atlantic (EWTGLANT) located aboard the Naval Amphibious Base, Little Creek for the MSAT (Multi-purpose Supporting Arms Trainer) display system. Barco also announced, that under subcontract, it will install the Tactical Conning Officer Virtual Environment (TaCOVE) Ship Bridge Simulator display system.

Circle 6 on Reader Service Card

LR to Class First 10,000 TEU Containership

Lloyd's Register is to class the world's largest declared capacity container ships — four 10,000-teu vessels, to be built in Korea at Hyundai Heavy Industries for

China Ocean Shipping Corporation (Cosco). The vessels will be delivered between late 2007 and mid-2008. Each of the ships will measure 1,145 x 149.6 x 90.8 ft. (349 x 45.6 x 27.7 m) and is powered with a 12-cylinder 94,000 hp engine driving it to 25.8 knots.

"The 10,000 teu container ships ordered by Cosco are the next step towards the 12,500 teu limit," said **David Tozer**, Lloyd's Register's Business Manager, Container Ships. "Beyond 12,500 teu we expect that containership and container terminal design will have to undergo significant change. For container ships, this might include the addition of a second screw, with the added capital investment that this entails."

Circle 9 on Reader Service Card

WCC Opens African Office

World Communication Center (WCC) announced its global expansion to Africa with a new office to be spearheaded by **Paul Fitchet**, formerly a regional director for Iridium.

Circle 11 on Reader Service Card

Vessel Tracking Order

Magic Instinct Software has been selected by Compagnie Générale de Géophysique to fit its seismic research ships with a transponder-base Vessel

Tracking System for securing the prospect zones and increasing safety during a campaign currently lead in India with national oil company ONGC.

Based on Olex, the Norwegian Electronic Chart System running on Linux platform, MIS has developed a

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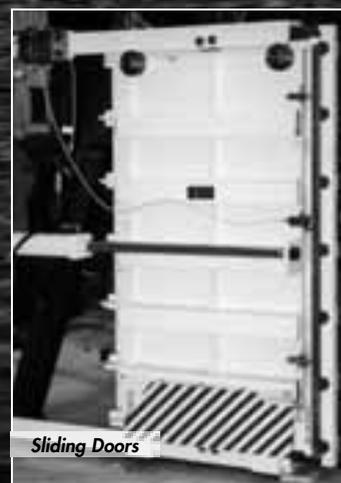
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Schoellhorn-Albrecht Machine Co. has developed a new line of roller fairleads using state-of-the-art composite rollers to protect soft, synthetic rope from wear caused by traditional steel rollers. The composite material combines high strength, low water absorption and the

right elasticity. The new fairleads do the same job as before without causing any abrasion to the rope.

Circle 34 on Reader Service Card

Bartee Promoted to COO at DLBA

Donald Blount, president of Donald L. Blount & Associates (DLBA), announced that Executive Vice President Robert Bartee has become the company's Chief Operating Officer. Bartee was the third employee of DLBA when he joined the firm in 1992.

Martek Awarded Wheelmark Approval

Martek Marine were awarded the Marine Equipment Directive (MED) 'wheelmark' approval for its range of fixed gas detection systems. The systems can be used on any type of vessel where there is a potential danger of a fugitive gas leak. The systems are most commonly used on LNG and LPG carriers as well as all types of tankship, from bunker barges to ULCC's. The MM6000, is an intrinsically safe infra-red gas detector, approved for use in gas dangerous spaces on LNG carriers. MM2000 combined with MM1200 & MM1000 gas detectors is the only addressable gas detection control system on the market to carry MED certification. The MM5000 system, is a sequential gas sampling system used for ballast tanks/void space gas detection on tankships of all types and on LNG carriers.

Circle 10 on Reader Service Card

Northrop Grumman Restructures Many Areas

Northrop Grumman Corp. announced several organizational changes within its Electronic Systems sector.

George W. Perkins, in the newly created position of sector vice president, Business Operations and Global Solutions, will be responsible for capital resources, facilities and security as well as safety and environmental compliance. **Taylor W. Lawrence**, as sector vice president and general manager of the newly formed C4ISR Systems Division, will be responsible for helping accelerate the sector's business growth in the command, control, communications, computers, intelligence, surveillance and reconnaissance business areas. **John V. DeMaso**, as sector vice president and

general manager of the new Naval & Marine Systems Division, will be responsible for all programs and business objectives associated with those sector businesses located in Charlottesville, Va.; Sunnyvale, Calif.; Annapolis, Md.; Ocean Springs, Miss., and New Malden, U.K. **Robert W. DuBeau**, as sector vice president and general manager of the Systems Development & Technology Division, will be responsible for leading the product teams responsible for

advanced and applied research and development and systems development activities across a broad range of program areas.

James L. Cameron, is the new sector vice president and divisions general manager of the newly combined Defensive and Navigation Systems Divisions. In addition, he has assumed executive management responsibility for two former Component Technologies sector businesses.

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ESAB Promotes Savage

ESAB Welding & Cutting Products named **Graeme Savage** Area Business Manager of Global Aluminum for the ESAB Group. Savage joined ESAB in 1995 with the Alco Tec Wire Corporation, a subsidiary of ESAB, as a Regional Sales Manager and most

recently served as VP of Sales and Marketing. In his new role, Savage will cover the total aluminum business growth for the ESAB Group Worldwide, including product program, scope and performance, product development prioritization, market intelligence, product price positioning, product launches,

product sourcing policy and inter regional transfer pricing policy.

Rowan Wins Contract for Offshore Newfoundland

Rowan Companies, Inc. was awarded a contract to drill two wells on the Grand

Banks of Newfoundland, using a Super Gorilla class rig. The contract provides an option for a third well. This assignment, which is subject to certain regulatory approvals, should commence around mid-year and is expected to last into December 2005. After undergoing modifications, Rowan Gorilla VI will be relocated from the Gulf of Mexico to eastern Canada during the second quarter. Rowan estimates that revenues from this contract will be as much as \$26 million, depending upon the duration of the assignment.

Danny McNease, Chairman and CEO, said, "We have been aggressively pursuing opportunities to diversify our drilling operations and better utilize our Super Gorilla and Gorilla class jack-up rigs. This contract serves both objectives. We are very excited about this opportunity to further demonstrate the capabilities of Rowan's equipment and personnel. We are also looking forward to returning to the eastern Canada drilling market where Rowan has operated for most of the past 25 years."

MICAD Incorporates Real-time Satellite Weather

MICAD Marine announced the inclusion of XM WX Satellite Weather information into its suite of products that are offered as part of the MICAD Marine System. The MICAD Marine System is an integrated vessel monitoring and information system, and the XM WX real-time weather information represents a valuable enhancement to the safety and functionality of the MICAD Marine System.

The system components include a WxWorx XM ready receiver and the WxWorx on Water software. WxWorx on Water places constantly updated, weather information right on the MICAD Marine display. Nationwide radar, sea surface temperatures, lightning display, GPS capability-these features and more give vessel owners the situational awareness and comfort to protect vessel and crew. When installed as part of the MICAD Marine System, you can instantly pinpoint your own location on the weather map. Use that information to chart a course to safer waters or find out if you need to move to different areas where the fish might be running. The patented, exclusive AutoTrac feature builds on the GPS operability to alert you audibly whenever dangerous weather is approaching your vicinity. XM WX Satellite Weather will work across the continental United States, its lakes and waterways, as well as off the coast.

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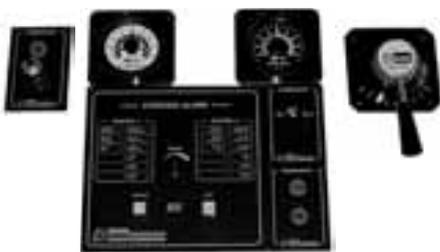
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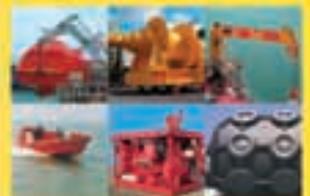
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- Freefall Lifeboats
- Rescue / Fast Rescue Boats
- Davits - ship and rig davits / rescue boat davits / liferaft davits

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- Offshore Cranes
- A-frames
- Winches - mooring / tugger / hoisting etc.
- Windlasses
- Capstans

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- Sewage Treatment Plants
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Marine Electronics Guide

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www.oilmist.com

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fax: 020 7328 5888
email: qmi@oilmist.com
Descr: Suppliers of oil mist detection systems for engines and atmosphere
Products: Q.M.I Multiplex oil mist detectors

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Monteagle, TN 37356

www.racorder.com

Mike Roark
tel: 931 924 3216
fax: 931 924 3287
email: mike@racorder.com
Descr: Manufacture of recording devices
Products: Racorder - the Marine Black Box

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www.radioholland.nl

A.W. van der Plas
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email: info@radioholland.nl
Descr: Suppliers and service provider of maritime electronics and IT solutions
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www.ruttertech.com

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fax: +1-709-368-1337
email: golscamp@ruttertech.com
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email: stuart.tolman@saabus.com
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Seacoast Electronics Inc.

240 Talleyrand Ave, Jacksonville, FL 32202
www.seaserve.com

Kevin Mahoney
tel: 904 355 0343; fax: 904 356 9088
email: info@seaserve.com
Descr: Navigation and Electronic equipment sales and service



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email: sales@seimac.com
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www.shipserv.com

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email: techservco@adelphia.net
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The preceding was the result of an e-mail survey conducted in March 2005. Publisher assumes no responsibility for errors or omissions.

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Marine Fuels Update

Lubmarine's Installs New \$2M Test Engine

Lubmarine installed a unique test engine at its TOTAL Research Center (CRES) located in Solaize, near Lyons, France. The \$2 million MAN B&W Innovator-4C test engine replaces the single-cylinder Elf-Optimizer test-bench (Pielstick PC2.6) first installed at Solaize 20 years ago and extensively modified in 1994 to cope with changing development needs. It is designed to help Lubmarine maintain a competitive edge in developing and testing new formulations and in undertaking fundamental marine lubricants research.

The new engine, based on an original MAN 5L 16/24 (160 mm bore, 240 mm stroke) unit, has undergone an innovative redesign, specified by Lubmarine. Its five cylinders have been re-configured into three separate lubrication circuits, two for testing and one for operational requirements. It has also been fitted with multiple high-tech sensors and a comprehensive electronic control and information management system. It is equipped to analyze exhaust gas, in anticipation of future more stringent environmental controls on emissions of particles and oxides of sulphur and nitrogen.

The Innovator-4C will be used for validating both two-stroke and four-stroke engine oil formulations before proceeding to in-service trials, and for fundamental research, including experiments with new additives, synthetic and biodegradable base stocks.

"The cylinder configuration of the Innovator-4C lets us compare two formulations at the same time under precisely the same temperature and pressure conditions," said

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L a n c o n**,
head of the
marine lubricants
team.
"And carrying
out two tests at
the same time
means more tests
are possible



possible on a given formulation within a given timeframe. The very high safety margins of the MAN 5L 16/24 mean we can push lubricants much further in testing, and it also allows us to obtain meaningful results faster, more than doubling our previous testing productivity".

"The Innovator-4C gives us the unique ability to test new-generation lubricants in a closely controlled environment," said Lubmarine general manager **David Bleasdale**. "It will be a major asset in our quest to supply lubricants that give greater fuel economy, lower maintenance costs and longer engine life. The Innovator-4C also allows us to test a wider range of formulations more cost-effectively, with savings that can be passed on to customers in competitive pricing. And of course we'll be testing Lubmarine formulations against rival lubricants to ensure that we stay ahead."

"To stay in the lead in the increasingly high-tech field of marine lubricants, you must have top R&D tools," says **Claude Ouvrier-Bufferet**, head of Lubmarine's Marine Technical Dept. "A test engine plays a key role in the development process, so having a proper marine engine specially adapted for research purposes gives us a big advantage."

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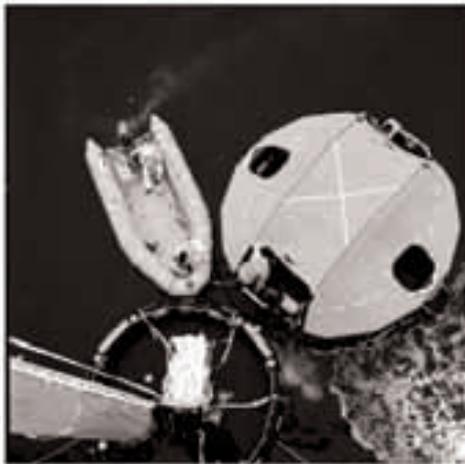
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ESAB Launches Customer Satisfaction Program

In celebration of its 100th anniversary, ESAB Welding and Cutting Products North America is launching a new ini-

tiative. Starting in March 2005, ESAB will offer a pledge to its customers: 100 percent Satisfaction Guaranteed. ESAB products already carry a warranty, but this will provide buyers with additional reassurance that ESAB products will

meet their expectations.

Circle 12 on Reader Service Card

CMI ArmorWare Tie Rods

Crane Materials International (CMI)

ArmorWare Tie Rods are designed to ensure the increased longevity of walls built with CMI products. ArmorWare Tie Rods, coated on the sections that are most susceptible to environmental corrosion, are manufactured with an advanced polymer coating to protect the surface and strengthen the wall.

Although the tie rod is buried once installed, it is one of the most critical components when building a seawall. The majority of corrosion on conventional rods occurs within the first two feet behind a wall, where moisture penetrates into the rods.

Circle 13 on Reader Service Card

Puradyn Appoints Gimler as New CFO

PuraDYN Filter Technologies Inc. announced the appointment of **Cindy Gimler** to Chief Financial Officer. Gimler had previously held the position of Accounting Manager of Puradyn from October 2003 through October 2004. Gimler has 15 years of experience including serving in the position of CFO to Universal Jet Aviation, a private jet charter company, Controller for a nutrition company and Financial Analyst for Oxbow, an energy finance company.

Conrad to Delist and Deregister Stock

Conrad Industries intends to voluntarily delist its common stock from Nasdaq on or about March 30, 2005. **Johnny Conrad**, Conrad's President and CEO said "the company's Board of Directors unanimously recommended the delisting and deregistration of its common stock after carefully considering the advantages and disadvantages of continuing registration and listing.

The costs and administrative burdens associated with being a public company have significantly increased, particularly in light of new SEC, Sarbanes-Oxley and Nasdaq requirements.

Our Board has determined that the rising costs of compliance, as well as the substantial demands on management time and resources, outweigh the benefits the company receives from maintaining its registered and listed status. We believe that deregistering will result in significantly reducing expenses, avoiding even higher future expenses and will enable our management to focus more of its time and resources on operating the company and enhancing shareholder value."



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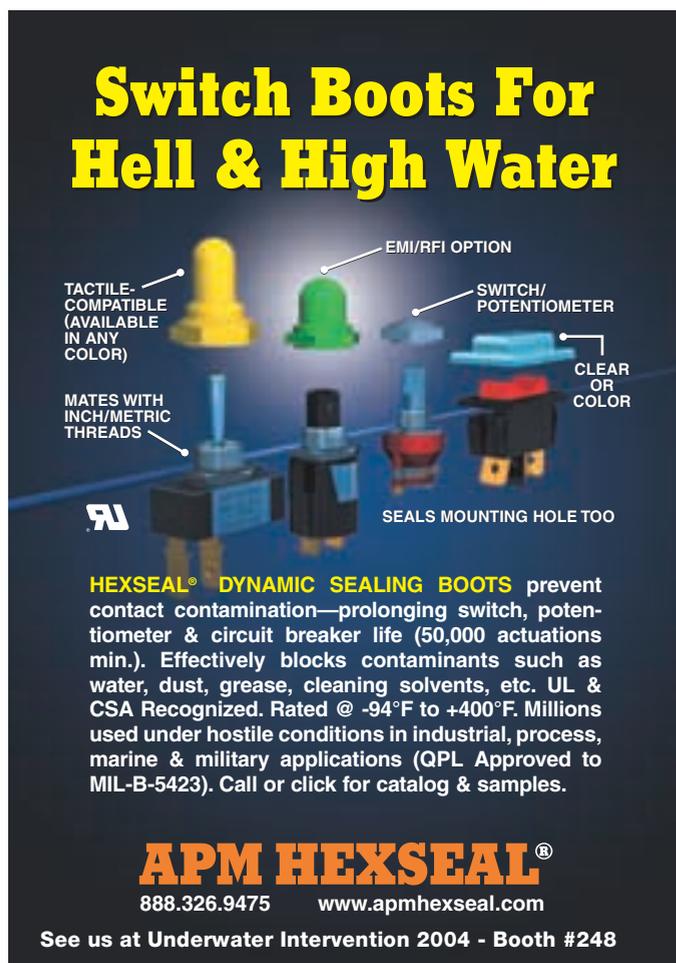
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Geest North Sea Line takes delivery of Geeststroom



New 812 TEU ships designed specifically to carry 45 ft. containers

Geest North Sea Line has taken a significant step forward in its plans to expand its intermodal door-to-door capacity with the introduction into service of Geeststroom, the first of two 812 TEU containerships that were ordered in 2003 from the Damen Shipyards Group by the German shipowner Jorg Kopping.

More than twice the size of the largest ship in the Geest fleet, she will be employed on Geest's routes between Rotterdam and Tilbury and Rotterdam and Hull.

Geeststroom and her sister, Geestdijk, due for delivery in April 2005, have been built specifically for long-term charter to the Dutch shortsea and intermodal specialist.

Designed to meet Geest's particular requirement for a vessel able to carry a full load of 45 ft. pallet-wide containers or a mix of 45 footers plus heavy 20 ft. tanks and 30 ft. bulk containers, the two ships were constructed by Damen Shipyards Galatz in Romania.

According to Wout Pronk, Geeststroom will be used alongside other Geest ships on the Hull and Tilbury routes until her sister ship is available. "We will make use of Geeststroom at both Hull and Tilbury, as required, in combination with Rotterdam, our central hub on the

Continent. We are looking for very fast turnaround times, which will require efficient operations at all terminals. There will continue to be daily departures on both services. Once we have both ships available, we may run them in tandem, either on the Hull or Tilbury routes."

Geest is totally committed to the expansion of European shortsea shipping and, in particular, to greater use of intermodal options including rail and inland waterway transport in Europe. However, to be competitive with 13.6m road trailers, we have had to replace our entire container fleet with 45 ft. palletwide containers.

Unfortunately, no-one yet has built a containership specifically designed around the 45ft box and so any vessel we have chartered has always been a compromise. Geeststroom has changed all that.

The owner, Mr. Kopping, went into more detail regarding the new ship's design. "Geest is not only interested in 45ft containers. Many of its quay-to-quay customers are NVOs with shippers' owned equipment operating tanks and dry bulk units. Consequently, Geest also required a ship with a good deadweight able to accommodate heavy 20 ft. and 30 ft. containers."

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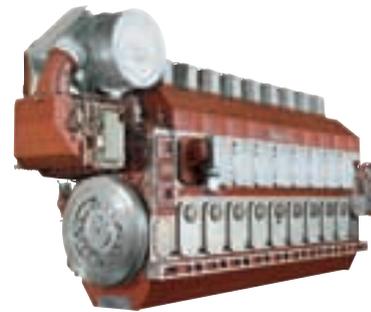
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AIDA Cruises Chooses MaK Engines

Caterpillar Marine Power Systems said that AIDA Cruises will equip the first two of its next generation of club cruise ships with MaK M 43 C engines,

a breakthrough into the cruise shipping market for Caterpillar Marine as it seeks to become a larger player in the in the cruise shipping maret. The two AIDA

newbuilds are on order at the Meyer Werft shipyard in Papenburg, Germany, scheduled for delivery in 2007 and 2009.



The two 68,500-gt cruise ships will have an overall length over 249 metres and a beam of 32.2 metres. These new AIDA "club ships" represent the third generation of ships built and operated according to the AIDA "club" concept. Each vessel will have a passenger capacity of 2,030, (up to 2,500) accommodated in 1,015 cabins.

Each of the two new ships will be equipped with four MaK 9 M 43 C engines with a total power of 36 MW, providing the necessary power to operate two single-propeller electric driving motors, two bow thrusters and two stern thrusters (per vessel). In addition, the installation produces the electricity for all other high-consumption units on board.

The engines are equipped with Flexible Camshaft Technology, part of Caterpillar's innovative emissions reduction ACERT technology. In this application, Flexible Camshaft Technology will reduce soot particle emissions to below the visible limit, thereby satisfying the industry's highest environmental standards.

In addition, the engines are equipped with safety features such as a slow turning device, a system which enables engineers to check for the presence of water or fuel in the cylinder before start, a splash-oil temperature monitoring alarm system designed to prevent bearing seizures, an oil mist detector and locator with individual display, and the DICARE engine monitoring program, which allows users to monitor all the engine components. The complete system operates on-line so that the current data can be called up at any time.

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Nor-Shipping 2005 Confirms Keynote Speakers

Organizers for Nor-Shipping 2005 recently confirmed Leading Voices' speakers at Nor-Shipping's Opening Conference, scheduled for June 8, 2005.

- **Andreas Sohmen-Pao** Director of World-Wide Shipping. World-Wide was founded in 1955 by Sir Y K Pao, the

Maritime Reporter & Engineering News

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grandfather of **Andreas Sohmen-Pao**. Today World-Wide is mainly focused on VLCCs, with a fleet of about nine million dwt. The company acquired a controlling interest in Bergesen, one of Norway's leading shipping companies, in 2003. As one of the industry's leading figures, Sohmen-Pao has been a vocal and compelling advocate for shipping in the past, urging the industry to take a more cooperative, pro-active role in addressing vital issues.

- **Bjorn Moeller**, Director, President and CEO TeeKay Shipping. Teekay transports more than 10 percent of the world's sea-borne oil and has expanded into the liquefied natural gas shipping sector. Moeller has been with Teekay since 1985, serving as Head of Group Chartering and Strategic Development before heading up overall operations in 1997 with his promotion to Chief Operating Officer. In 1998 Moeller assumed the role of President and Chief Executive Officer. Moeller has a multi-national background in shipping and commodities and is a graduate of the Copenhagen School of Business Economics.

- **Børge Brende** (H), Norwegian Minister of Trade and Industry. Brende

has served as the Minister of Trade and Industry since June 18, 2004. He earned a BA from Norwegian University for Technology and Science, and has held a number of key positions in Norwegian government including Minister of the Environment, member of The Standing Committee on Finance and Economic Affairs, and a long career in the Norwegian Parliament. He has also worked with various other organizations, including serving as Chairman for the UN Commission on Sustainable Development (CSD), and as a member of the Board of Aid to Afghanistan. Brende has also lectured at the University of Mainz, Germany, and Harvard University.

For more information about Nor-Shipping 2005, visit www.norshipping.com

Keppel Wins \$50.6m FPSO Conversion

Keppel Shipyard, a wholly-owned subsidiary of Keppel Corporation Ltd, won a Floating Production Storage & Offloading (FPSO) hull conversion contract worth \$50.6 million from Marathon Petroleum Company (Norway) on MST

Odin. The 87,000 dwt multi-purpose shuttle tanker arrived at Keppel Shipyard for the fast track hull conversion on March 19.

Odin will undergo hull upgrading and modification works that involve procurement, construction and installation of the FPSO hull equipment, including shipboard marine systems, cargo, bal-

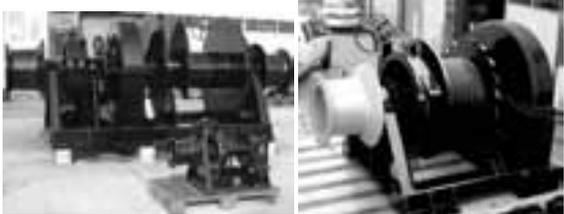
last, inert gas, crude oil washing, fire fighting and electrical and instrumentation.

The contract also entails the fabrication and installation of topside module support structures, green water protection, modification of the mid-ship moon pool into a cargo tank, turret cone/support structures and caissons for seawater



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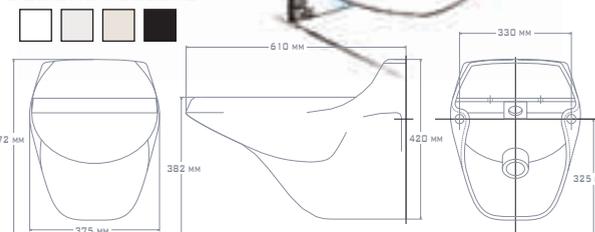
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lift pumps. The vessel will be redelivered at the end of 2005 where it will be integrated with the processing facilities by Vetco Aibel, before deployment in the Alvheim field in the North Sea where the company expects to begin production during the first quarter of

2007. The partners of the Alvheim field are Marathon, ConocoPhillips AS and Lundin Norway AS.

PPL Shipyard Gets \$121m Rig Option

PPL Shipyard, a subsidiary of

SembCorp Marine, signed a rig building contract worth \$121 million with Wilsuperior Ltd, a subsidiary of Awilco Offshore ASA (AWIL) for the construction of a Baker Marine

Pacific Class 375 Deep Drilling Offshore Jack Up Rig. The contract is an

option that PPL Shipyard granted to Awilco Offshore ASA in May 2004 and which the later has now decided to exercise. The contract takes effect in June 2005. Construction of the jack-up rig is expected to commence in third quarter of 2005 with delivery scheduled in the second quarter of 2007.

The Baker Marine Pacific Class (BMC Pacific) 375 Deep Drilling Offshore Jack-Up Rig is a proprietary designed developed and owned by Baker Marine Pte Ltd, a wholly owned subsidiary of PPL Shipyard. The jack-up rig, to be named Wilsuperior, will be equipped with a drilling package that will enable it to drill high pressure and high temperature wells at 30,000 ft. while operating in 375 ft. of water. It has accommodation for 120.

TRITON Software for High Speed Operations

Triton Imaging, Inc. said the Netherlands Rijkswaterstaat (RWS) will use Triton Isis Sonar and Triton SS-Office software to perform acquisition and processing of data from their new Edgetech 4300-MPX multi-ping sonars. The software, purchased through Triton's agent in the Benelux HydroConsult, will be used onboard RWS survey vessels such as Arca and Zirfaea in search of objects, pipelines, sub-sea cables, wrecks, sand ripples, and for sub-bottom profiling.

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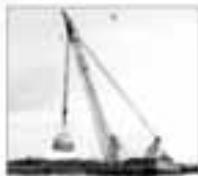
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ABS to Class "Tahiti" Truss Spar

ABS will class the ChevronTexaco Tahiti truss spar, destined for deepwater Gulf of Mexico. Targeted for 4,200 ft. of water, Tahiti demonstrates the industry's latest innovations-including the first spar with no drilling capability, no surface wellheads-and is among the first spar projects to utilize ABS' industry-first guide for building and classing these specialized deepwater floating production units, says **Dick Vukin**, ABS project manager. ABS reissued its "Guide for Building and Classing Floating Production Installations" (FPI) in April 2004 to include specific guidance for spars and tension leg platforms (TLPs). ABS will class the Tahiti unit as an A1 Floating Offshore Installation (FOI). FOIs include spars, semisubmersibles and TLPs, in addition to ship-type process and storage facilities.

Classification will cover the "Tahiti" unit's hull, mooring systems, topsides, power generation, platform layout and all marine, utility and safety systems, including life-saving equipment and fire-fighting appliances.

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Maritime Reporter & Engineering News

Multi-Story Carrier

One of the leading lights in deep-sea RoRo transportation, Wilh. Wilhelmsen, is introducing a new class of pure car/truck carrier (PCTC) optimized to Panamax beam and within the 200-m length restriction primarily determined by Japanese loading ports.

Although the nascent Wallenius breed of PCTC in hand at Daewoo will take unit capacities up to the 8,000 mark, Wilhelmsen's imposing new Torrens class from Mitsubishi Heavy Industries signals the achievement of one of the largest load factors achieved to date. The intake corresponds to about 6,500 vehicles on the basis of the RT43 dimensional standard.

In addition to the payload gain arising from the increase of about 10-m in hull length compared with Wilhelmsen's preceding generation of PCTCs, increased carrying capacity has been realized through erudite design refinements, while maintaining the same level of horizontal subdivision in the form of 12 decks. One such modification has been

the release of the full width of the uppermost car deck by transforming certain equipment and trunking to the weatherdeck, allowing the car stow to be taken out fully to each side. In addition, obstructions have been minimized through a reduction in the number of pillars, with companion measures to ensure rigidity and strength.

Four of the 12 vehicle decks are dimensioned for 'high and heavy' cargo, and incorporate liftable car decks. In addition, so as to confer added operating flexibility, the platform decks permit locking at three different heights, offering increased stowage scope and permutations for different categories of car and other vehicles. Special scissor trucks for moving the liftable deck sections have been specified as part of the ships' complement of equipment.

The height of the fixed car decks varies between 1.85-m and 2.30-m, to improve versatility in catering to the changing shapes and heights of modern cars, notably the new breed of sport util-

ity vehicles (SUVs). Emphasizing the 'high and heavy' freight carrying attributes of the design, the main deck has a maximum clearance of 5.20-m and has been strengthened for unit weights up to around 200-t, carried on special rolltrailers, and for a 60-t FLT (frontlift truck)

axle load.

Deterministic progressive flooding calculations were made by Barber Marine Consultants, to ensure that the vessels will be able to survive penetration of the shell in way of the main deck.

Torrens and second-of-class Toledo

Already a PCTC leader, Wilh Wilhelmsen recently introduced a new class of PCTC ... the imposing new Torrens class, with one of the largest load factors achieved to date.



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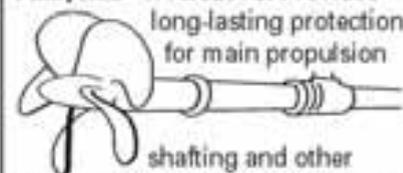
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have been phased into the jointly-owned Wallenius Wilhelmsen Lines'(WWL) operation, and four further sisters are under construction and on order with Mitsubishi. The South Korean joint venture EUKOR Car Carriers, jointly controlled by Wilh Wilhelmsen, Wallenius Lines, and vehicle makers Hyundai Motor Company and Kia Motors Corporation, has recently ordered four PCTCs of 6,500-unit capacity. The vessels will be built at the Mokpo yard of Hyundai Samho Heavy Industries, for delivery during the first half of 2008.

Germany Bolsters Boxship Role

In the face of unremitting competition from eastern Asia, Germany has maintained a significant European presence in containership construction, building on one of its longstanding areas of maritime technological prowess. In particular, a succession of orders secured so far this year by the Aker Ostee yards in Mecklenburg-Vorpommern has created one of the most extensive boxship new-build workloads outside South Korea.

The combination of market-focused designs and efficient, time-minded production of a standardized offering has ensured continuity of work in the shipbuilding centers of Wismar and Rostock-Warnemuende, providing Germany's vibrant containership owning and operating community and others with viable domestic alternatives to berths in the Orient.

With the sealing of the latest deal for two 2,741-TEU cellular vessels to the account of Rostock-based F.Laeisz, the order reserve of the Aker Ostsee pairing had risen to 20 container ships covering the 1,700-, 2,500-, and 2,700-TEU size classes by March 1. The Laeisz business, calling for deliveries of the CS2700 type vessels in the first and third quarter of 2007 at a total contract value of around EUR 80-million, is a further example of a returning client, since the Warnemuende yard completed two 2,600-TEU boxships for the company in 1996. The 37,570-dwt CS2700 design has main dimensions of 221.6-m length by 29.8-m width, and offers cargo

carrying flexibility through substantial provision for temperature-controlled freight, by way of sockets for up to 400-FEU reefer boxes. A service speed of 22-knots is imbued by a two-stroke main engine of 20,580-kW.

The work intake in the first two months of 2005 alone amounted to 10 newbuilds, including four CS2700 units for Koenig & Cie of Hamburg, also at some Euro 40-million apiece, and a series of four examples of the newly-developed CS1700 type to the account of the Hamburg shipowning and ship-management firm Thien & Heyenga.

The 24,200-dwt CS1700 is 182-m long by 25.2-m wide, and its more notable features include 300 reefer sockets, a highly competitive, homogeneous load factor of 1,250-TEU at 14t per box, the adoption of protectively located fuel tanks, and powering by a 12,600-kW medium-speed diesel. Thien & Heyenga was already represented in the production program, by virtue of the four 2,700-TEU newbuilds booked last year on the basis of deliveries through the

second half of 2006.

Aker Ostsee's proprietor, the Norwegian-owned Aker Yards group, has demonstrated European shipbuilding resilience across a broader front, consolidating orderbooks and special fields of expertise with new contracts for its yards in Finland and western Norway, and drawing also on its shipbuilding resources in Romania. Following a succession of offshore support vessel contracts awarded to its Norwegian shipbuilding interests, the group has recently signed a letter of intent(LOI) from Color Line for a

sister to the Aker Finnyards-built Color Fantasy, the world's largest cruise ferry, plus an LOI from Royal Caribbean Cruises for a third Freedom-class ship to be constructed at Turku. The 339-m(1,112-ft) Freedom type has a gross measurement of 158,000-gt, reckoned to be 6-percent greater than today's largest cruise ship, and offers accommodation for 3,600 passengers, some 500 more than its predecessors in the Voyager series.

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Henderson Auctions, 13340 Florida Blvd., Livingston, LA 70754
Tranzon Venuebid, 908 Town and Country Blvd. Suite 120, Houston, TX 77024

AUTOPILOT SYSTEMS

ComNav Marine Ltd., 13511 Crestwood Pl., Ste 15 15, Richmond, BC V6V 2G1, Canada
Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851

BALLAST

Ballast Technologies, 4620 S. Coach Dr., Tuscan, AZ 85714
Redland Genstar Inc., Executive Plaza IV, Hunt Valley, MD 10912-1031

BEARING- RUBBER, METALLIC, NON-METALLIC

Cooper Bearing, 5795 Thurston Ave., Virginia Beach, VA 23455
Craft Bearing, 5000 Chestnut Ave., Newport News, VA 23605
Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler

BILGE SYSTEMS

Coffin World Water Systems, 326 S. Dean Street, Englewood, NJ 07631

BOATBUILDER

Gladding Hearn, 1 Riverside Ave., Somerset, MA 02725
Kvichak Marine, 469 NW Bowdoin Place, Seattle, WA 98107
Sea Ark Marine, P.O. Box 210, Monticello, AR 71655-0210
Washburn Doughty, P.O. Box 296, E. Boothbay, ME 04544
Willard Marine Inc., 1250 N. Grove St., Anaheim, CA 92806

BOLLARDS

Maritime International, Inc., 204 Ida Rd., Brossard, LA 70518

BRIDGE SUNSCREENS

Martek Marine Blinds, Unit 46, Century Business Centre, Maversway, Rotherham, South Yorkshire S63 5DA, UK

BULKHEAD SEALS/PANELS

CSD North America, 880 Candia Rd., Unit 10, Manchester, NH 03109
Thermax, 3115 Range Rd, Temple, TX 76501

CAD/CAM SYSTEMS

Autoship Systems Corp., 611 Alexander Street, Suite 312, Vancouver, BC V6A 1E1, Canada, 604-254-4171, 604-254-5171, sales@autoship.com, Contact: Ross Muirhead, www.autoship.com
Cadmatic, Ostra Strandgatan 72 (Vita Huset), FI-20810 Turku, Finland
Creative Systems Inc., P.O. Box 1910, Port Townsend, WA 98368

CAPSTANS

Coastal Marine Equipment, Bldg 9114 MISAAP Ind. Complex, Stennis Space Center, MS 39529, 228-813-1700, 228-813-1709, sales@coastalmarineequipment.com, Contact: Ralph Waguespack, www.coastalmarineequipment.com
McElroy/Catchot Winch Company, Inc., P.O. Box 4632, Biloxi, MS 39535-4632, 228-875-6327, 228-872-7880, hcatchot@bellsouth.net, Contact: Harold Catchot, www.mcelroycatchotwinch.com
Superior Lidgerwood Mundy, 1101 John Ave., Superior, WI 54880

CARGO MANAGEMENT

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

CARGO MONITORING & CONTROL SYSTEM

Hermatic Inc., 4522 Center St., Deerpark, TX 77536

CARGO SECURING SYSTEM

Peck and Hale, 180 Division Street, W.Sayville, NY 11796

CAST IRON REPAIR

In-Place Machining, 3811 N. Holton St., Milwaukee, WI 53212

CHAINS

G.J. Wortelboer, Postbus 5003, 3008 AA Rotterdam, Netherlands

CLASSIFICATION SOCIETY

American Bureau of Shipping, 16855 N. Chase Drive, Houston, TX 77060
Lloyds Register Americas, Inc., 1401 Enclave Pkwy., Ste.200, Houston, TX 77077

CLOSED CIRCUIT TELEVISION

Hernis Scan Systems A/S, Postboks 619, NO_4809 Arendal, Norway

CNC PLATE CUTTING

Advanced Fabricating Inc, PO Box 3721, Galveston, TX 77552

COATINGS/ CORROSION CONTROL/ PAINT

Chugoku Marine Paints, P.O. Box 73, 4793, Netherlands
Ferro Corp., 1301 North Flora St., Plymouth, IN 46563
Flow International Corp., 23500 64th Ave., South Kent, WA 98059
Mascoat Products, 4310 Campbell Rd, Houston, TX 77041
Mr.Longarm, Inc., P.O.BOX 377, Greenwood, MO 64034-0377
NAPASCO, INC., 213 Main Project Road, Shriever, LA 70395, 985-449-0730, 985-449-0740, napasco@napasco.com, Contact: Pam Bartell, www.napasco.com
Sherwin Williams, 101 Prospect Ave., Cleveland, OH 44115
Sigma USA, P.O. Box 816, Harvey, LA 70059

COMMUNICATIONS

Immarsat Ltd, 99 City Rd., London EUY 1AX, UK
L-3 Communications, 6000 Fruitville Road, Sarasota, FL 34232
Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851
World-Link Communications, 74 Main St., Framingham, MA 01701

COMPOSITE SHAFTS

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

COMPUTER/ COMPUTER SOFTWARE

Creative Systems Inc., P.O. Box 1910, Port Townsend, WA 98368
ShipConstructor, 304-3960 Quadra Street, Victoria, BC V8X 4A3, Canada
Spec Tec , Professor Koth's Vey, 1366 Lysaker, Norway

CONSOLE- GMDSS

Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851

CONSULTANTS

Captain R.J. Underhill & Associates, P.O. Box 1030, Groves, TX 77619
Elliot Bay Design Group, 5301 Shishole Ave. NW, Ste. 200, Seattle, WA 98107
Hornblower Marine Services, P.O. Box 112476, Campbell, CA 95011-2476

CONTROL SYSTEM-MONITORING/STEERING

Alma Impex, Inc., 4000 Brodertown Ave., Suite 15, Sayreville, NJ 08872
Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065
Electrowave U.S.A., 6125 W. Sam Houston Pkwy., Ste 406, Houston, TX 77041
G.R. Bowler, 2261 Lake Rd., Ontario, NY 14519
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
MMC International, 60 Inip Dr, Inwood, NY 11096
Prime Mover Controls, 3600 Gilmore Way, Burnaby, BC V5G 4R8, Canada

CORROSION CONTROL

Apex Engineering Products, 1241 Shoreline Dr., Aurora, IL 60504
Furuno USA Inc., 4400 NW Pacific Rim Blvd, Camas, WA 98607
Ultra Strip, 3515 SE Lionel Terrace , Stuart, FL 34996

COUPLERS- TUG & BARGE

Intercontinental Engineering, PO Box 9055, Kansas City, MO 64168

COUPLINGS

American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884
Centa Corp., 815 Black Hawk Drive, Westmont, IL 60559
Mapeco Products, 91 Willenbrock Rd., Unit B, Oxford, CT 06478
MMC International, 60 Inip Dr, Inwood, NY 11096

CRANE - HOIST - DERRICK - WHIRLEYS

DMW Marine, LLC, 1123 Street Matthews Road, Chester Springs, PA 19425
E. Crane, 241 Executive Dr., #3, Marion, OH 43302

CRANE TESTING

Imes Inc., 5139 Brook Street Suite E, Mont Claire, CA

CRANKSHAFT REPAIR

In-Place Machining, 3811 N. Holton St., Milwaukee, WI 53212
Walz & Krezner, 91 Willenbrock Rd., Oxford, CT 06478

CUTTING & WELDING MACHINES

Bug-O-Systems, 3001 W. Carson St., Pittsburgh, PA 15204
ESAB Cutting Systems, 411 South Ebenezer Road, Florence, SC 29501

DECK MACHINERY- CARGO HANDLING EQUIPMENT

Allied Shipbuilders Ltd., 1870 Harbour Road, Vancouver V7H 1A1, Canada
Burrard Iron Works Ltd., 220 Alexander Street, Vancouver, BC V6A 1C1, Canada, 604-684-2491, 604684-0458, sales@burrardironworks.com
Coastal Marine Equipment, Bldg 9114 MISAAP Ind. Complex, Stennis Space Center, MS 39529, 228-813-1700, 228-813-1709, sales@coastalmarineequipment.com, Contact: Ralph Waguespack, www.coastalmarineequipment.com
DMW Marine, LLC, 1123 Street Matthews Road, Chester Springs, PA 19425
Hyde Marine Inc, 28045 Ranney Parkway G, Cleveland, OH 44145-1144
Intercontinental Engineering, PO Box 9055, Kansas City, MO 64168
Markey Machinery, P.O. Box 24788, Seattle, WA 98124
McElroy/Catchot Winch Company, Inc., P.O. Box 4632, Biloxi, MS 39535-4632, 228-875-6327, 228-872-7880, hcatchot@bellsouth.net, Contact: Harold Catchot, www.mcelroycatchotwinch.com

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

Rapp Hydema, 4433 27th Ave. West, Seattle, WA 98199, (206) 286-8162, (206) 286-3084, scotta@rappus.com

Skookum, P.O. Box 280, Hubbard, OR 97032
Smith Berger Marine, 7915 10th Ave. S., Seattle, WA 98108
Superior Lidgerwood Mundy, 1101 John Ave., Superior, WI 54880

DESALINATION - REVERSE OSMOSIS

Reverse Osmosis of S.F., Inc., 150 SE 29th Street, Ft. Lauderdale, FL 33316
Reverse Osmosis of South Florida, Inc., 150 S.E. 29th St., Fort Lauderdale, FL 33316

DESIGN PUBLICATIONS

SNAME, 601 Pavonia Ave, Jersey City, NJ 07306

DETECTOR DOG TEAMS

American Detection Technologies, Inc., 415 Main St. (3rd flr), Worcester, MA 01608

DIESEL CYLINDER INDICATORS

General Thermodynamics Corp., PO BOX 642, Hampton Falls, NH 03844
Kiene Diesel, 325 S. Fairbanks St., Addison, IL 60101

DIESEL ENGINE OVERHAUL

Detroit Diesel Corporation, 13400 Outer Drive West, Detroit, MI 48329-4001

Motor-Services Hugo Stamp, 3101 S.W. 3rd Ave., Ft. Lauderdale, FL 33315

DIESEL ENGINE- SPARE PARTS & REPAIR

Alma Impex, Inc., 4000 Brodertown Ave., Suite 15, Sayreville, NJ 08872
Caterpillar, Inc., P.O. Box 610, Mossilville, IL 61552-0610
Chris Marine AB, Box 9025, 200 39 Malmo, Sweden
Cummins Marine, 4500 Leeds Ave., Ste 301, Charleston, SC 29405
Man B&W Diesel, 17 Slate St., NY, NY 10004
Man B&W Diesel A/S, Telgelholmsgade 41, Copenhagen SV DK-2450, Denmark
Man B&W Diesel AG, Stadtbachstrasse 1, Augsburg D-86153, Germany
Marine Exhaust Systems of Alabama, P.O. Box 698, 757 Nichols Ave., Fairhope, AL 36533
Marine Turbo & Diesel Inc., 1090 7th St., Richmond, CA 94801
Mariso USA, Inc., 100 Davidson Ave., Somerset, NJ 08873
Motor-Blower AB, Box 2115, Ronninge S-144 04, Sweden
Motor-Services Hugo Stamp, 3101 S.W. 3rd Ave., Ft. Lauderdale, FL 33315
Scardana Americas Bkg., 502 Empire St., Greenfield Park J4V 1V7, Canada
Wartsila Diesel, 201 Defense Hwy, Annapolis, MD 21401
Wartsila North America, Inc., 16330 Air Center Boulevard, Houston, TX 77032

DIESEL FUEL DECONTAMINATION

Algae X International, P.O. Box 4011, Fort Myers Beach, FL 33932

DIGITAL TORQUE METER SYSTEMS

Instruments, Computers & Controls, 78 Londonderry Tpke, Hookset, NH 03106

DOOR LOCKS

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

DOORS- MARINE & INDUSTRIAL

Juniper International, 72-15 Metropolitan Ave., Middle Village, NY 11379
Manly Marine, P.O. Box 86788, N. Vancouver, BC V7L 4L3, Canada
Mapeco Products, 91 Willenbrock Rd., Unit B, Oxford, CT 06478
Nabrico Marine Products, 1050 Trinity Road, Ashland City, TN 37016
Pacific Coast Marine, 4314 Russell Road, Mukiteo, WA 98275
USA Sliding Doors, Inc., 801 Hosmer Road, Churchville, NY 14428, 585-538-4160, 585-538-2806, info@usaslidingdoors.com, Contact: Mr. Robert Weiland, www.usaslidingdoors.com
Walz & Krezner, 91 Willenbrock Rd., Oxford, CT 06478

DRAFT INDICATORS

King Engineering, PO BOX 1228, Ann Arbor, MI 48108-1625, 734-662-5691, 734-662-6652, marine@king-gage.com, Contact: Mike Welch, www.king-gage.com

DRIVES

Allied Systems, 2300 Oregon St., Sherwood, OR

DRIVESHAFTS

The Cline Company, 600 Buncombe St., Greenville, SC 29602

DRUG TEST KITS

Sun State Specialty K-9s, 1500 Beville Road, Daytona Beach, FL 32114

EDUCATION

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

ELECTRIC MOTORS

Ward Leonard, 401 Watertown Rd, Thomaston, CT 06767

ELECTRICAL EQUIPMENT

MMC International, 60 Inip Dr, Inwood, NY 11096

ELECTRONIC CHARTS

C- Map Commercial, 133 Falmouth Rd, Mashpee, MA 02649

EMERGENCY DISTRESS SIGNAL

Greatland Laser, LLC., 4001 West International Airport RD, Anchorage, AK 99502, 907-245-4475, 907-245-4599, laser@alaska.net, Contact: Jim O' Meara, www.greatlandlaser.com

EMPLOYMENT

All American Marine, P.O. Box 191237, Tillman's Corner, AL 33619

ENGINEERING PUBLICATIONS

SNAME, 601 Pavonia Ave, Jersey City, NJ 07306

ENGINES

Dynamold, Inc., 2905 Shamrock Ave., Fort Worth, TX 76107
FDGM, Inc., 800 Principal Court, Suite C, Chesapeake, VA 23320
Giro Engineering Limited, Talisman, Duncan Road, Park Gate, Southampton, Hants SO31 7GA, UK
Markisches Werk Halver GmbH, Box 1355, Halver D-58543, Germany

ENVIRONMENTAL SOLUTIONS

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

EVAPORATORS

Alfa -Laval Separation, Inc., 955 Meams Rd., Warminster, PA 18974
Sasakura Engineering, 7-32 Takeshima, 4-Chome, Nishiyodogawa KY Osaka555, Japan

EXHAUST

American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884
Applegate Industrial Materials, P.O.BOX 428, Baton Rouge, LA 70821-0428
Marine Exhaust Systems of Alabama, P.O. Box 698, 757 Nichols Ave., Fairhope, AL 36533

EXPANSION JOINTS

Applegate Industrial Materials, P.O.BOX 428, Baton Rouge, LA 70821-0428
Silex Inc., 6659 Ordan Dr., Mississauga, ON L5T 1K6, Canada

EXTRUDED RUBBER PRODUCTS

Clean Seal Inc., PO Box 2919, South Bend, IN 46880

FASTNERS

Superbolt, PO Box 683, Carnegie, PA 15106

FENDERING SYSTEMS/ BUOYS - DOCK & VESSEL

Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler
Marine Fenders International, Inc., 909 Mahar Avenue, Wilmington, CA 90744, 310-834-7037, 310-834-7825, jerry.thermos@mpowercom.com, Contact: Jerry Thermos

Maritime International, Inc., 204 Ida Rd., Brossard, LA 70518
Schuyler Rubber Co., 16901 Woodred Rd., Woodinville, WA 98072
Trelleborg Engineered Products, P.O. Box 98, Clearbrook, VA 22624
Urethane Products, 9076 Rosecrans Ave, Bellflower, CA 90706
Viking Rubber Co., 1160 State St., Perth Amboy, NJ 08861

FIBERGLASS GRATING AND HANDRAIL

Strongwell, 400 Commonwealth Avenue, Bristol, VA 24201

FILTERS/FILTER SYSTEMS

Alfa Laval Tumba AB, 147 80, TUMBA, Sweden
Algae X International, P.O. Box 4011, Fort Myers Beach, FL 33932
Boll Filter, 9822 General Drive. Ste. 180, Plymouth, MI 48170
Hellan Strainer, 3249 East 80th St., Cleveland, OH 44104
US Filter, 2 Milltown Ct., Union, NJ 07083
Vigilant Marine, 170 N. Maple Street Suite #104, Corona, CA 92280

FIRE & SAFETY PRODUCTS

Brockdale International, 1-8755 Ash St., Vancouver, BC V6P 6T3, Canada
DBC Marine Safety Systems, 101-3760 Jacobs Rd., Richmond, BC V6V 6T3, Canada
IFSTA/Fire Services Program, 9030 N. Willis, Stillwater, OK 74078-8045
IMSSCO Corporation, 2040 Harbor Island Drive, Ste. 201 A, San Diego, CA 92101

FLANGES

Jesse Engineering, 5225 7th St., E. Tacoma, WA 98424

FLOW CONTROLS

EIM Controls, 13840 Pike Road, Missouri City, TX 77489

GALLEY EQUIPMENT

AR Larsen Co., 15040 NE 95th St., Redmond, WA 98052
Cospolich Refrigeration, 14695 Highway 61, Norco, LA 7007

Alfa Laval Tumba AB, 147 80, TUMBA, Sweden
Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler
Tranter PHE, Inc, PO Box 2289, Wichita Falls, TX 76307
Tranter, Inc., P.O. Box 2289, Wichita Falls, TX 76307, 940-723-7125, 940-723-1131, www.tranterphe.com

HEAT TREATING SERVICES & SUPPLIES Mannings USA, 200 Richards Ave, P.O. Box 896, Dover, NJ 07802-0896, 973-537-1576, 973-537-1581, sales@manningusa.com, Contact: Daniel Ciarliariello, www.manningusa.com

HEAVY FUEL TREATMENT
Alfa Laval Tumba AB, 147 80, TUMBA, Sweden
Algae X International, P.O. Box 4011, Fort Myers Beach, FL 33932

HIGH SPEED FERRY BUILDERS
Incat Australia Pty. Ltd, 18 Bender Marine, Hobart 7009, Australia

HMI CONTROLS DISPLAY
Azonix-Dynalco, 3690 NW 53rd St., Ft. Lauderdale, FL 33309

HOISTS
Coastal Marine Equipment, Bldg 9114 MISAAP Ind. Complex, Stennis Space Center, MS 39529, 228-813-1700, 228-813-1709, sales@coastalmarineequipment.com, Contact: Ralph Waguespack, www.coastalmarineequipment.com

HORNS/WHISTLES
Airschime Manufacturing Co., 5478 267th St., Gloucester Industrial Estate., Langley, BC V4W 3S8, Canada
Kahlenberg Brothers Co., P.O. Box 358, Two Rivers, WI 54241

HOSES/HOSE FITTINGS
JGB Enterprises, Inc., 115 Metropolitan Dr., Liverpool, NY 13088

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

HYDRAULIC SYSTEMS
Anchor Lamina, 38565 Country Club Drive, Farmington Hills, MI 48331

INFRARED IMAGING EQUIPMENT
Flir Systems, 16505 SW 72ND AVE, Portland, OR 97224

INSPECTION EQUIPMENT
Staveley Instrument, 421 N. Quay St., Kennewick, WA 99336

INSULATION
Shannon Enterprises of W.N.Y., Inc., 162 Sweeney Street, PO BOX 199, North Tonawanda, NY 14120-0199
Superior Energies Inc., 3115 Main Ave., Groves, TX 77619

INSURANCE SERVICES
WQIS, 80 Broad St., 21st Floor, New York, NY 10004

INTERIORS
Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431
Lit Industries, 516 Costner School Rd., Bessemer City, NC 28016-9801

JOINER PANELS/FURNITURE
Thermax Marine-Panel Specialists, Inc., 3115 Range Rd., Temple, TX 76501, 254-774-9800, 254-774-7222, thermax@panelspec.com, Contact: John Hutchinson, www.thermaxmarine.com

JOINER- WATERTIGHT DOOR-PANELING-CEILING SYSTEM
Walz & Krezner, 91 Willenbrock Rd., Oxford, CT 06478

K-9 DETECTION
Sun State Specialty K-9s, 1500 Beville Road, Daytona Beach, FL 32114

KEEL COOLERS
Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler

LASER ALIGNMENT
Ludeca, Inc., 1425 NW 88th Ave, Miami, FL 33172

LEAK REPAIR
Indumar Products Inc., 2500 Tanglewilde, Suite 260, Houston, TX 77063

LIFEBOAT TESTING
Imes Inc., 5139 Brook Street Suite E, Mont Claire, CA
Water Weights, Inc., 5139 Brook St., Ste E, Mont Clare, CA 91763

LIFEBOATS/DAVITS
Umoe Schat-Harding, Inc., 912 Hwy 90 East, New Iberia, LA 70560

LIFEBOATS/RAFTS
DBC Marine Safety Systems, 101-3760 Jacobs Rd., Richmond, BC V6V 6T3, Canada
Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169
Willard Marine Inc., 1250 N. Grove St., Anaheim, CA 92806
Wolong International, 151 Chin Swee Road #03-14, Manhattan House, 169876, Singapore

LIFESAVING EQUIPMENT
C.M. Hammar AB, August Barks Gatan 15, 421 32 Vastra Frolunda, Sweden
Stearns Manufacturing Company, P.O. Box 1498, St. Cloud, MN
Umoe Schat-Harding, Inc., 912 Hwy 90 East, New Iberia, LA 70560
Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169

LIFT EQUIPMENT TESTING
Water Weights, Inc., 5139 Brook St., Ste E, Mont Clare, CA 91763

LIGHTING PRODUCTS
Phoenix Products Co., Inc., 8711 West Port Avenue, Milwaukee, WI 53224

LIGHTING SYSTEMS/ EQUIPMENT
ACR Electronics Inc., 5757 Ravenswood Rd., Ft. Lauderdale, FL 33310-5247
L.C. Doane, P.O. Box 975, Essex, CT 06426
Maritime Associates, P.O. BOX 1788, Crystal Bay, NV 89402, 775-832-2422, 775-832-2424, maritimeas@charter.net

LINE & NET CUTTERS
Spurs Marine, 201 S.W. 33rd St., Ft. Lauderdale, FL 33315

LUBRICANTS/LUBRICATION SYSTEMS
Benjamin R. Vickers & Sons Ltd., Airedale Mills, 6 Clarence Road, Leeds, W. Yorkshire LS10 IND, UK

MACHINERY MAINTENANCE, REPAIR & TESTING
Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851

MANEUVERING EQUIPMENT
Schottel GMBH & Co. KG, Mainzer Str 99, D-56322-Spay/Rhine, Germany

MARINE DECKING & FLOORING
Lonseal Flooring, 928 East 238th Street, Carson, CA 90745

MARINE DIESEL ENGINES
Wärtsilä North America, Inc., 16330 Air Center Boulevard, Houston, TX 77032

MARINE ELECTRONICS
ACR Electronics Inc., 5757 Ravenswood Rd., Ft. Lauderdale, FL 33310-5247

Comark Marine, 93 West Street, Medfield, MA 02052, 800-280-8522, 508-359-2267, sales@comarkcorp.com
Hatteland Display, Bogstadveien, 19, N-0355 Oslo, Norway
Jotron Electronics, Box 85, NO-326OT Jodalving Norge, Norway

Marine Electronic Solutions, 1522 Crabapple Cove, Jacksonville, FL 32225
Reson Inc., 100 Lopez Road, Goleta, CA 93117
Saab Marine Electronics, Box 13045, 402 5Goteborg, Sweden

MARINE ENGINEERING
Elliot Bay Design Group, 5301 Shishole Ave. NW, Ste. 200, Seattle, WA 98107
Ocean Crest, 2 Pidgeon Hill Dr., Sterling, VA 20165

MARINE EQUIPMENT
Scardana Americas Bkg., 502 Empire St., Greenfield Park J4V 1V7, Canada
Waterman Supply, P.O. Box 596, Wilmington, CA 90748

MARINE FURNITURE
Deansteel Mfg., 111 Merchant St., San Antonio, TX 78204

MARINE HARDWARE
HMS Marine Hardware, 333 W. Merrick Road, Valley Stream, NY 11580-5219

MARINE MANAGEMENT
Hornblower Marine Services, P.O. Box 112476, Campbell, CA 95011-2476

MARINE POWER PLANT SYSTEMS
Auramarine Ltd., Box 849, FI-20101 Turku, Finland
Wärtsilä North America, Inc., 16330 Air Center Boulevard, Houston, TX 77032

MARINE SERVICES
International Shipping Agency, Freeport Harbour Complex, Bldg.#2, Ste.#9, Freeport F41109, Bahamas

MARITIME TRAINING & SCHOOLS
Maine Maritime Academy, MMA, Castine, ME 04420-5000
Marine Safety International, Marine Terminal, Laguardia Airport, NY 11371

METALIZING
Climax Portable Machine, 2712 E. 2nd St., NEWBERG, OR 97132

MONITORING SYSTEMS
American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884
Governor Control Systems, 3101 SW 3rd Avenue, Ft. Lauderdale, FL 33315

Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851
Michael J. Erland, 7001 Flewly Rd, Ottawa, Ontario K2S 1B6, Canada
Prime Mover Controls, 3600 Gilmore Way, Burnaby, BC V5G 4R8, Canada
Reson Inc., 100 Lopez Road, Goleta, CA 93117

MOORAGE FACILITY
Sea Ark Marine, P.O. Box 210, Monticello, AR 71655-0210

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

NAV/COMM EQUIPMENT
C-Map Commercial, 133 Falmouth Rd, Mashpee, MA 02649
Chartco, New North Road, Hainault, Ilford Essex 166 2UR, UK
Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065
Furuno USA Inc., 4400 NW Pacific Rim Blvd, Camas, WA 98607

Hose-McCann Telephone Company, 1241 W. Newport Center Drive, Deerfield Beach, FL 33442, 954-429-1110, 954-429-1130, mchip@hosemccann.com
Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851

NAVAL ARCHITECTS, MARINE ENGINEERS
A.K. Suda, Inc., 3004 19th St., Metairie, LA 70002-4989
Aker Marine, 1818 CORNWALL AVE, VANCOUVER, BC V6J 1C7, Canada

Band, Lavis, & Associates, Inc., 900 Ritchie Hwy, Suite 203, Severna park, MD 21146
Bay Engineering, 253 N. First Ave., Sturgeon Bay, WI 54235
Bristol Harbor Group, Inc., 103 Poppasquash Rd., Bristol, RI 02809
C. Baxter & Associates, P.O. Box 9006, Mobile, AL 36609
CDI Marine Co., 9550 Regency Square Blvd, Ste 400, Jacksonville, FL 32222
Computer Sciences Corporation-Advance Marine Center, 1201 M St. SE., Washington, DC 20003
Elliot Bay Design Group, 5301 Shishole Ave. NW, Ste. 200, Seattle, WA 98107

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

John J. McMullen Associates, 4300 King St., Suite 400, Alexandria, VA 22302
John W. Gilbert Associates, 75 Terry Drive, Suite 200, Hingham, MA 02043

Kvaerner Masa Marine Inc., 201 Defense Highway, Ste 202, Annapolis, MD 21401
MCA Engineers, Inc., 2960 Airway Ave., #A-103, Costa Mesa, CA 92626
MIL Systems, 200-1150 Morrison Drive, Ottawa, Ontario K2H 8S9, Canada
Nautical Designs, Inc., 2101 S. Andrews Ave., Ste 202, Fort Lauderdale, FL 33316
Robert Allan Ltd., 1639 W. 2nd Avenue Ste 230, Vancouver, BC, Canada

The Glisten Associates Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104
VUYK Engineering, P.O. Box 204., 9700 AE Groningen, Netherlands
Washburn Doughty, P.O. Box 296, E. Boothbay, ME 04544

NAVIGATION
ComNav Marine Ltd., 13511 Crestwood Pl., Ste 15 15, Richmond, BC V6V 2G1, Canada
D & B Technologies, 1458 OCEAN SHORE BLVD #132, ORMOND BEACH, FL 32176-3613
Nauticast AG, Marienhilfer Strasse 50/211, A-1070 Vienna, Austria

OIL SPILL RESPONSE
Donjon Marine, 1250 Liberty Avenue, Hillside, NJ 07205
Marine Spill Response Corporation, 220 Spring Street, Suite 500, Herndon, VA 20170

OIL/WATER SEPARATORS
Alfa -Laval Separation, Inc., 955 Meams Rd., Warminster, PA 18974
Alfa Laval Tumba AB, 147 80, TUMBA, Sweden
MMC International, 60 Inip Dr, Inwood, NY 11096

PAINT APPLICATOR
Mr.Longam, Inc., P.O.BOX 377, Greenwood, MO 64034-0377

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Sakura of America, 30780 San Clemente St., Hayward, CA 94544, 800-776-6257, 510-475-0973

PARTS LOCATOR SERVICE
Inventory Locator Service, 8001 Centerville Parkway Suite 400, Memphis, TN 38018, 901-794-5000, 901-794-1760, ppugh@ilsmart.com

PIPE FITTINGS/CUTTINGS/CONNECTING/ SYSTEMS
Jesse Engineering, 5225 7th St., E. Tacoma, WA 98424, 253-922-7433, 253-922-2536, tmorgan@jesse-wallace.com
RAMCO Manufacturing Co., 365 Carnegie Ave., Kenilworth, NJ 07033

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

PLANNED MAINTENANCE SYSTEMS
Design Maintenance Systems, Inc, 340 Brooksbank Ave, Ste.100, North Vancouver, BC VTJ 2C1, Canada

PNEUMATIC LINE THROWERS
Restech Norway A/S, Box 624, NO-8001 BODO, Norway

PORT DEVELOPMENT
Sasakura Engineering, 7-32 Takeshima, 4-Chome, Nishiyodogawa KY Osaka555, Japan

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IMSSCO Corporation, 2040 Harbor Island Drive, Ste. 201 A, San Diego, CA 92101

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

PROPELLERS
Rice Propulsion, Av. Rios Espinoza 88, Mazatlan, Sin. 82180, Mexico, 8778396304, 011526699842533, rice@ricepropulsion.com

PROPULSION EQUIPMENT
ABB Turbocharger, Inc., 1460 Livingston Ave., North Brunswick, NJ 08902

Alstom Power Conversion, 3 Ave. Des Trois Chenes, 90018 Belfort Cedex, France
Brunvoll A/S, P.O. Box 370, N-6401 Molde, Norway
Caterpillar, Inc., P.O. Box 610, Mossville, IL 61552-0610
Cummins Marine, 4500 Leeds Ave., Ste 301, Charleston, SC 29405

CWF Hamilton Co., P.O. Box 709, Christchurch, New Zealand
Fincanteri, Diesel Engine Div., GMT, Bagnoli della, Rosandra 3334 Trieste, Italy
Hagglunds Drives Inc., 2275 International Street, Columbus, OH 43228

Harbormaster Marine, Inc., 31777 Industrial Rd., Livonia, MI 48150
Karl Senner Inc., 25 W Third, Kenner, LA 70062

Kawasaki Heavy Indust., World Trade Center Bldg., 4-1 Hamamastu-cho, 2-chome, Minato-ku Tokyo 105-6116, Japan
L.A.M.E Srl. Marine Division, Via della Fornace 4, Opera (MI), Italy

Man B&W Diesel, 17 State St., NY, NY 10004
Man B&W Diesel A/S, Teljholmsgade 41, Copenhagen SV DK-2450, Denmark
Man B&W Diesel AG, Stagtbackstrasse 1, Augsburg D-86153, Germany

Mapeco Products, 91 Willenbrock Rd., Unit B, Oxford, CT 06478
Markisches Werk Halver GmbH, Box 1355, Halver D-56843, Germany
Napier Turbochargers, P.O. Box 1, Waterside, South Lincoln LN5 7FD, UK

Nya Berg Propulsion AB, Box 1005, 430 90 Ockero, Sweden
Philadelphia Resins, P.O. Box 309, Montgomeryville, PA 18936
Minato-ku Tokyo 105-6116, Japan
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Orkot Composites, 2535 Prairie Rd, Unit D., Eugene, OR 97402

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DBC Marine Safety Systems, 101-3760 Jacobs Rd., Richmond, BC V6V 6T3, Canada
Lalizas SA, 21 Haidariou St., 545 Piraeus, Greece
Norwegian Maritime Equipment AS, BOX 244, NO-5480 HUSNES, Norway

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Stearns Mfg. Co., PO Box 1498, St. Cloud, GA 56302-1498
Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169

Walport USA, 39-5A Dover Rd South, Toms River, NJ 08757

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Titan Maritime Industries Inc., P.O. Box 350485, Ft. Lauderdale, FL 33004

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EVAC Environmental Solutions, 1260 Turret Dr., Rockford, IL 61111

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Headhunter Inc., 3380 SW 11th Ave., Ft. Lauderdale, FL 33315
Hydroxi Systems, 9800 McDonald Park Rd, Sidney, BC V8L 3S8, Canada
Microphor, 452 E. Hill Rd., Willits, CA 95490

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France Telecom Mobile Satellite Communications, 16,bvd du Mont d'Est-BP 14-93161, Noisy le Grand, France, +33556223231, mobilesat@francetelecom-mobilesat.com, Contact: unknown, www.francetelecom-mobilesat.com

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KVH Industries Inc., 50 Enterprise Center, Middletown, RI 02842
MX Marine, 23868 Hawthorne Blvd., Torrance, CA 90505
Nera Satcom AS, Box 91, NO-1375 Billingstad, Norway
Petrocom, 5300 West Sam Houston Parkway North, Houston, TX 77041

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Smiths Detection, 30 Hook Mountain Road PO Box 410, Pine Brook, NJ 07058, 973 830-2131, 973-830-2200, susan.cooper@smithsdetection.com, Contact: Susan Cooper, www.smithsdetection.com

Vingcard Marine, Bryan Oaks Business Park 1500 N.W. 1st Street, Dania, FL 33004

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Seacor Environmental Products, P.O. Box 3535, Seattle, WA 98124

SENSORS

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SHAFT SEALS

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Blount Marine, 461 Water St., Warren, RI 02885
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Maritime Institute of Technology, 5700 Hammonds Ferry Rd., Linthicum Heights, MD 21090
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Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler

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Maritech, LLC, 100 Powermill Rd., Acton, MA 01725

VISCOMETERS

Cambridge Applied System, 196 Boston Ave., Medford, MA 02155

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WASTE WATER TREATMENT

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Intercontinental Engineering, PO Box 9055, Kansas City, MO 64168
Jeamar Winches, 1051 Clinton St., Buffalo, NY 14206
Markey Machinery, P.O. Box 24788, Seattle, WA 98124
McElroy/Catchot Winch Company, Inc., P.O. Box 4632, Biloxi, MS 39535-4632, 228-875-6327, 228-872-7880, hcatchot@bellsouth.net, Contact: Harold Catchot, www.mcelroycatchotwinch.com
MMC International, 60 Inip Dr, Inwood, NY 11096
Nabrico Marine Products, 1050 Trinity Road, Ashland City, TN 37016
Rapp Hydema, 4433 27th Ave. West, Seattle, WA 98199, (206) 286-8162, (206) 286-3084, scotta@rappus.com

Skoookum, P.O. Box 280, Hubbard, OR 97032

Smith Berger Marine, 7915 10th Ave. S., Seattle, WA 98108
Superior Lidgerwood Mundy, 1101 John Ave., Superior, WI 54880

Timberland Equipment Ltd & Almon Johnson, 459 Industrial Ave., Woodstock, ON N4S 7Z2, Canada

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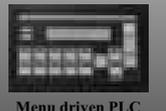
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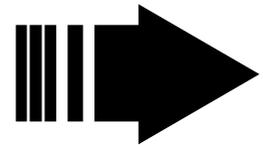
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Circle 102



Cummins

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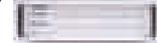
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Caterpillar

Caterpillar's 3500C HD marine engine offers high power density for continuous applications with ratings at 1800 rpm. The 12 and 16 cylinder engines offer up to 20 percent more power. Its electronic control system provides improved engine monitoring, communication, and display capabilities.

Circle 104



DigiSpec

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Circle No. 105



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Circle 106



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Circle 107



Cablofil

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Circle 108



Boatlife

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Circle 109



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Circle 110



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Circle 111



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Circle 112



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Circle 115



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Circle 116



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Circle 117



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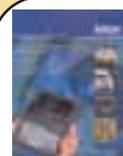
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Hammar

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Circle 119



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Circle 120



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Circle 121



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After May 2, 2005 and upon payment of a non-refundable fee of \$100.00, interested parties may obtain a Request for Proposals package (the "RFP Package") from the Authority during regular business hours at its Procurement Office, located at its Woods Hole terminal, Foot of Railroad Ave., Woods Hole, MA 02543 (tel. 508-548-5011, ext. 515), or may request that the Authority send an RFP Package by overnight delivery. Informational copies of the RFP Package will also be on file at the Authority's Procurement Office. Proposals will be received until 2:00 PM, Prevailing Time, on Friday, June 24, at which time all proposals will be opened in accordance with the provisions of the RFP Package.

The Authority reserves the right to accept any proposal or proposals, to waive any informality, to modify or amend with the consent of the proponent any proposal prior to acceptance, and to reject any or all proposals, all as the Authority in its sole judgment and discretion may deem to be in its best interest. The Authority also assumes no obligation of any kind for any expenses incurred by any person who responds to this advertisement or submits a proposal in accordance with the provisions of the RFP Package.

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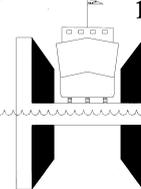
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