

April 2004

MARITIME REPORTER AND ENGINEERING NEWS

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Offshore Gulf of Mexico

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Maritime Security
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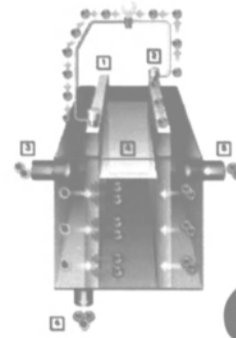
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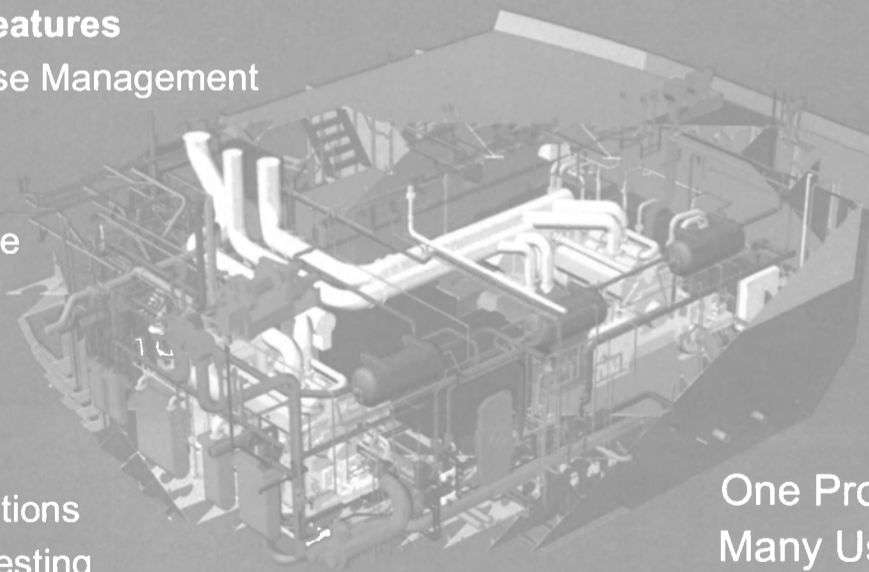
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"No Great Shakes" Shakes are the staves of a cask after it has been taken to pieces. As a seaman's well-being depended upon the integrity of the ship's casks and their contents, a disassembled cask was of little value to him. Hence, attributively, *no great shakes* meant of no use, of little importance.

Source: *An Ocean of Words: A Dictionary of Nautical Words and Phrases*, by Peter D. Jeans; Birch Lane Press, 1998



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Editor's Note

When Up is Down, is Down Up?

As editors, much of our time is spent reading and evaluating, examining a wealth of information to help us determine in which direction particular market segments are heading; trying to forecast "what's hot ... what's not." Given that this is the Offshore Annual edition, much of my reading and discussions of late have centered on offshore oil and gas production, and the myriad of political and market forces that ultimately determine the "what," "where's," "when's" and "how much" of offshore drilling. My insightful conclusion: Throw all of the reports and data in a trusty centrifugal, give it a whirl, grab the third thing to fly out and you are just as likely to be on the mark.

Or not!

Notoriously cyclical, unpredictable and dependent on forces based solidly on economics and loosely on politics, the direction, near-term and far-forward outlook of the offshore drilling market can change depending on which "expert" opinion you solicit. Not a day goes by when there aren't reports in the U.S. of gasoline prices hitting historic new highs — months before the peak summer season — yet talk to a some rig and boat builders and you'd think that the oil majors will never drill for another drop in the oil patch. Pick up a copy of the *NY Times* — Wednesday, March 24, 2004, page C1, to be exact — and read about new technologies to drill deeper, and "with energy prices rising, investors are piling back in" to the offshore market; but read our own offshore market report in this edition (pg. 24), and you will see that "offshore drilling activity is expected to increase modestly." I offer no crystal ball-esque predictions on this page, but am compelled to point out the good news. The technologies to discover and recover energy products in increasingly deep waters are improving exponentially. The interest in gas ... with many new gas ship, terminal and technology projects booked and in the works ... continues to grow unabated. Oil and gas prices are soaring, and mixed with political instability in the world's main oil producing region and increasing energy demands from China, this is likely to continue. And last, but certainly not least, the most recent federal offshore lease sale in New Orleans attracted the largest number of bidders in more than five years.



P.S. All of you who know me well realize that it was particularly painful — as an Ohio State University alumnus — writing "The Future is Now" (pg. 30), the story about the students and winning ISODC project from the "school up North". (Brutus Buckeye, pictured left)

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On the Cover



Pictured on the cover is USCG cutter *Matagorda* on sea trial prior to re-commissioning. Read about *Matagorda* on page 9; read a Q&A with Bollinger's Mike Ellis on page 34.

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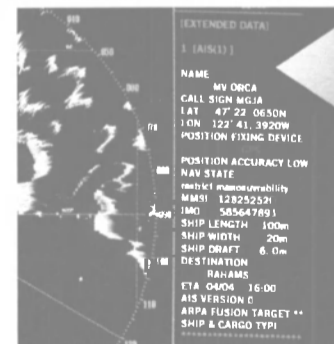
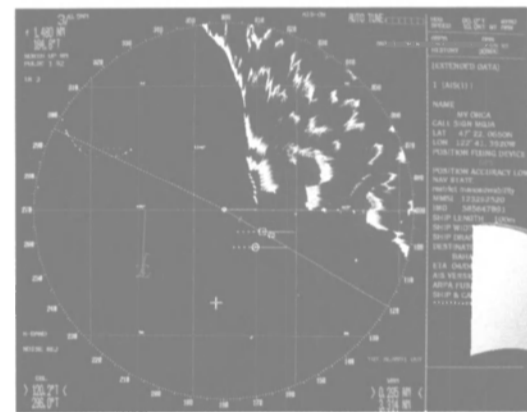
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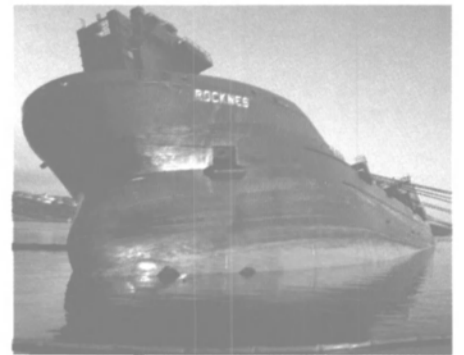
News

Rocknes Successfully Parbuckled

On March 30, 2004, the parbuckling of MV Rocknes in Agotnes, Norway, was completed by SMIT Salvage. After two months of preparations, a two-day-long unique operation ensued as the vessel was pulled upright from its upside-

down position. The salvors used the Dive Support/Salvage Vessel SMIT Orca, two immersion and salvage pontoons mounted on a semi-submersible flattop barge which together supported the pulling winches, and a supporting barge. On March 28, after pulling the vessel into this 130-degree gradient, salvors pumped water out and air into

the vessel in order for it to reach its original draft depth. A team then proceeded with the conservation of onboard instruments and machinery, while the salvors sprayed parts of the vessel with anti-corrosion material. The Rocknes is a 544.6 ft. Dynamic Positioned Flexible Fallpipe Vessel that capsized in January 2004 after hitting a shallow in the



Vatlestraumen strait near Bergen, Norway. In this accident, 18 crewmembers lost their lives.

\$10M Fine for Oil Spill

The U.S. Attorney for the District of Massachusetts said that Bouchard Transportation Co. has agreed to plead guilty to violation of federal law relating to a 2003 oil spill in Buzzards Bay and to pay a criminal fine in the amount of \$10 million. The company will institute a maritime compliance program and will disclose to the government the results of its internal investigation. The government alleges that the company negligently violated the Federal Water Pollution Control Act (FWPCA) because its employee, the mate on watch on the tug, operated the tug in a negligent manner and because the company had allowed the mate to remain at the helm despite repeated concerns raised about his competency. The government also alleges that the company violated the Migratory Bird Treaty Act (MBTA). (HK Law)

GLDD Receives Dump Barge



Atlantic Marine in Jacksonville, Fla. recently completed construction of a 7,100 cu.yd. hydro dump barge, GL-66, for Great Lakes Dredge & Dock Co. (GLDD) of Oak Brook, Ill. From the cutting of the first plate to launching was only 24 weeks, reportedly delivered on-time and on-budget. The vessel measures 277 x 63.5 ft. (84.4 x 19.4 m) with a 27.3 ft. (8.3 m) depth. "I have been part of many new construction projects, and the building of the GL-66 at Atlantic Marine was a very positive experience," said **David Coombs**, naval architect, GLDD. "Never before did I have to spend less than five percent of my time with a shipyard during a new construction project."

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NEW LEADERSHIP. NEW COMMITMENT.



ATLANTIC MARINE'S NEW TOP EXECUTIVES. Ron McAlear (left) is president of Atlantic Marine's new construction and ship repair facilities at Mobile, Ala., and Ed Fleming now heads up both new construction as well as ship repair at the Jacksonville, Fla. shipyard.



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In Jacksonville, Ed Fleming has been promoted to president of our new construction yard. Ed has been president of our Jacksonville repair yard since 1989 and has been with Atlantic Marine for over 25 years.

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Circle 210 on Reader Service Card

Galtex Pilots Order New Jet Boat



Gladding-Hearn Shipbuilding started construction on its first water-jet-propelled pilot boat for the Galtex pilots in Galveston, Texas. Delivery is planned for March 2005. The Galtex pilots chose waterjets to avoid costly repairs to propellers and shafts from debris in Galveston harbor, particularly at high speeds, and enjoy improved maneuverability and safety during boarding and pilot rescues, said **Peter Duclos**, shipyard president. Designed by C. Raymond Hunt Associates of Boston, with its continually-evolving deep-V hull the all-aluminum vessel measures 70 ft. overall, with a 21-ft. beam and a 3.9-ft. draft. Powered by twin Cummins KTA38-M2 diesel engines, each producing a conservative 1,300 bhp at 1,800 rpm, the boats will be driven by Hamilton HM 571 water jets. Each engine will turn a remote-mounted Reinjtes WVS 430/1 gearbox. Top speed is expected to reach 30 knots. The engines feature Cummins' Centinel oil lube management systems, which continually add fresh oil to replace oil burned through the fuel system. The Centinel systems combined with the Eliminator oil lube filtering systems lengthen oil change intervals to more than 4,000 operating hours, said Duclos.

Circle 37 on Reader Service Card

First 123-ft Deepwater System Cutter Delivered



The first Deepwater surface asset under the Integrated Deepwater System was recently delivered, with U.S. Coast Guard Commandant Adm. **Thomas H. Collins** accepting delivery of the vessel and returning the CG Ensign to the USCG Cutter Matagorda at Bollinger Shipyards, in Lockport, La. The ceremony celebrated the delivery of the first

newly completed 123-ft. patrol boat, USCGC Matagorda, manufactured by HBJV, a joint venture of Bollinger Shipyards LLC and VT Halter Marine, Inc of Gulfport, Miss. HBJV is a subcontractor to Northrop Grumman Ships Systems sector, a partner in Integrated Coast Guard Systems (ICGS), a joint

venture of Northrop Grumman and Lockheed Martin.

M/T Arca Double Hulled

The V. Ships-managed, and Shell Canada-owned bunker barge M/T Arca, which operates in Montreal harbor supplying bunker oil to other vessels, is cur-

rently in the Verreault drydock for conversion to a double-hull vessel.

The process, which will take about three months to complete, comes in advance of proposed legislation that will likely demand that all Canadian oil tankers have a second hull.

Circle 5 on Reader Service Card



VESSEL NAME / TYPE	HORSE POWER	SIZE	KORT NOZZLES	BOW THRUSTERS	SHARK JAWS
Offshore Towing Vessels	CLASS	L X B X D			
N. Joseph Guidry	9000	115" X 32' X 15'	YES	N/A	N/A
Harvey Commander	9000	115" X 32' X 14'	YES	N/A	N/A
Harvey Gladiator	9000	115" X 32' X 14'	YES	N/A	N/A
Harvey Invader	9000	115" X 32' X 14'	YES	N/A	N/A
Harvey Viking	10000	115" X 32' X 17'	YES	N/A	N/A
Harvey Warrior	10000	115" X 32' X 17'	YES	N/A	N/A
Harvey Trojan	10500	126" X 37' X 17'	YES	4TH QTR 04	200 TONS
Harvey Titan	10500	135" X 36' X 16'	YES	4TH QTR 04	200 TONS
Harvey Intruder	13500	135" X 36' X 16'	YES	YES	200 TONS
Harvey Thunder	13500	135" X 36' X 16'	YES	YES	200 TONS
Harvey War Horse	16500	150" X 45' X 18'	YES	YES	350 TONS
Offshore Supply Vessels	CLEAR DECK	SIZE	LIQUID MUD	DRY BULK	METHANOL
Harvey Provider - DP 2 Cert.	175' X 50'	240' X 56' X 15'	7000 BBLs	9600 CU. FT.	1100 BBLs
Harvey Explorer - DP 2 Cert.	175' X 50'	240' X 56' X 15'	7000 BBLs	9600 CU. FT.	1100 BBLs

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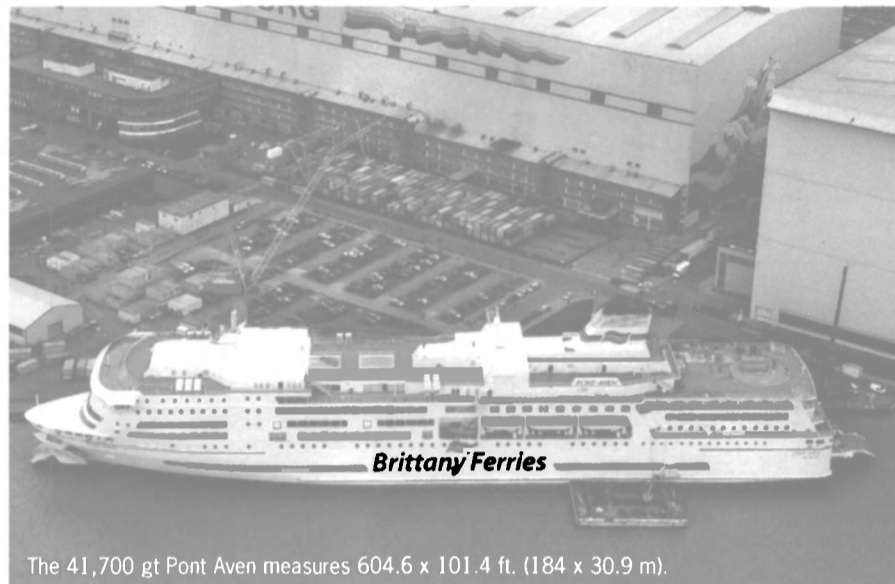


Circle 237 on Reader Service Card

Meyer Werft Delivers New RoRo-Cruise Ferry

Meyer Werft marked its re-entrance into the international ferry business with the delivery of the 41,000-gt RoRo-cruise ferry Pont-Aven for Brittany Ferries. In summer, Pont-Aven will provide daily service sailing at 27 knots between France and England and

Main Particulars	
Tons	41,700 gt
Length, o.a.	604.6 ft. (184.3 m)
Length, bp	560.4 ft. (170.8 m)
Breadth, molded	101.4 ft. (30.9 m)
Number of decks	11
Draft (at max. load)	22.3 ft. (6.8 m)
Total engine power	50,400 kW
Propulsive power	43,200 kW
Main engines	(4) MAK 12 VM 43
Gears	Flender
Propeller	Wartsila
Speed	>27 kn
Generator sets	(3) MAK 8 M 25
Passenger capacity (max.)	2,400
Crew	183
Number of passenger cabins	652
outside cabins (incl. suites)	210
Number of inside cabins	442
Lane meters	3,500 m
Number of cars	650
Number of trucks	20
Classification	Bureau Veritas
Port of Registry	Morlaix



The 41,700 gt Pont Aven measures 604.6 x 101.4 ft. (184 x 30.9 m).



between England and Spain.

The slim ship design includes many glass facades, as well as a swimming-pool, a fitness center, a shopping mall, restaurants and bars. Measuring 604.6 ft. (184 m) with a breadth of 101.4 ft. (30.9 m), the ferry features 652 passenger cabins to accommodate up to 2,600 passengers. The total track length of 3,500 m allows for 650 cars and 20 trucks. A total engine power of 68,500 hp enables a sailing speed exceeding 27 knots.

Pont-Aven features two regular car decks and one hoistable deck in the upper car deck. The hoistable deck is divided into six platforms on each side of the ship. The front and back platform serve as access ramp and can therefore be lowered hydraulically. When not in use the individual platforms can be

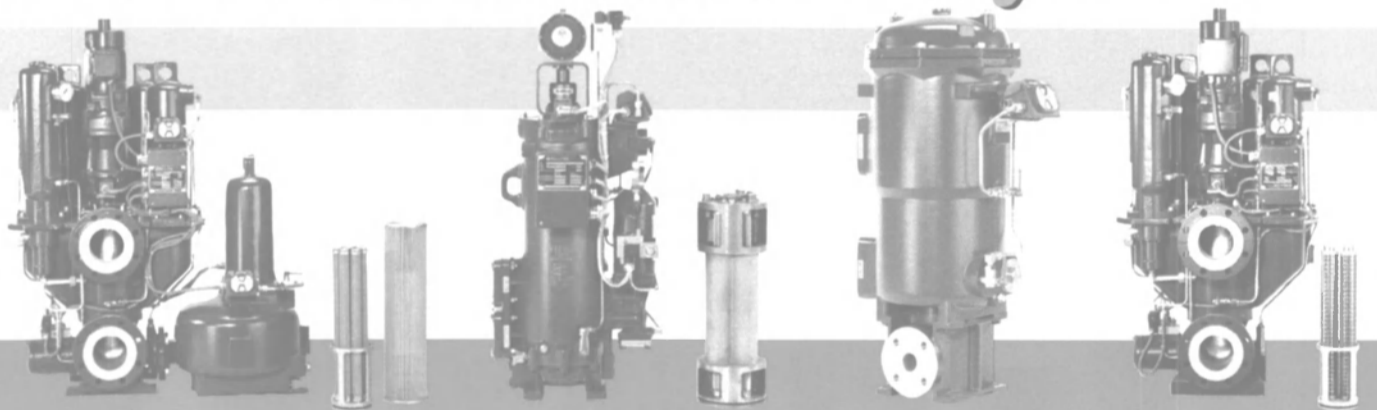
Bottom Left: The 41,700 gt Pont Aven offers 3,500 lane meters to accommodate 650 cars and 20 trucks.

Bottom Right: Pont Aven is stylishly outfitted, with a pool area on deck 9 and the Espace Restaurant on deck 7.

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hydraulically raised and locked in stow position under the ceiling of the deck. With only trucks onboard the main hold will take 72 trucks, with 16 on the lower hold. With only cars onboard the main hold including the total hoistable deck will take 624 cars and the lower hold will take 79 cars. Both car decks offer additional parking area for a total of 142 motorbikes.

The ferry features a stern and bow ramp for loading and unloading, and both ramps serve as watertight door.

A Siemens automation system consists of several workstations and monitoring stations and includes redundant main process stations communicating through a fiber optic network arranged in a circular way. All decentralized input- and output stations and several independent systems like the propulsion plant, diesel engines, A/C cooling plant, steam boiler system, fresh water generator, integrated bridge system etc. are connected to the independent main process stations through a field bus system in fiber optic technology which is also partially redundant. For optimum maneuverability, the ship is equipped with two CP propellers, two spade rudders as well as two bowthrusters and one stern thruster. The spade rudders have a surface of 18.5 sq. m. each and are operated through rotary vane steering gears. Both bow and stern thrusters have a controllable pitch propeller with a propulsive power of 2,000 kW each. The ship is propelled by a four-engine system with reduction gears and controllable pitch propellers. The output of the flexibly mounted engines (MAK, four-stroke diesel engine, type 12 VM 43) is 10,800 kW (14,700 hp) each at 500 rpm. The engines have been designed to operate on heavy fuel oil. Through a Flender reduction gear two diesel engines each drive a CP Wartsila propeller and a 4,500 kW shaft generator. The shaft generator provides the transverse thrusters or the ship's network with energy.

Electrical power is provided by three MAK 8 M 25 diesel generator sets, with an output of 2,400 kW each at 750 rpm. These are flexibly mounted and have been designed to operate on heavy fuel oil. In addition, one emergency generator (Caterpillar, 600 kW at 1,500 1/min) was installed.

The ferry is fitted with an air conditioning system guaranteeing for its service area a year-round constant room temperature of 23° C. More than 120 AC and ventilation plants are arranged in nine fan rooms and handle a total air volume of approximately 1,164,000 cu. m./hr.

Circle 1 on Reader Service Card

Rousse Prestige Christened

Merwede Shipyard on March 18 christened the Rousse Prestige, a new inland vessel for Dunav Tours of Rousse in Bugaria. The christening took place at the Wilhelminakade in Rotterdam and was performed by **Daneta Zheleva**, Chairman of the Board of Directors of Danav. The contract for the vessel was in March 2003 in Sofia Bulgaria. With the Rousse Prestige, Merwede Shipyard has delivered another luxury river cruise. The Rousse Prestige, like the Rouse, is named after the Danube city where Dunav Tours is headquartered, has been long term chartered to German DCX-Touristik, yet operates with a Bulgarian Dunav Tours crew.



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Circle 280 on Reader Service Card

Bollinger Launches Innovative OSV Hull

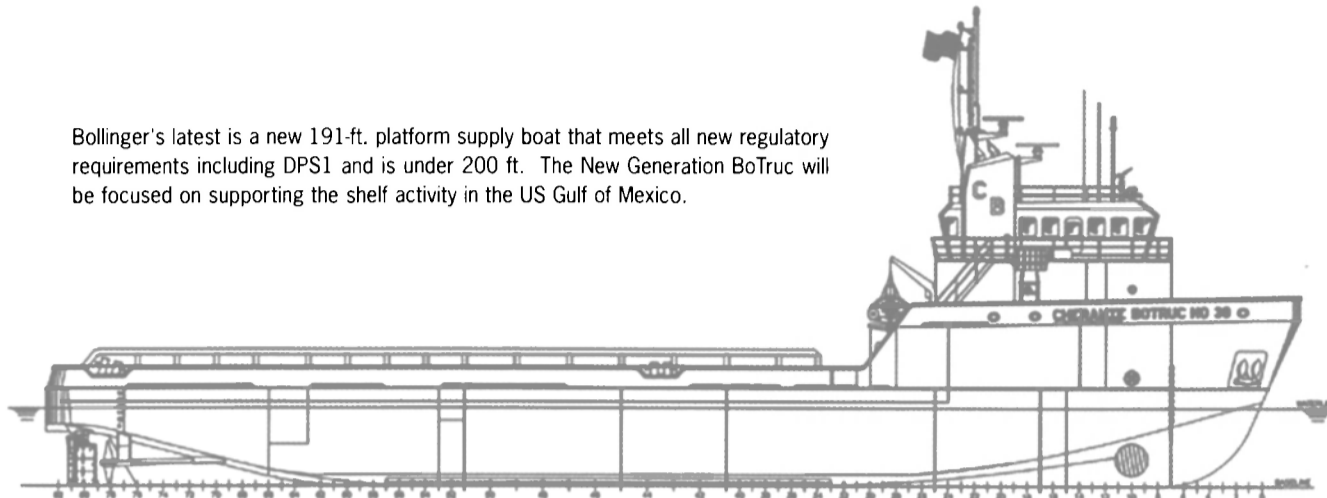
Bollinger Shipyards, Inc., Lockport, La., has added another new design to its list of "less is more" offshore service vessels (OSV) that have cargo carrying capacities of larger vessels without the added equipment, operational and maintenance costs to their owners or operators. The design was developed in close cooperation with operator L & M BoTruc Rental Inc., of Golden Meadow, La., who signed contracts for two of the new OSVs.

The first hull was launched February 6, 2004 and delivery of the first boat, Cheramie Botruc 38 is planned for June 2004, with the second vessel, Cheramie Botruc 39, following in about three months thereafter.

The latest is a new 191-ft. platform supply boat that meets all new regulatory requirements including DPSI and is under 200 ft. Slotted between Bollinger's new 166-ft. and 207-ft. supply vessels, the new 191-ft. boat can be contrasted to 180-ft. and 185-ft. OSVs, which were considered standards for Gulf of Mexico (GOM) service in the 1980's and 1990's.

"By comparison," said **Danny Irby**, executive vice president new construc-

Bollinger's latest is a new 191-ft. platform supply boat that meets all new regulatory requirements including DPSI and is under 200 ft. The New Generation BoTruc will be focused on supporting the shelf activity in the US Gulf of Mexico.



tion, of Bollinger, "the old 180s carried around 1,750 barrels of liquid mud and 3,500 cu. ft. of dry mud. Our new 191 can carry 2,500 barrels of liquid mud and 4,800 cu. ft. of dry bulk mud. The older boats usually carried around 500 tons of cargo on approximately 4,000 sq. ft. of aft deck space. Our new boat can carry 900 long tons on her deck that has almost 5,000 sq. ft. of clear deck cargo area."

He added that the older GOM standards carried around 61,000 gallons of fuel oil while the new Bollinger design more than doubles that with a 125,000-gallon capacity. "That," he said, "gives the 191 more revenue time serving offshore installations and less time returning to base for fuel."

In addition to being 191-ft. in length overall, the new boats will each have a beam of 46-ft. and a 15-ft. depth. Each

will be powered by two Cummins KTA50-M2 diesel engines developing 1,600 bhp each at 1,800 rpm. They will drive Nibral propellers through Twin Disc MG 5600 reduction gears with a ratio of approximately 6:1. Eight other Cummins diesels will power two service generators, two generator drives, an emergency generator, bow thruster and pump systems. Accommodations for 18 will be provided in seven cabins.

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Port Pile Up?

There are less than three months until July 1 ... Do you know where your International Ship Security Certificate (ISSC) is?



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

If not, you are in grave danger of having your ship delayed or even denied entry into port in the United States and various other countries.

The International Ship and Port Facility Security (ISPS) Code comes into effect on July 1 and full enforcement of the U.S. Coast Guard regulations under the Maritime Transportation Security Act (MTSA) also commences. Ships engaged in international commerce and port facilities that they utilize are required to have fully implemented relevant provisions by that date. Port states, particularly the United States, have announced plans to vigorously enforce the ISPS Code and related provisions as of that date. The Commandant of the Coast Guard stated that every ship subject to the ISPS Code will be boarded upon its initial arrival in the United States to check for maritime security implementation.

Problems are manifest. Classification societies, which serve as Recognized Security Organizations (RSOs) for most flag administrations, have indicated

that relatively few ships have submitted draft ship security plans for review and approval. It will be virtually impossible for all the security plans that are going to be submitted at the last moment to be reviewed with the level of scrutiny appropriate to satisfy the letter and spirit of the ISPS Code. Many ships will not have an ISSC on July 1. Others will have interim certificates or certificates that have been issued with minimal review of the underlying security plan.

A certificate is not supposed to be issued until the ship has fully implemented its approved security plan. Given the rush that is occurring as the deadline approaches, it is unclear how there will be sufficient time to complete the required implementation process. The process includes not only dissemination of the approved plan, but also training of all persons on board with duties and responsibilities under the plan.

Even if your ship has an ISSC, a port state control officer may still exercise control measures if there are clear grounds for believing that the condition of the ship does not correspond substantially with the particulars of the certificate. Let's assume that a U.S. Coast Guard boarding officer comes aboard the ship without being challenged and without being required to produce appropriate identification. In that case, the boarding officer may determine that access control measures on the ship are inadequate. The ship may then be delayed while the master and the ship security officer demonstrate to the satisfaction of the boarding officer that the ship security plan has been fully implemented.

Next question — Does your ship have its **Continuous Synopsis Record (CSR)**. The answer is almost definitely "No." While the requirement for ships to have continuous synopsis records was adopted by the IMO-sponsored maritime security conference in December 2002, the Assembly Resolution establishing the form of the CSR was not adopted until December 5, 2003 (that is not a typo). It took IMO almost a full year to decide on the format of a simple form that shows basic information such as the date the ship was registered with the flag state; the name and address of the owner; the name of the classification society; the name of the entity that issued the ISM certificate; and the name of the entity that carried out the verification of the ISSC. Flag administrations are only now issuing directives to their ships on how to apply for a CSR. For instance, the U.S. Coast Guard issued its Notice in this regard on February 27, 2004. How ships are expected to have a required government-issued form on board by July 1 in light of the bureaucratic delay evidenced to date is beyond me.

More questions

Is your ship fitted with the **automatic identification system (AIS)**?

Is it permanently marked with its identification number on the stern or on either side amidships and on



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Engine photo courtesy Volvo Penta



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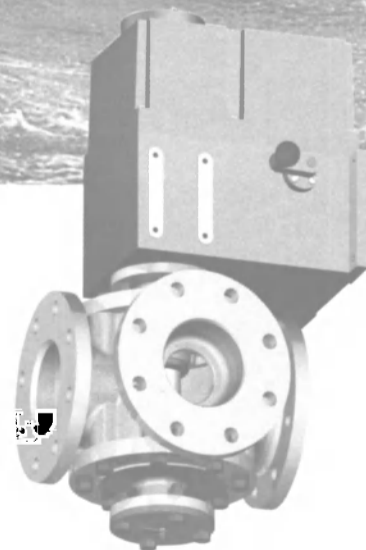
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Maritime Security

either one of the end transverse bulkheads in the machinery spaces or in one of the hatchways or in the pump-room (on a tanker) or on one of the end transverse bulkheads of the ro-ro spaces (on a ro-ro ship)?

Is it fitted with a **Ship Security Alert System (SSAS)** — basically a silent alarm that notifies a competent authority ashore that a security incident has occurred on the ship)?

AIS originated as a safety device, intended to reduce the risk of collision by allowing ships to identify each other by name, course, and speed on the radar screen. It has been converted into a security instrument, but

numerous problems are inherent in this rapid transition. Few coastal and port nations, including the United States, have installed shoreside transceivers to make use of the information that ships will be continuously transmitting. In the United States, the Federal Communications Commission (FCC) sold the frequency spectrum on which AIS is intended to function. This auction, which occurred some years ago, was approved by the U.S. Coast Guard, which never anticipated this turn of events.

With regard to the ship security alert system, few nations have designated the competent authority that is

to receive the alarm signal. Fewer still have issued directives on what is to be done when and if such an alarm signal is received. Fewer still have a creditable capability to take action to address the security incident on the ship that transmitted the alarm signal. Additionally, some of the satellites that were expected to receive and re-transmit the alert signal can't do the job. You should check carefully to determine whether your signal can get through and what will be done with the alarm signal when it does arrive.

Port facilities don't get off the hook. Many of the same requirements apply to them, and there are indications that they are no further along in compliance with the ISPS Code than are ships. What happens if, on or after July 1, your ship calls at a port facility that is not in compliance with the ISPS Code? Such an event may constitute a security incident that leads to increased scrutiny of your ship when it arrives at a future port.

While ports (as differentiated from individual facilities at ports) are not specifically addressed by the ISPS Code, they are covered by the MTSA. The European Union is also commencing the process to consider port security on a holistic basis. In addition, U.S. law requires the Coast Guard to assess the security situation at foreign ports. Ports that are found to have inadequate security will be placed on a black list. Ships arriving in the U.S. from those ports will be subject to increased scrutiny and may be barred entry.

An issue the legislators and regulators fail to consider is cost allocation. Who is going to and who should bear the costs when a ship is delayed due to security issues? Does the answer change if the cause of the delay is that a prior charterer ordered the ship to a port with inadequate security? Does the answer change again if the cause of the delay is cargo-related? The maritime community needs to review these issues carefully now, rather than wait for the inevitable.

Anyone who thinks the U.S. Coast Guard is not going to take strong enforcement measures regarding maritime security should consider the freight vessel BBC CHINA. This vessel arrived in Honolulu in early February 2004 having submitted its notice of arrival less than 96 hours in advance. The Coast Guard delayed the ship for several days while it thoroughly reviewed the vessel, crew, and cargo.

In light of the above, there seems little doubt that things are going to prove extremely interesting during July. One should expect delays and backups as everyone plays catch-up trying to come to grips with this new maritime security regime. The only way to avoid a port pileup is for everyone to work together in good faith.

FMC to Meet in D.C.

The Federal Maritime Commission (FMC) will meet in Washington, DC on March 31. During the open portion of the meeting, the Commission will consider the optional rider for proof of additional NVOCC financial responsibility. During the closed portion of the meeting, the Commission will consider various petitions by Chinese liner companies for partial exemptions from Shipping Act restrictions. The Commission will also consider shipping restrictions, requirements and practices of the People's Republic of China. 69 Fed. Reg. 13529 (March 23, 2004). (Source: HK Law)

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U.S. Manifest Presentation Requirements

By Dennis L. Bryant

The United States, like all other nations, has required from its founding that manifests of imported cargo be filed with its Customs agency. Traditionally, the manifest was filed (or "presented") when the ship arrived in port. Official entry was not completed and cargo could not be unladen until the manifest was presented.

This process was drastically reworked following the horrific terrorist attacks of September 11, 2001. The U.S. Customs Service, since reorganized into the Bureau of Customs and Border Protection (CBP), demanded that the information be provided earlier and in greater detail.

24-Hour Rule

On October 31, 2002, Customs promulgated the so-called "24-Hour Rule." This rule required carriers to present to Customs a copy of the vessel's manifest at least 24 hours prior to lading the cargo on the vessel in a foreign port if the vessel was bound for a U.S. port with that cargo on board. For vessels carrying bulk cargo or specially-designated break-bulk cargo, the manifest did not have to be presented to Customs until at least 24 hours prior to the vessel's arrival in its first U.S. port.

Cargo Listing

The carrier is required to present an accurate and complete vessel cargo declaration. A precise description of the cargo (or the Harmonized Tariff Schedule [HTS] numbers to the 6-digit level) must be included in the declaration. Generic descriptions, such as 'freight of all kinds' (FAK), 'general cargo', and 'said to contain' (STC) will not be accepted. Likewise, general characterizations, such as 'chemicals' or 'foodstuffs' will be considered overbroad. The carrier should not accept cargo from a shipper unless the description provided is consistent with the above requirements.

The numbers and quantities of cargo must be reported in the lowest external packaging unit. For example, if a container holds 10 pallets of an item with 20 cartons on each pallet, the cargo should be reported as 200 cartons.

For sealed containers, the seal number of the last person or company to load the container must be listed. Participants in the Customs-Trade Partnership Against Terrorism (C-TPAT) must affix seals to all loaded containers.

Consignee

If there is a consignee of the cargo, that consignee must be identified. If

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Shipper

The manifest is required to identify the shipper of the cargo. For this purpose,

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Government Update

the shipper was defined as "the shipper's complete name and address, or identification number, from all bills of lading."

Carrier

Prior to the 24-Hour Rule, entry was made and the manifest was presented by the master of the vessel. When the manifest had to be presented earlier than ves-

sel arrival under the 24-Hour Rule, responsibility was placed by Customs on the "carrier." The problem was that Customs did not clearly define the term. The agency states that the carrier is the

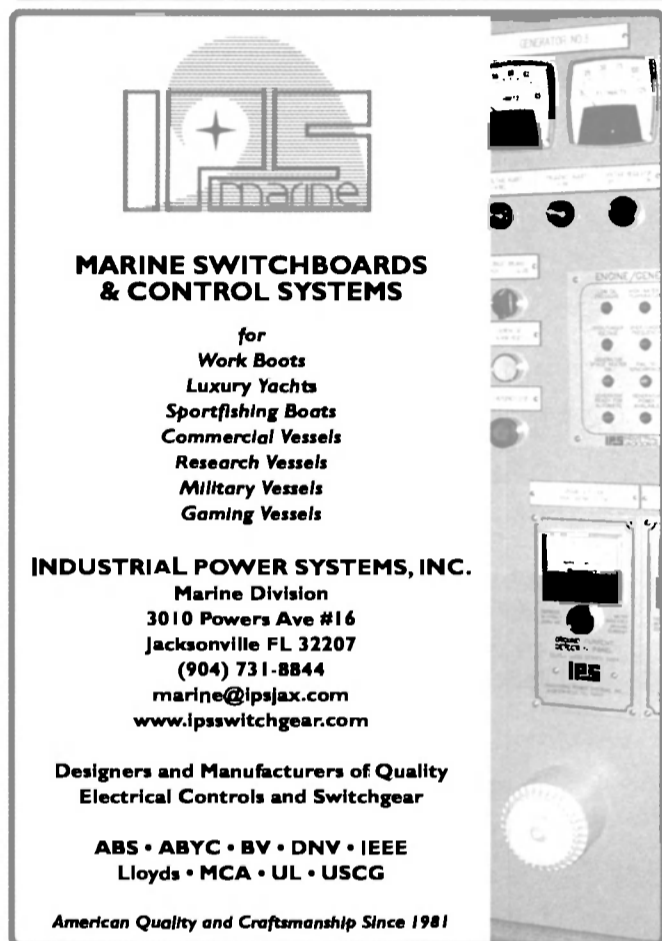
owner, bareboat charterer, or other entity responsible for the vessel. This definition is not particularly helpful. Obviously the owner and the bareboat charterer qualify - and they will retain the ultimate obligation. Experience and common sense show that this filing responsibility, though, can be delegated. Ship managers routinely agree by contract to undertake Customs filings and related duties. There is also nothing to prevent a time, voyage, or slot charterer from agreeing to perform such filings. A large shipping company that operates numerous vessels under its banner should likewise be able to assume this responsibility for all ships in its "fleet" if it so elects. In any event, the owner and bareboat charterer must bear in mind that they remain liable to CBP for completion of these tasks. A non-vessel-operating common carrier (NVOCC) is also a carrier for purposes of this regulation and is required to file its own report. The 24-Hour Rule entered into effect on December 2, 2002. Whatever entity assumed the advance manifest reporting requirements of this rule became a carrier for Customs purposes. As noted above, though, the owner and bareboat charterer also retained responsibility for ensuring that the reports were made in a timely and accurate manner.

Presentation

When the 24-Hour Rule was promulgated, carriers were provided a variety of methods for presenting the advance manifest to Customs. Presentation could be done by means of a courier, via facsimile (fax) transmission, or electronically by means of the Automated Manifest System (AMS). If AMS was utilized, the carrier was required to register with Customs and obtain an appropriate electronic interface, to have a Standard Carrier Alpha Code (SCAC), and to have access to an International Carrier Bond (ICB). If the carrier did not have and didn't want to acquire its own electronic interface, there are approved third parties that provide this service for a fee. Also, carriers were also allowed to utilize the ICB of their local port agent, rather than having to obtain their own bond.

Advance Electronic Presentation Rule

The rules changed again with promulgation of the Advance Electronic Presentation Rule on December 5, 2003. The new rule, which came into effect on March 4, 2004, eliminates the other presentation options and mandates that all advance cargo manifests be presented



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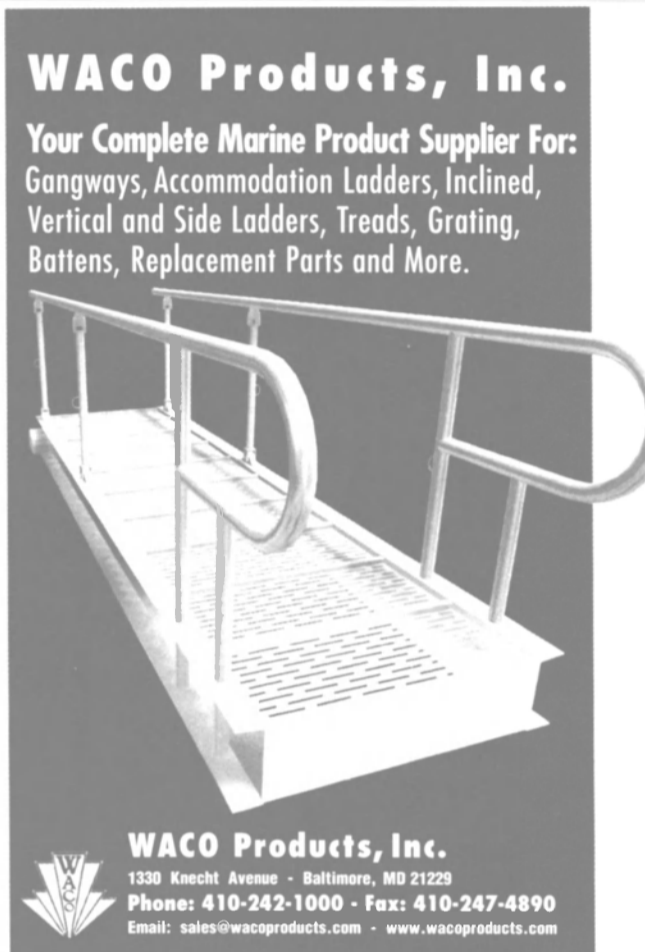
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electronically by means of the Automated Manifest System (AMS). For bulk carriers, specially designated break-bulk carriers, and passenger vessels, enforcement has been delayed until April 2, 2004. AMS began in 1986 as an experiment and was intended to accel-

erate the flow of commerce. It is now being turned into a security tool, a task for which it was not designed and for which it is only partially suited. As noted above, carriers must register with the CBP and have appropriate telecommunications capability in order to par-

ticipate in AMS. Alternatively, carriers may work through an Authorized Data Processing Service.

Standard Carrier Alpha Code - SCAC

The cargo manifest must include the carrier's Standard Carrier Alpha Code

(SCAC). While many carriers had acquired their own SCAC previously, it was voluntary in nature. It has now become mandatory under the rule. The SCAC can only be obtained from the National Motor Freight Traffic Association. The SCAC may be obtained by just about any entity engaged in the transportation business. In the marine sector, an application may be submitted by a steamship agent, a steamship company, a barge line, a car ferry, a tug boat operation, or any other "company engaged in transportation by vessel over a body of water".

International Carrier Bond - ICB

Previously, the carrier could, if so authorized, make use of the local port agent's international carrier bond (ICB) to ensure payment of any assessed duties, civil penalties, etc. Under the Advance Electronic Presentation Rule, the carrier must have its own ICB. The ICB must be obtained through a bonding company authorized to provide such bonds. The ICB can also be costly, but it can be used to cover a variety of Customs penalties, not just those directly related to this reporting requirement. CBP regulation provides that the ICB binds the obligators, which means the principal and the surety. The principal is defined as the carrier. Thus, the entity that assumes the role of carrier for purposes of filing the advance cargo information via AMS is the entity that becomes the principal for purposes of the ICB. The regulation and the Customs Bond application form (CF 301) provide for either a single transaction bond or a continuous bond, at the applicants' option. CBP reserves the right, though, to place conditions on the bond or to require an increased amount. The minimum amount for purposes of this regulation appears to be \$50,000, but that is obviously subject to change. The CF 301 should be submitted to the Customs Director for the U.S. port most frequently utilized by the carrier. Normally, a carrier will want to obtain a continuous bond, which may be utilized by multiple vessels and for multiple port calls.

Consignee

The consignee is the party to whom the cargo is to be delivered in the United States, with the exception of freight cargo remaining on board (FROB). In the case of cargo being shipped "to the order of (a named party)", the consignee is the named party. If there is any other commercial party listed in the bill of lading for delivery or contact purposes,

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the carrier must report this other commercial party's identity and contact information (address) in the "Notify Party" field of the electronic data transmission to CBP.

Shipper

Another change provided for the Advance Electronic Presentation Rule proved particularly controversial. The rule changed the definition of shipper to "the identity of the foreign vendor, supplier, manufacturer, or other similar party." Vessel owners and operators

immediately complained, asserting that carriers normally do not have access to the identity of the foreign vendor, supplier, manufacturer, or similar party. The extent of the carrier's information is generally limited to that found on the bill of lading. On February 23, 2004,

CBP issued a Notice stating that is delaying indefinitely implementation of the change to the "shipper" element of the advance manifest filing requirement as provided for in its Advance Electronic Presentation Rule. The purpose of the indefinite delay is to allow CBP time to review a petition submitted by trade representatives challenging the definition of shipper. Until this issue is resolved, CBP will continue to enforce the requirements for the data element "shipper" as promulgated in the 24-Hour Rule.

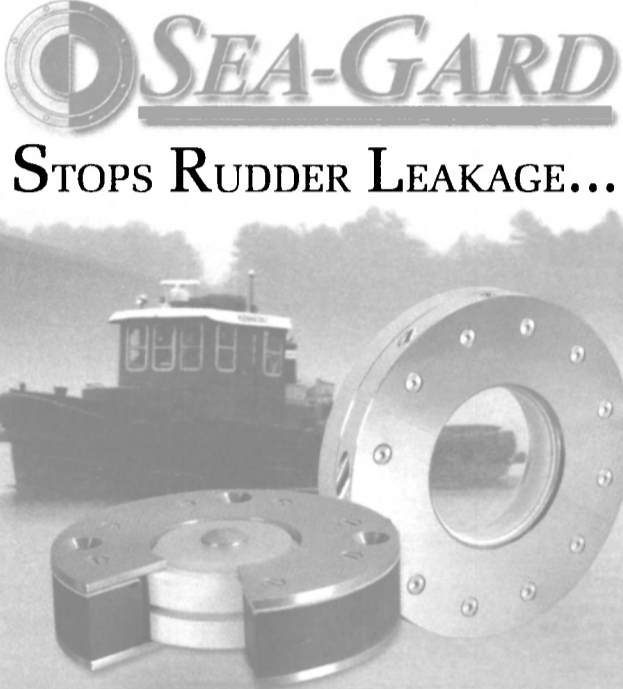
Export Cargo

Similar reporting requirements have been promulgated with regard to cargo to be exported from the United States by ship. The major difference is that the burden of filing the export report has been placed on the exporter, rather than the carrier. The duty placed on the carrier is limited to ensuring receipt from the exporter of the appropriate confirmation that the required reports have been made. CBP has yet to announce the date on which this export report requirement will come into effect.

Summary

Under the combined effect of the 24-Hour Rule and the Advance Electronic Presentation Rule, the paperwork related to bringing cargo to the United States by vessel has become significantly more complicated. Implementation of these requirements has not been made any easier by the short deadlines imposed by CBP. As a result of those short deadlines, difficulties with issues such as assigning responsibility for acting as the carrier and identifying the shipper have generated problems that would have been avoidable if a more measured pace of regulatory development had been adopted. Further, CBP made minimal effort to educate the regulated community about the need for the SCAC and the ICB. Unfortunately, the industry is now in the unenviable position of having to adapt to the new rules in an artificially short time frame, with the agency making last minute changes as problems surface. Hopefully, changes coming with regard to the export process will prove more manageable.

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



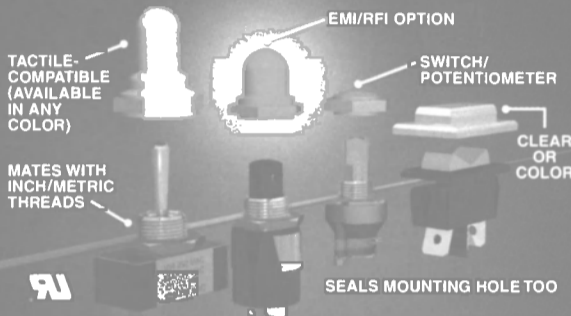
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MSC Crociere Orders New Ships from Alstom

Mediterranean Shipping Company (MSC) ordered two 3,000-passenger cruise ships with an option for a third with Alstom Marine. The first of the new ships will be delivered in June 2006, and the second will become ready in spring 2007. "The determining factors that prompted us to sign with Alstom Marine were the extremely interesting investment in the context of the quality to price ratio and the specific structural and engineering features of the new ships," said MSC Crociere MD Pier Francesco Vago. The new ships will measure 964 x 105.6 ft. (294 x 32.2 m) and will accommodate 3,000 passengers in 1,275 cabins, with 1,000 crew. Following the trend of providing the maximum number of rooms with a view, 80 percent of the cabins being on the exterior of the ship, three-quarters of which are fitted with balconies.

Terrorist and Bogus Marine Credentials

The U.S. Coast Guard and the Federal Bureau of Investigation (FBI) completed a 14-month investigation — dubbed Operation Drydock — into national security threats and document fraud associated with U.S. merchant mariner credentials. It revealed nine individuals that held credentials have suspected associations with terrorist groups. "Through extensive and detailed investigative efforts, we have reduced vulnerabilities to terrorism by preventing the fraudulent use of credentials by those who seek to harm our nation and its citizens," said Admiral Thomas H. Collins, Commandant of the Coast Guard. "This is a great example of inter-agency cooperation in the war on terror. Using our combined resources and expertise, we will continue to make America safer and more secure." The Coast Guard, working with the Federal Bureau of Investigation and other inter-agency partners, examined the records of over 200,000 individuals who hold a U.S. merchant mariner credential to identify potential terrorist links and detect document fraud. In addition to the nine individuals possibly associated with terrorism, the Coast Guard identified thousands of cases of possible fraud or other problems, including mariners with active arrest warrants. In response to this information:

- The Coast Guard is suspending and revoking unauthorized credentials.
- U.S. Attorneys are pursuing criminal charges where warranted.
- About a dozen people have been arrested because of active arrest warrants that were uncovered as a result of

Operation Drydock.

• The Coast Guard, FBI and the U.S. Navy worked together to screen mariners serving on Military Sealift Command ships carrying troops and material during the war in Iraq. More than a dozen mariners were removed from service aboard those vessels.

Navy Tests Power from Ocean Currents

U.S. Navy engineers will soon help test and enhance a novel hydroelectric turbine designed by Florida Hydro Power and Light (FHPL) for extracting electricity from ocean currents. The Naval Surface Warfare Center's

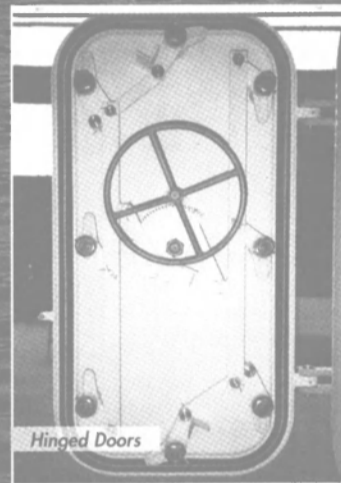
Carderock Division (NSWCCD) and FHPL will deploy the turbine in the Gulf Stream, then connect it to the Florida power grid.

If all goes well, for the first time in history a pollution-free source of electricity is possible at a cost below fossil fuels.

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Oil Prices Skyrocket but

Rig Demand in the Doldrums

By Tom Marsh, ODS-Petrodata, Houston

Worldwide demand for mobile offshore drilling units remains essentially flat, according to Houston-based offshore industry analyst ODS-Petrodata, although offshore drilling activity is expected to increase modestly in certain areas as the year progresses.

U.S. Gulf of Mexico rig demand has fallen by eight rigs since December, but some indicators point to an increase in Gulf rig demand over the summer months. North Sea rig owners are facing a tough year, and more rigs are expected to leave the area. Other rig markets present a mixed outlook, with only West Africa likely to show a clear, sustained trend to increased rig demand over the next three to six months.

U.S. Gulf of Mexico

The most encouraging sign for U.S. Gulf of Mexico rig owners is the number of drilling plans filed by operators for programs in federal waters. As of mid-March., oil and gas companies had filed 120 drilling plans with the Minerals Management Service (MMS), compared to 86 plans filed over the same period last year. Well permits issued by the agency are lagging slightly behind the year-ago number, but that is likely to change over the next several months as operators act on the plans filed in the early part of the year. In addition to the MMS filings, industry observers note that applications to drill are on the rise for work in Louisiana state waters as well.

The bulk of the plans filed year-to-date are for exploration programs. Only 38 plans have been filed for development drilling programs so far this year. However, the most active companies have filed more development plans than exploration plans, as illustrated by the table below. The table to the right also highlights the fact that independent oil and gas companies are the most aggressive in the region. The table includes operators that have filed five or more drilling plans since the first of the year, as reported by the MMS.

More than half of the plans filed so far by U.S. Gulf operators in 2004 are for drilling programs in 300-ft. (91 m) waters or less. These programs bode well for the Gulf jackup market, although this is not enough potential work to change the short-term nature of the U.S. Gulf jackup market. The deep-water rig market may slow down somewhat:

Only 19 plans have been filed to-date this year for drilling programs in water depths exceeding 3,000 feet (914 m). More than a dozen rigs in the area may be competing for this work, as the bulk of the existing U.S. Gulf deepwater rig contracts end by December.

Latin America and the Caribbean Sea

Mexico's Pemex continues its aggressive drilling program, and is likely to take additional rigs on contract. However, the magnitude of the potential increase in rigs contracted by the Mexican state operator remains unclear, as does the timing.

At present, Pemex has 41 rigs under contract, 10 of which are semisubmersibles. All but four of the contracts run into 2005 or beyond, so as long as nothing comes along to fundamentally change Pemex's outlook, the rigs currently under contract should enjoy a long run with the company.

Most of Pemex's contracts can be terminated with little or no notice, but the operator is not likely to exercise such an option absent some totally unforeseen event that negatively impacts its economic outlook.

Trinidad continues to provide work for rigs that otherwise might be idle in the U.S. Gulf. At present, six rigs are under contract off Trinidad, and all but one of these are under contract until well into the second half of the year or beyond. Trinidad's working rig count is expected to increase slightly as the year progresses.

Work in other countries of the region is likely to be sparse over the near term. Brazil in particular will continue to disappoint rig owners.

Five offshore rigs are stacked ready in Brazil, and another five reach the end of their known firm commitments by the end of the first half of the year.

While six to nine rig requirements ostensibly are outstanding for Brazilian programs, most will not start until late in the year or in 2005.

North Sea

The good news is that this month North Sea rig demand posted its first month-to-month net

U.S. Gulf Operators Filing Four or More Drilling Plans

Through March 15, 2004

Operator	Exploration	Development	Total
LLOG Exploration	1	7	8
Marathon	2	7	9
Mariner Energy	1	6	7
Arena Energy	1	4	5
BP	1	4	5
Chevron/Texaco	1	4	5
Magnum Hunter	2	3	5
Noble Energy	1	4	5
Remington Oil & Gas	1	4	5
Shell	0	5	5
Stone Energy	3	2	5



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Tel 281 556 1115

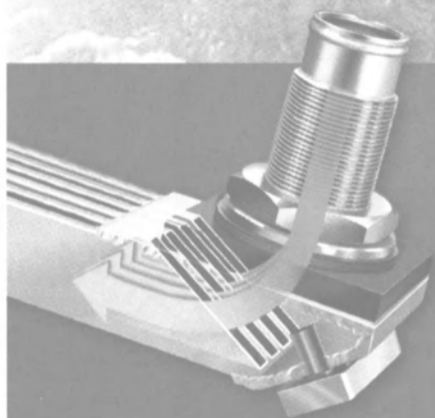
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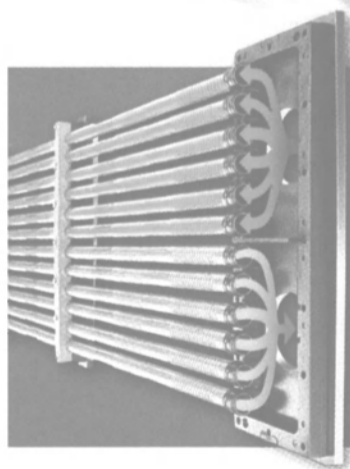
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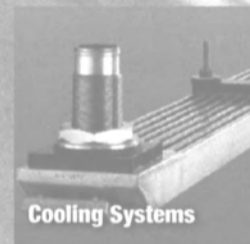
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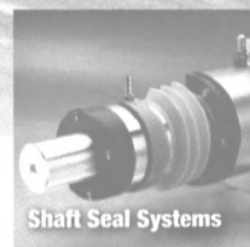
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Offshore Annual

The two-rig net increase can hardly be called a turn-around, however, and the outlook for the North Sea rig market remains fairly bleak.

Of the 55 rigs that have contracts in the North Sea, 20 will reach the end of their known firm commitments by mid-year. Less than a dozen known outstanding rig requirements with start

dates within the same time frame are in the market. On the positive side, several of the outstanding requirements are for long-term contracts.

West Africa

West Africa recorded a net three-rig increase in rig demand from February to March, and this may foreshadow addi-

tional strengthening in the market later in the year. That is not to say that the competition for new work won't be keen. Of the 37 jackups, semis and drillships currently under contract in the region, 19 reach the end of their known firm commitments by mid-year. Ten of these are jackups. However, 42 known outstanding rig requirements are in the

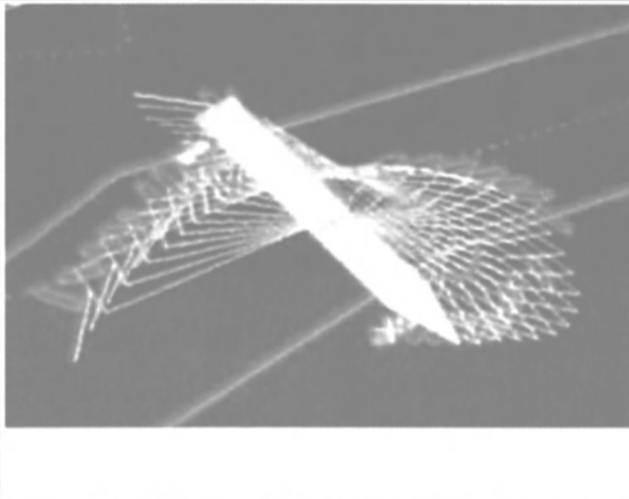
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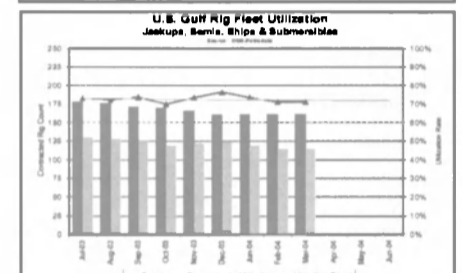
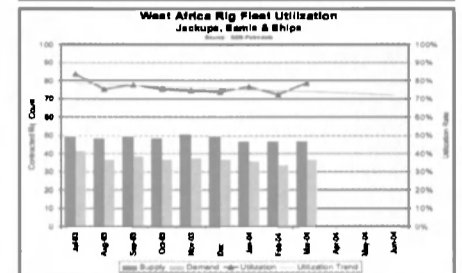
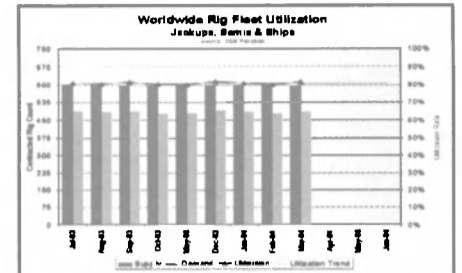
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market at present, and while the bulk are for floating rigs as opposed to jackups, demand for bottom-supported units is expected to be fairly stable. A lot of the outstanding work for floaters in West Africa is for deepwater units, and a well in 10,000-foot (3,048 m) waters is definitely in a West African rig's future. ChevronTexaco has an outstanding requirement in just such a water depth beginning this summer off Nigeria.

Asia and Australia

The Asian and Australian rig markets continue to present challenges for rig owners. After four consecutive months of small increases in rig demand in the region, over the last month the market pulled back by a net two rigs in recent weeks. This type of cycle is likely to continue throughout the year.

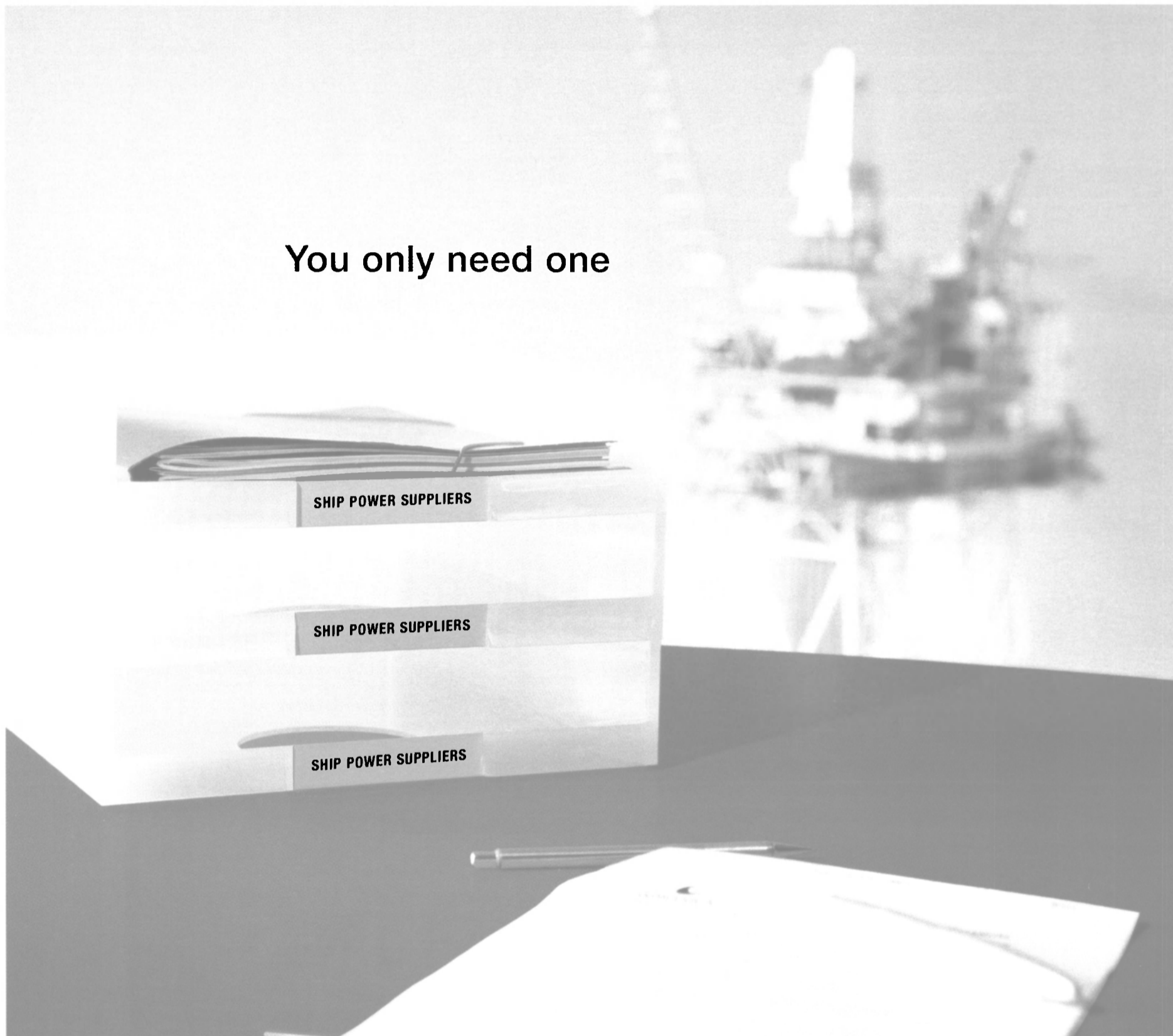
Of the 53 rigs currently under contract in the region, 23 will reach the end of their known firm commitments by mid-year. However, many of the current contracts have options outstanding that could keep rigs working.

Malaysia and Indonesia will account for much of the new drilling work in the region in 2004, and Vietnam will contribute as well. In addition, a fair amount of floating rig work could materialize off Australia later in the year, including a half-dozen or so contracts that will require deepwater rigs.

About ODS-Petrodata

ODS-Petrodata and its predecessor companies have provided market consulting and research services to the offshore oil and gas industry since 1974. Headquartered in Houston, Texas, the company also maintains offices in Lafayette, La.; Aberdeen, Scotland; Oslo, Norway; and Singapore. The company's widely-read ODS-Petrodata Weekly Offshore Rig Count is available at no charge via the web at www.ods-petrodata.com.

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Circle 294 on Reader Service Card

Offshore Annual

Marflex Pumps Produce for FPSO

Marflex, established in 1980, specializes in manufacturing and delivering electric driven Deepwell cargo and ballast pumps. Marflex recently signed an order with Belanak representing its first major FPSO/Offshore project. The

intended use of the cargo pumps is the cargo and condensate off-loading and slops handling. The ballast pumps are intended for ballast transfer and deballasting of the FPSO. The pumps were all made of stainless steel material grades: SS 316L or Super duplex (25 Cr).

Circle 18 on Reader Service Card

\$126M Newbuild Contract Now Effective

Keppel FELS announced that its rig-building contract with the Skeie Group AS has come into effect on February 16, 2004. The \$126 million contract includes an option for an additional unit within the next six months. Developed

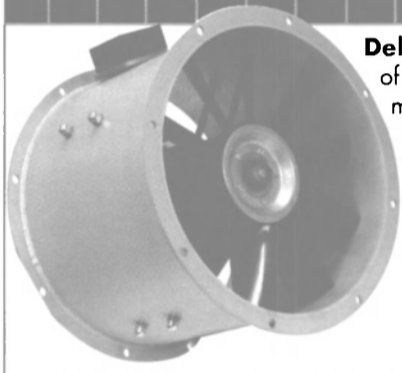
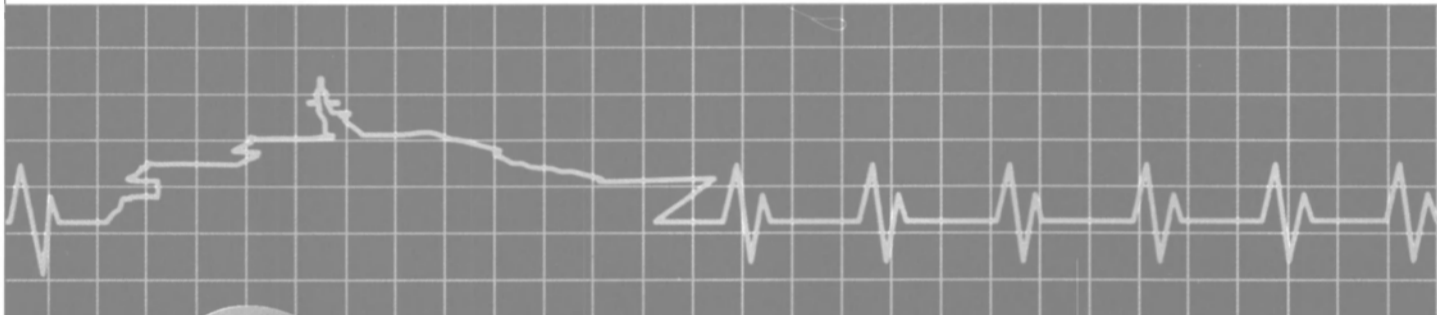


by Keppel FELS' sister company, Offshore Technology & Development, the rig will be an enhanced KFELS B class jackup, capable of operating in water depths of up to 350 ft. and high pressure high temperature (HPHT) deep drilling of down to 35,000 ft. The rig is due for delivery in 2Q 2006.

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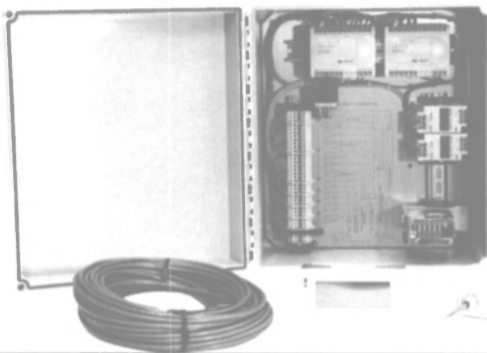


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Delta Wave Expands Service Line

Delta Wave Communications, Inc. now offers complete mobile satellite solutions, including VSAT, the New Inmarsat Fleet and Inmarsat RBGAN services, as well as Iridium and Globalstar mobile satellite equipment and services. After having provided equipment and installation service for the last seven years, Delta Wave Communications, Inc. had previously facilitated airtime billing through Stratos Mobile Networks for their customers. Delta Wave is now responsible for monthly satellite airtime billing with their in-house developed airtime billing program for their current and potential clients. This has been made possible due to a new "Stratos Distribution Channel Partnership" recently formed with Stratos Mobile Networks. Delta Wave is also a direct dealer for Globalstar products and airtime.

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Hydro's Board Seeks Share Buyback

At the company's Annual General Meeting May 11, 2004, the Board of Norsk Hydro ASA will ask for authorization to buy back shares. Under this authorization, the Board may buy up to 2,808,810 of the company's own shares in the market, over the 18 months period commencing May 12, 2004. Each share may be purchased at prices ranging from NOK 200 to NOK 700 per share.

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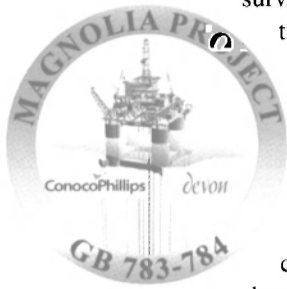
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Advanced Collision Warning Radar System for Magnolia Project

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Petrocom to Offer GSM Communications Tech to GOM

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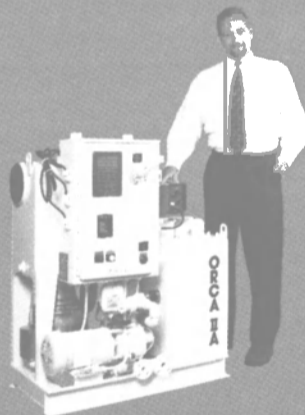
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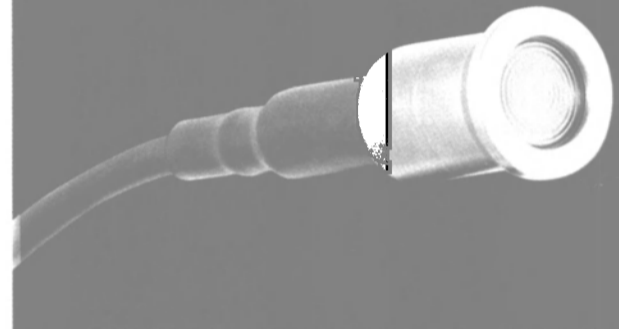


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The Future is Now

By Greg Trauthwein

The maritime industry has an image problem.

Perceived to be an aging industry, many players in the maritime niche deal daily with the very real problem of replenishing its employment ranks, from desk jobs designing and operating vessels, to those at sea and in the construction yards. While the problem is multi-faceted and without a clear solution, this article is not about problems. It's about hope and the future.

Traditional industries such as maritime are often lost to the youth, as higher-profile, more glamorous opportunities are found in computing and entertainment, for example. Simply put, many bright minds are lost before the battle has begun.

But for those who scratch beyond the surface will find an industry that is in the midst of a drastic transformation, as high technology — encompassing everything from computerized design and manufacturing, to enhanced performance of machinery, electronics and satellite communications — makes it a dynamic opportunity for a generation of young minds, young entrepreneurs that want the opportunity to leave an indelible mark on one of the most viable and critically important industries in the world.

Five of those young minds belong to **Victor DiSouza, Lou Detrisac, Scott Opdyke, Mike Rugnetta** and **Katie Sultani**, the five members of a team from the University of Michigan that won the International Student Offshore Design Competition (ISODC).

What is ISODC?

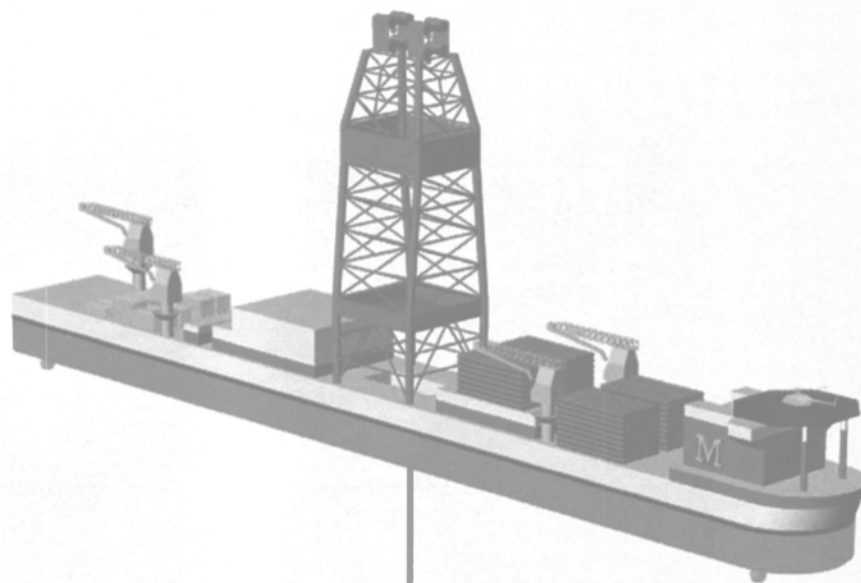
ISODC is an annual competition sponsored by the Society of Naval Architects and Marine Engineers (SNAME), the Ocean, Offshore and Arctic Engineering Division of the American Society of Mechanical Engineers (ASME) and the Coastal, Oceans, Ports, and Rivers Institute of the American Society of Civil Engineers (ASCE). The U of M team took home the highest honors last year with its ultra deepwater dual-activity Panamax entry Drillship Nereus. The entry was one of six projects submitted by students from universities around the world. Teams from Texas A&M University, the University of New Orleans and the Massachusetts Institute of Technology (MIT) were among the top contenders competing this year.

Professor **Tom Lamb** and faculty advisor to the six-person University of Michigan team, said, "The project provides a real design office experience for the final year capstone ship design course teams by requiring them to operate in an integrated concurrent design environment meeting real schedules and time constraints." Professor Lamb serves in the role of a design office manager for teams working on a variety of design projects. All of the team members worked together at the university. No direct assistance was provided by any company. However, some of the team members received technical support from companies such as Shell and ExxonMobil where they had previously spent a short summer internship. According to Lamb, the team prepared a complete contract design requiring them to complete all naval architectural requirements such as lines development, hydrostatics, stability, resistance and propulsion, maneuvering, and seakeeping, general arrangement, machinery arrangement, structure, distributive systems, weight, loading conditions, vibrations, cost analysis, and cover the special requirements for the specific ship type.

The owners requirements were developed to challenge the students in the areas of drill depth, onboard oil storage capacity, ability to transit Panama Canal, design for production, and cost effective design. *Maritime Reporter* recently spent some time discussing the project with the winning team members, and their collective responses are printed below.

Q How was the decision made to select the vessel type?

A The idea of designing a drillship was driving by the opportunity to produce



Drillship Nereus			
Classification	DnV	Mud pumps	National
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Drilling Crew	90	Rating	2,200 hp
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Capacity	16t/45m(max. 80t/18m)	Model	3 x MT25T
		Sewage treatment plant	Norwegian Maritime Eqpt
		Model	1 x STP010



From left to right **Mike Rugnetta, Katie Sultani, Lou Detrisac, Scott Opdyke, Vic D'Souza** and **Thomas Lamb** (faculty advisor).

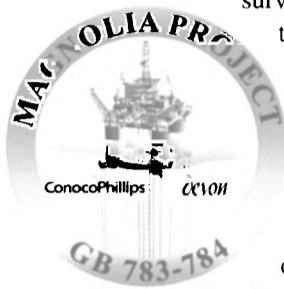
About the Team

Name: Lou Detrisac	Name: Scott Opdyke
Degree: MSE in Naval Architecture and Marine Engineering	Degrees: BSE - Naval Architecture & Marine Engineering
E-mail: ldetrisa@engin.umich.edu	Degrees: MSE - Naval Architecture and Marine Engineering (May 2004)
Name: Katherine Sultani	E-mail: wopdyke@engin.umich.edu
Degrees: BSE & MSE - Naval Architecture & Marine Engineering	Name: Michael Joseph Rugnetta
Work: The Glosten Associates	Degree(s): BSE, Naval Architecture and Marine Engineering
E-mail: kvsultani@glosten.com	Degrees: BSE, Mechanical Engineering
Name: Victor DiSouza	Work: Northrop Grumman
Degrees: BSE & MSE - Naval Architecture and Marine Engineering	Work: Newport News
Work: ExxonMobil Development Co.	
E-mail: vtd@umich.edu	

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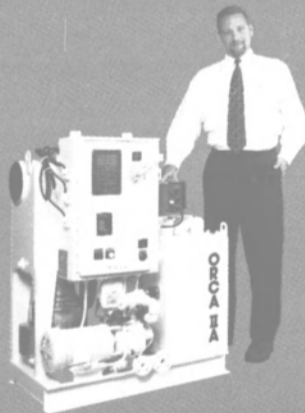
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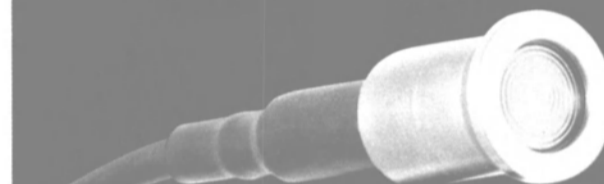
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What is ISODC?

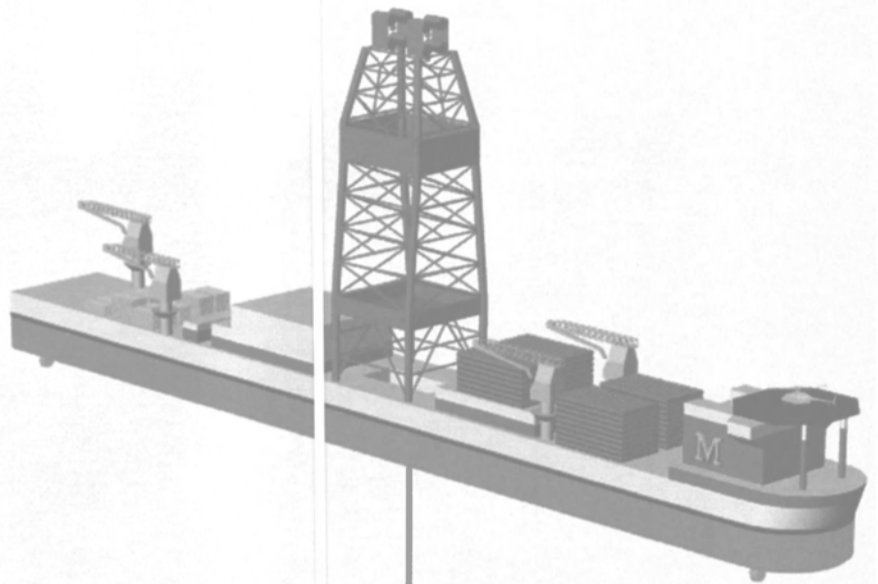
ISODC is an annual competition sponsored by the Society of Naval Architects and Marine Engineers (SNAME), the Ocean, Offshore and Arctic Engineering Division of the American Society of Mechanical Engineers (ASME) and the Coastal, Oceans, Ports, and Rivers Institute of the American Society of Civil Engineers (ASCE). The U of M team took home the highest honors last year with its ultra deepwater dual-activity Panamax entry Drillship Nereus. The entry was one of six projects submitted by students from universities around the world. Teams from Texas A&M University, the University of New Orleans and the Massachusetts Institute of Technology (MIT) were among the top contenders competing this year.

Professor **Tom Lamb** and faculty advisor to the six-person University of Michigan team, said, "The project provides a real design office experience for the final year capstone ship design course teams by requiring them to operate in an integrated concurrent design environment meeting real schedules and time constraints." Professor Lamb serves in the role of a design office manager for teams working on a variety of design projects. All of the team members worked together at the university. No direct assistance was provided by any company. However, some of the team members received technical support from companies such as Shell and ExxonMobil where they had previously spent a short summer internship. According to Lamb, the team prepared a complete contract design requiring them to complete all naval architectural requirements such as lines development, hydrostatics, stability, resistance and propulsion, maneuvering, and seakeeping, general arrangement, machinery arrangement, structure, distributive systems, weight, loading conditions, vibrations, cost analysis, and cover the special requirements for the specific ship type.

The owners requirements were developed to challenge the students in the areas of drill depth, onboard oil storage capacity, ability to transit Panama Canal, design for production, and cost effective design. *Maritime Reporter* recently spent some time discussing the project with the winning team members, and their collective responses are printed below.

Q How was the decision made to select the vessel type?

A The idea of designing a drillship was driving by the opportunity to produce



Drillship Nereus			
Classification	DnV	Mud pumps	National
Complement, Total	126	Model	4 x 14-P220
Drilling Crew	90	Rating	2,200 hp
Deck cranes	lydralift	Water makers	Norwegian Maritime Eqpt
Capacity	16/45m(max. 0/18m)	Model	3 x MT25T
		Sewage treatment plant	Norwegian Maritime Eqpt
		Model	1 x STP010



From left to right **Mike Rugnette, Victor DiSouza, Lou Detrisac, Scott Opdyke, Katie Sultani** and **Thomas Lamb** (faculty advisor).

About the Team

Name: Lou Detrisac	Name: Scott Opdyke
Degree: MSE in Naval Architecture and Marine Engineering	Degrees: BSE - Naval Architecture & Marine Engineering
E-mail: ldetrisa@engin.umich.edu	MSE - Naval Architecture and Marine Engineering (May 2004)
Name: Katherine Sultani	E-mail: wopdyke@engin.umich.edu
Degrees: BSE & MSE - Naval Architecture & Marine Engineering	Name: Michael Joseph Rugnette
Work: The Glosten Associates	Degree(s): BSE, Naval Architecture and Marine Engineering
E-mail: kvsultani@glosten.com	BSE, Mechanical Engineering
Name: Victor DiSouza	Work: Northrop Grumman
Degrees: BSE & MSE - Naval Architecture and Marine Engineering	Newport News
Work: ExxonMobil Development Co.	
E-mail: vtd@umich.edu	

something unique in our undergraduate experience, which would have the potential to win both the International Student

Offshore Design Competition (ISODC) as well as the Dr. James A. Lisnyk Ship Design Competition (SNAME). Two of the group members, Lou and Vic, had worked in the offshore industry the previous summer, which peaked our interest in that area. Then when looking at the offshore industry we had no knowledge of the exotic structures (DDCV's, TLP's etc.) so we considered both drillships and FPSO's. While doing our research we realized that some of the newer drillships had the ability to perform FPSO tasks, so we decided on a type of ship that was similar.

Q What do you feel is the most innovative/unique aspect of your project?

A It would probably be the Panama Canal restriction. Most drillships with our oil carrying capacity have beams of 38-40 m while we were restricted to 32 m. The hull form was also very unique since it was based on a design for production strategy. It made modeling the vessel difficult and performing tasks like estimating resistance more challenging. Also innovative is the ship's incredible capability. The intent of the design of Nereus is to meet or exceed the capabilities of every drillship in the world fleet. It does this through its capable drilling depth, large crude oil capacity, and versatile deck and propulsion machinery designs.

Q What were the biggest challenges you faced in finalizing your project?

A This varied throughout the group. For Lou, it was trying to develop a reasonable station keeping analysis for a dynamically positioned vessel since nothing was available through the department. For Vic, it was developing a reasonable electrical load analysis and coordinating that with the powering analysis. For Scott, it was the structural arrangement, meeting DnV requirements while ensuring our design for production strategy. For Katie, it was making sure that all of the drawings were consistent with each other. A corollary to that would be to make sure that she was constantly working with the latest versions and that the drawing reflected the latest design changes. For the entire group we had to make sure that everyone was aware of changes that were occurring and how they would affect the rest of the group and vice versa while being confined to a four-month design schedule.

Q How were these challenges overcome?

A Lou ended up running a time domain mooring simulation, which was developed in the department, but it was decided that a mooring simulation was too different than a dynamically posi-

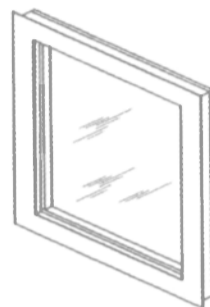
tioned system so we had to end up just using a static analysis as outlined in the DNV rules. Vic was able to obtain help from industry to put together a reasonable load analysis, which was then used to determine our powering estimates. Scott developed a design tool, which

would incorporate the DNV rules to our design and modify the design to meet the requirements. Katie worked methodically and kept everything organized. The entire group was constantly in contact with each other to make sure that everyone knew about modifications that

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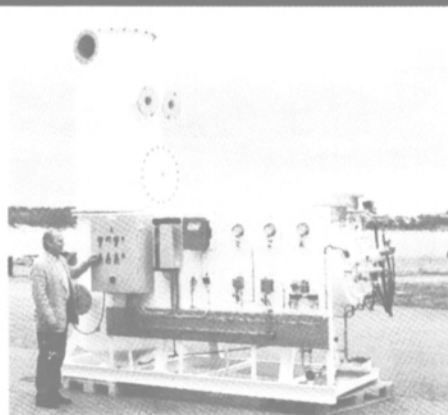
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SNAME: Investing in the Future

The Society of Naval Architects and Marine Engineers (SNAME) has made a concerted effort to attract and cultivate a new generation to sustain not only itself, but the industry. Excerpted here are comments from Philip Kimball, Executive Director, regarding the organization's "Outreach" program.

Some time ago, I introduced the concept of Outreach in a previous View from the Helm column. I pointed to statistics, which illustrated the need to develop and encourage younger members to join the Society, and just as importantly, the profession itself. More than half of SNAME's membership is over the age of 50, with fewer and fewer young engineers and students joining the Society or maintaining membership after graduation.

Recognizing the fact that the future of our field and the Society rests on the involvement of young people, SNAME has sought many different avenues of "outreach" to generate awareness and interest in the maritime field in general, and Naval Architecture, Marine and Ocean Engineering, specifically. In addition to the ongoing projects I have already shared and will continue to share with you, SNAME sought, and achieved, funding from the Federal Government to create an Outreach Program. The ONR has agreed to fund a national effort to attract young people to the marine industry, and SNAME will be involved in one of the sub-projects, which will involve reaching out to students at the high school level. The University of Michigan will oversee the three-year project and SNAME, in con-

junction with ASNE, has taken on a key role in this program. SNAME, together with ASNE, will be reconfiguring the Call of the Sea video onto a DVD, which can be shown to high school students to educate them about the field. In addition, posters, brochures, and personal contacts with the guidance counselors will be utilized to tell the story of the marine industry, and create awareness of the marine industry, and potential careers within it. This three-year project will enlist the membership of SNAME and ASNE as volunteers to visit roughly 10,000 high schools across the country, and will be a long-term effort to introduce high school level students to the broad based marine industry, ocean engineering, offshore oil and ships, both naval and commercial, from creative design to construction to operations. I will be updating you on the progress of the CD-Rom and collateral as we begin

to move forward, following this year's WMTC. Your support will be crucial as we seek volunteers to visit your local high schools, talk with the guidance counselors, and offer to attend career fairs and guidance days to "outreach" to your local community. The ultimate success of this program rests on you, the membership, and your willingness to reach out to your communities and tell the story of the marine profession.

Find Out More at SNAME's Annual Meeting

What: 2004 SNAME Maritime Technology Conference & Expo
When: September 29 - October 2
Where: Washington, DC
Info: www.sname.org/AM2004/index.shtml
Booth Sales: Rob Howard
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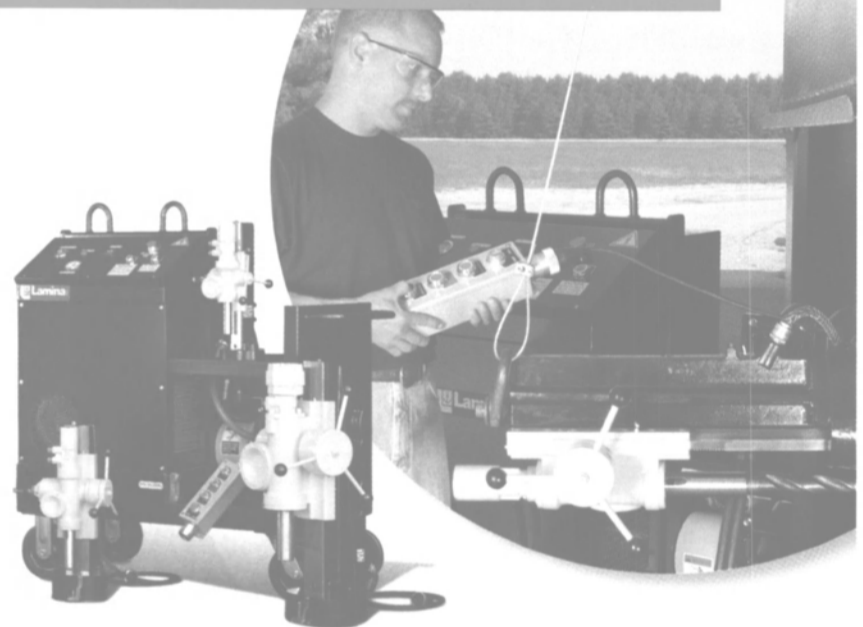
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would affect them.

Drillship Nereus Specifications

Type Ultra-Deepwater Dual
Activity Panamax Drillship
Shipbuilder US Shipyard

The owner of this vessel desired a drillship capable of traversing the Panama Canal, and able to drill worldwide, excluding ice-covered seas, in up to 10,000 ft. of water. In addition, the owner stipulated that this vessel must be capable of conducting an extended well test, therefore requiring the vessel to carry up to 200,000 bbl of crude oil.

Nereus was designed with cost and production in mind. The hull form is simple, with a flat plate bilge and cylindrical bow. There is no complex curvature in the hull, which simplifies production. For a ship of this size, keeping cost to a minimum was a significant consideration for the owner.

There are six center-line cargo tanks. A two meter double bottom extends the length of the ship, as well as six meter wing tanks, port and starboard. These tanks, along with the forepeak tank contain 65,000 cu. m. of ballast capacity. The fuel and lube oil tanks are located directly below the engine room aft.

Nereus is a dual activity drillship. The forward rotary is used to assemble the riser, while the aft rotary or mousehole is used to join stands of drill pipe and collars. Two conveyors, one forward and one aft bring pipe and riser to the drill floor. This design feature dramatically reduces the time required to drill a well. Two vertical pipe rackers service the rotaries, standing back pipe and casing in a large shared setback area. Four 80 ton knuckle-boom cranes are used to handle the pipe and riser on deck. The derrick is I rated for 2,000,000 lbs.

Located on the main deck is the mud module, the

cement module, the extended well test module. The mud and cement modules are located directly above the bulk and sack storage areas.

The bulk materials are stored in p-tanks. The sacks are palletized, and a forklift is used for handling the pallets.

This vessel is dynamically positioned by six thrusters. The controls system meets DP3 requirements. The

thrusters are powered by six Wartsila diesel generators. These gensets are capable of producing enough power for the vessel to travel at 15 knots at 80% MCR.

The accommodations are designed for a crew of 126, with separate facilities, when appropriate, for men and women. A helideck is located on the top of the deckhouse, and is sufficiently large for a Sikorsky 61N or a Boeing Chinook to land safely.



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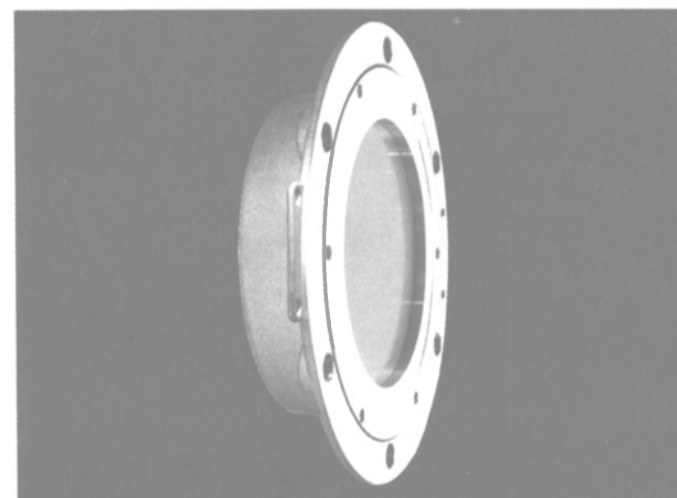
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Offshore Prospects Keep Bollinger Busy



Mike Ellis

Maritime Reporter recently spent some time with **Mike Ellis**, Executive VP and COO of Bollinger Shipyards, Inc., to discuss offshore market business trends and the future direction of one of the nation's elite marine construction companies.

Q: What is the significance of the Offshore Market to Bollinger?

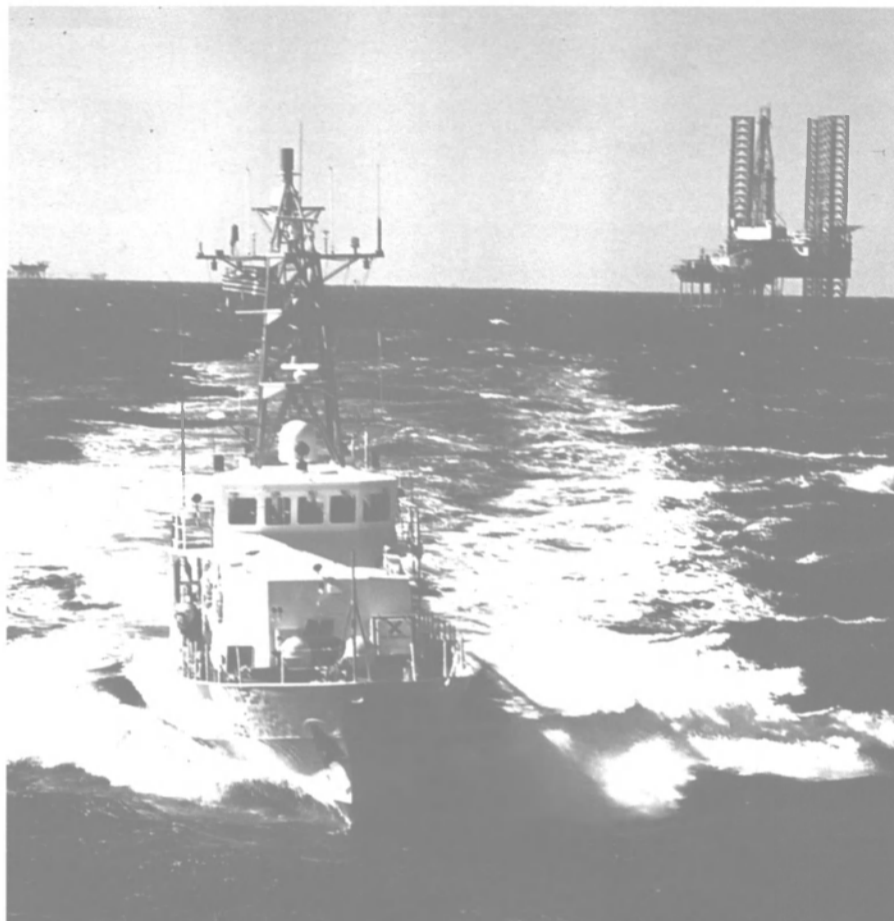
A: The offshore market is very significant to Bollinger Shipbuilding. In addition to the 12 facilities that perform repair services on the offshore supply vessel markets, our new construction facilities build OSVs and other related equipment. When the offshore market is slow, it creates significant idle capacity in our industry which in turn makes for a difficult market for shipyards.

Q: What percentage of your business is related to the offshore business?

A: The percentage of our business that is related to the offshore market fluctuates from year to year, but roughly 50 percent of our total business is related to the offshore Gulf of Mexico energy business.

Bollinger Delivers ATB for Bouchard

Bollinger Gulf Repair L.L.C. completed the retrofit of a Bouchard Coastwise Management Co., tug and barge to an articulated (ATB) unit utilizing the Intercon Coupler System. The 446-ft., 125,000 BBL (barrel) black oil Barge B. No.175 which was renamed Barge B. No.275, was transformed from a single hull to double hull vessel to meet the requirements of OPA90. Her stern was modified with the matching Intercon ladder to accept the bow of the 127-ft. tug Capt. Fred Bouchard, which was retrofitted with ram assemblies of the Intercon system. New heating coils were added to the barge's existing hot oil system and a new ballast system was installed. A keel cooled Detroit Diesel 8V-71 generator set



Q: How is Bollinger structured so that a downturn in one segment does not drag down the entire company?

A: Bollinger has worked very hard to diversify itself so that we would not be totally dependent on any one market. This strategy has proved successful over past downturns in the energy market; however, recently we have experienced downturns in both the Gulf of Mexico energy markets and the brown water transportation markets. We are very committed to our strategy of diversifying and we continue to look for businesses or markets that support our core competencies and help to further diversify our company. We are also commit-

ted to keeping our mix of commercial and governmental work. Where other large shipyards have failed to produce both commercial and military products in the same facilities, we believe that our commercial work gives us a competitive advantage from a cost standpoint and our military work gives us a technical advantage over our commercial competitors.

Q: What is your assessment of the current vessel building climate?

A: In the offshore energy markets, we think that the operators will continue to be cautious with respect to building new OSVs to either operate in deepwater or

country and are presently in the final study phase which will result in an announcement of another building program in the next few weeks." In simplest form, the patented Intercon system provides a single degree of freedom allowing the tug to pitch about a transverse connection between the tug and barge. All other motions are restrained so that the tug motions match barge motions in roll and heave. The connection is mechanical, accomplished with two independently mounted ram assemblies, gear driven, and configured for tug installation. The rams stroke transversely, engaging the vertical ladder structures incorporated onto both sidewalls of the stern notch.

The resulting connection is rigid, mechanically locked, and fail-safe.

replace aged shelf vessels. We do, however, remain optimistic about the OPA90 offshore tank barge and tug markets. We have been very successful in several contracts for these units with several different customers. The government/military sector of our business may offer the brightest immediate future for Bollinger. We have a few Coast Guard contracts currently in our backlog and are working several other Navy/Army programs that will provide long-term backlog and security for our business going forward.

Q: What do you count as the major challenges to running a profitable boat building/repair business today?

A: There are so many challenges in our industry that I don't know quite where to start, but I will comment on a few things that are a must to be a successful business in our industry.

The first challenge is people: it is imperative to create a workforce that believes they can make a difference in your business, the only way to balance safety, environmental, regulatory issues, and productivity is to have a workforce that sincerely believes they can make an impact on our success. They have to feel a part of the team and our job is to create an environment to where we benefit from a team atmosphere. It's easier to create this type of atmosphere when you are a smaller company, but it just means that you have to work harder at retaining that type of atmosphere as you grow larger.

The second challenge is competitiveness: The shipyard business is changing with the uses of technology, planning, and effective use of engineering to decrease the cost of these very complicated vessels. To be successful, you have to manage the use of technology



ATB unit, Tug, Capt. Fred Bouchard and Barge B. No. 275 departing the New Orleans area with the first load of product as an OPA'90 compliant unit following the double-hulling of the barge at Bollinger Gulf Repair. (Photo Courtesy of Bollinger Shipyard)

and reinvestment into the business to keep a competitive advantage.

Another challenge is maintaining a steady backlog of work. This challenge is similar to the age-old question of whether the chicken or the egg came first. One could argue that if you take care of challenge #1 which is people and challenge #2 which is remain competitive, then you will always have a steady backlog of work. On the other hand, one could argue that a steady backlog of work will bring about a situation where you can afford to reinvest in the business, use technology, and create an environment that is conducive to retaining and motivating a workforce. Regardless, we remain committed to focusing our efforts on our greatest assets, which are our people. We will invest in our business to remain competitive and keep a steady backlog of work.

Q: If you could unilaterally change one policy/market condition, what would it be?

A: There are several that come to mind, but if we could open up drilling in the Florida Gulf of Mexico fields and possibly create better market conditions in the overall Gulf of Mexico energy markets, it would have an immediate positive impact on all aspects of our business.

Q: In relation to new Bollinger OSV designs, what is meant by "less is more"? (See story page 12)

A: The "less is more" all really started in 1996 with the Bollinger 145 Utility/Supply design and building programs. The 145 design, which is under 100 GRT, allowed for a minimal crew to operate a vessel that provide very efficient operating parameters and greater cargo capacities, with a very reasonable price, which usually came from a larger hull design and a larger price tag. We focused on operating efficiencies and capacities in a smaller foot print, mainly for Liquid mud, fuel and with the OSV's bulk product capacity. In meeting with Oil Company representatives and vessel operators Bollinger focused on meeting their demands and keeping the greater capacities in an efficient package that met their budgets.

Over the past five years this same concept evolved to our 166 ft. OSV and then to our 220 Class OSV. Our original 220 class hull, first built for MNM Boats measured 207 ft x 53 ft x 19 ft, with conventional propulsion and DP I. This hull design provided capacities seen only in the larger 220-ft to 230 ft hulls at that time. When operators such as Tidewater

and Seacor took a look at the design they liked what they saw and they placed orders to build different propulsion versions with Bollinger, but the foot print with the greater capacities remained the same.

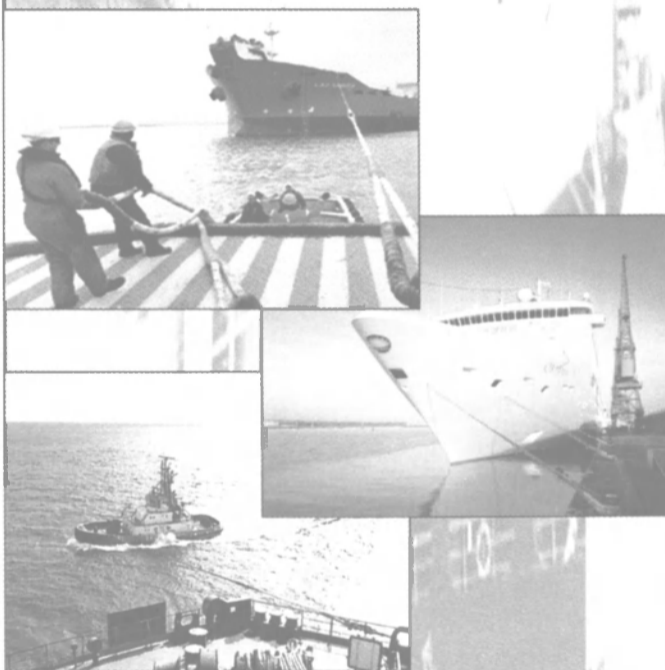
Q: In your opinion, what have been the biggest changes in servicing offshore customer's needs?

A: I believe the biggest change in servicing our customer needs has come in the repair markets. In the past, most all repair work was done on a T&M or a

cost plus type arrangement. As our customers have consolidated, become more sophisticated, and demanded fixed price bids for repair work, we have made upgrades to our program management and our infrastructure to be able to handle this type of fixed price contracting.

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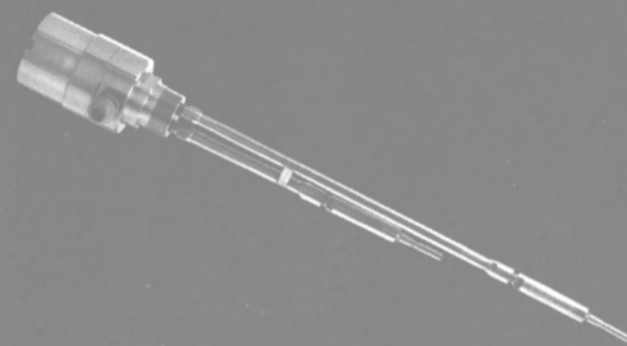
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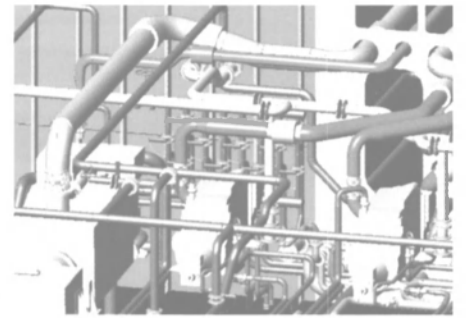
ShipConstructor 2004 used for M/V Cheramie BoTruc 38

To meet the requirements of the BoTruc project, Bollinger's design group chose ShipConstructor2004, the latest version of the 3-D product modeling software developed by Albacore Research Ltd (ARL), Canada. Bollinger

has been using ShipConstructor for more than six years. For the near future, Bollinger plans to integrate the ShipConstructor SQL project database with other related business process databases, such as enterprise resource plan-

ning, purchasing, and accounting.

Among the design demands of the BoTruc OSVs is the significant increase of cargo capacity. Bollinger's executive vice president of new construction, Danny Irby, noted that while the 180-ft



3-D ShipConstructor model of the 191 ft. OSV Cheramie BoTruc 38 facilitates checking.

Courtesy Bollinger Shipyards Inc., Lockport

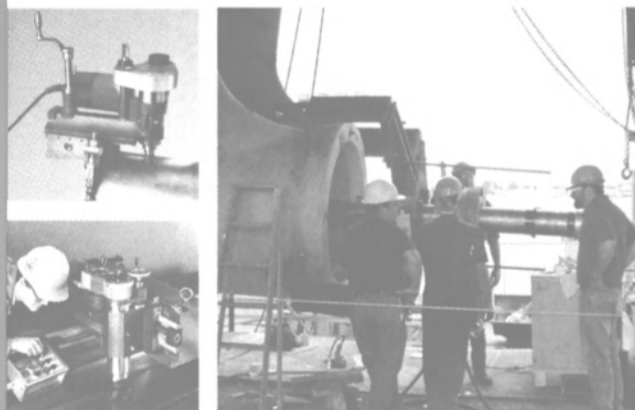
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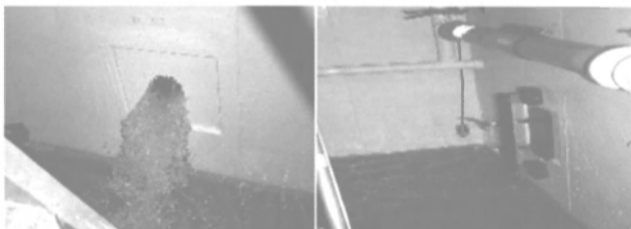
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“Don’t Cry over Spilt Oil”

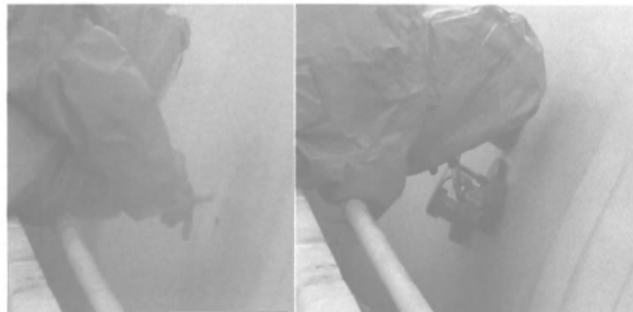


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vessels could carry 1,750 barrels of liquid mud and 3,500 cubic feet of dry mud, the new BoTruc 191-ft OSVs will carry 2,500 barrels of liquid mud and 4,800 cubic feet of dry mud. Irby also said that the older boats carried approximately 500 tons of cargo on 4,000 square feet of aft deck space, while the new boats will carry 900 long tons on a 5,000 square foot clear deck cargo area. Additionally, the new OSVs will more than double the fuel oil gallon capacity, at 125,000 gallons, thus giving the new 191-ft OSV more revenue time serving offshore installations and less time returning to base for fuel.

ShipConstructor2004

Bollinger launched the first hull of the two BoTruc OSVs on February 6, 2004. To fair the OSV hulls, Bollinger chose ShipCAM, the stand-alone fairing and lofting tool developed by ARL. Eighty percent of the vessels' structural design was then done with ShipConstructor, and 100 percent of the structural part development was created directly out of the ShipConstructor model. Bollinger's design group generated traditional 2-D design drawings for regulatory body and customer submittals directly from the 3-D model using ShipConstructor's workshop drawing function. This procedure ensures that all changes to the 3-D model are automatically implemented in all submittal drawings. For pre-fab and panel construction Bollinger utilized ShipConstructor's automatic 3-D assembly drawing generation function. The design group generated profile plots for custom endcuts per assembly and non-assembly profiles, and then used ShipConstructor's Pipe and Outfit modules to interface the piping and outfitting components into the 3-D model to avoid potential collisions in the field. ShipConstructor's interference checking function turned out to be a very helpful quality assurance tool for that particular job. This job began with the creation of 2-D orthographic drawings of the piping systems, however after discussions with

(Continued on page 41)



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Autoload-Rig

Stability Software for Semi Submersible Rigs

Not all stability software is made equal. Even if all commonly available stability programs were of the same quality, virtually all of them are designed first and foremost for conventional vessels - and it's no secret that the unique characteristics of offshore platforms demand capabilities not usually required for ships. Rig stability is a very critical issue, and it can also be quite complex. What rig operators need is software that can constantly monitor and predict stability in any combination of circumstances; but what they don't need is an interface as complex as the problem. Enter Autoload Rig. Only recently released, yet already installed on more than 15 platforms. Autoload has also been chosen for the biggest floating rig ever built: Thunderhorse.

Autoload Rig was designed specifically for the Offshore industry, with a completely new interface resulting from rig operator recommendations. From the start, Autoship Systems Corporation (ASC) adopted a simple philosophy: with one brief look at the screen, you must be able to get a clear picture of the

less than optimal.

Never afraid to question a trend, ASC listened to the industry and produced an interface that achieves the balance between clarity, simplification, organization, and inclusion of data. Autoload Rig's interface is based on understanding the three main functions required in an offshore stability system: it must help you set up and monitor the vessel's loading condition, check all relevant margins, and report the results. The interface is divided into four main parts:

Menu Bar

Tools for making settings, creating reports, and managing condition files.

Floating Status Frame

Display of floating status, including all hydrostatic parameters and stability margins.

Views Frame

Graphical representation of the vessel, loads, and floating position — which changes with any change in loading. Includes both environmental forces (wind)

prediction software (Autohydro) for vessel designers, and stability software for the marine shipping industry. Autohydro is used by over 1000 engineering companies around the world, and is tested and approved by most governing approval bodies. In the offshore market, major design offices like GVA Consulting and the Aker & Kværner Group have been using Autohydro for rig stability for more than 15 years. Just as Autohydro is the industry standard for offshore design offices, Autoload Rig is proving very popular with the rigs designed by these offices - because they both rely on the same 3-D mathematical model. In other words, the same rig model is used in both the design process and actual operations. The importance of this model should not be underestimated.

The vessel model is a key element in the accuracy and flexibility offered by Autoload. The model is truly 3-D and is inclusive of all volumes (tanks, holds, empty spaces, etc). The mathematical treatment of this model gives a true simulation of any floating condition, including real shift of CG for slack tanks, true

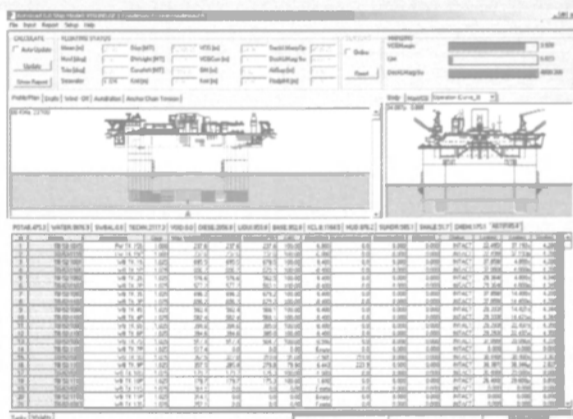


Fig 1: Autoload-Rig General User Interface

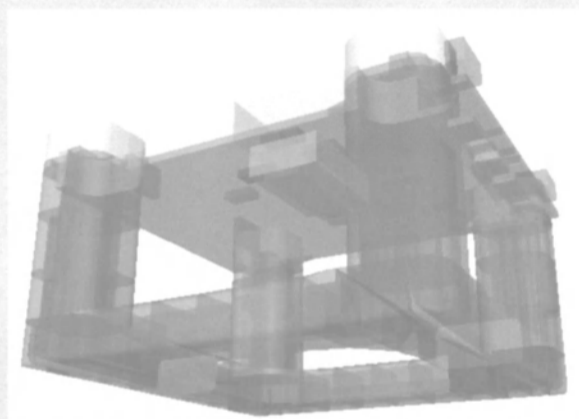


Fig 2: The 3D rig model used by Autoload-Rig is as accurate as the models used in the design process, and is the basis for all floating calculations.

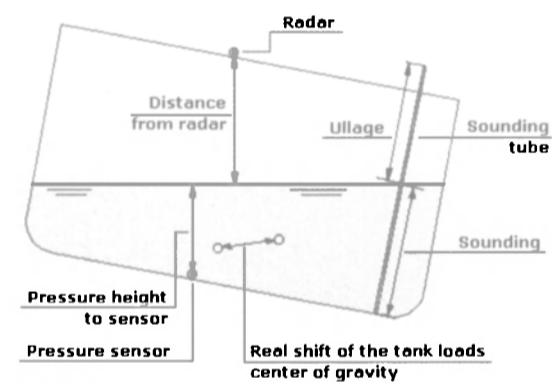


Fig 3 Autoload-Rig's 3D model-based system accurately represents slack tanks.

vessel's current stability status, loads, and important margins. Quick and accurate understanding means that you are better able to make critical decisions, while leaving the mathematical complexity of the problem to the computer. In addition, Autoload Rig is designed to be tailored to virtually any customer or vessel-specific requirement.

ASC spoke with rig operators and designers, and what the industry told them was that critical information needs to be readily identifiable, must not be hidden, and must always be found in the same place. It's interesting that this is not the trend in most software for desktop computers - the normal Windows environment presents you with layers of windows, each capable of being closed or minimized. There are reasons why this paradigm is popular, not the least being that it allows you to put up any combination of data... but it also places the onus on the user to organize and keep track of all that data. That's great if you are writing a memo and attaching a spreadsheet, but doesn't help you get a clear picture when time is short and the conditions are

and marine loads (mooring and risers). You can enter loads (and even set compartment damage) directly within the rig images.

Loads Frame

Tables for showing and editing all loads, divided into tank loads and "fixed" (non-liquid) loads.

(See Fig. 1)

ASC decided to develop this new interface for use on conventional vessels as well (as Autoload Version 6.0). As a result, the "new" interface developed from Autoload Rig is now being used on a tanker vessel operated by Teekay Shipping Ltd., and is being installed on several new-built bulk carriers for Westwood Shipping Lines. Even though the interface clearly reflects the needs of the Offshore industry, it is still important to look behind it — after all, in the software industry what you see on the screen may not always be representative of what you are actually getting. Fortunately, though, Autoload's hydrostatic engine - the software at its heart - is based on experience gained from 20 years of providing hydrostatic

wind heeling moment, and accurate damage simulation (loss of buoyancy method). If a table-based system is designed to give comparable outputs, it would simply be incapable of achieving the level of accuracy represented by Autoload Rig. (See Fig. 2)

The flexibility and accuracy provided by both the 3-D model and a proven, state-of-the-art hydrostatic engine is also key to fulfilling the specific requirements of the offshore industry. Challenges specific to offshore platforms include:

- unlike conventional vessels, a rig's stability is critical in any direction.
- different stability restrictions according to drilling, survival, or temporary conditions.
- due to the complex geometry of a rig, the water-plane area (the various parts of the structure breaking the waterplane) - and therefore also the rig's stability - varies significantly with changes in draft (ballasting) or inclination.
- small water plane area relative to the rig's displacement, which (for example) means that damage to

one pontoon peak tank could easily result in an inclination of more than 10 degrees.

With Autoload's 3-D model you can easily predict the effect that damage will have on stability in any direction; the software calculates real shift of free surface in slack tanks according to any change in heel or trim. Real-time sensor data is used for tank contents, drafts, mooring tension, riser tension and wind, while the software accommodates different sets of criteria for different modes of operation. A separate view frame monitors the actual maxVCG curve relative to the current condition (draft/vcg).

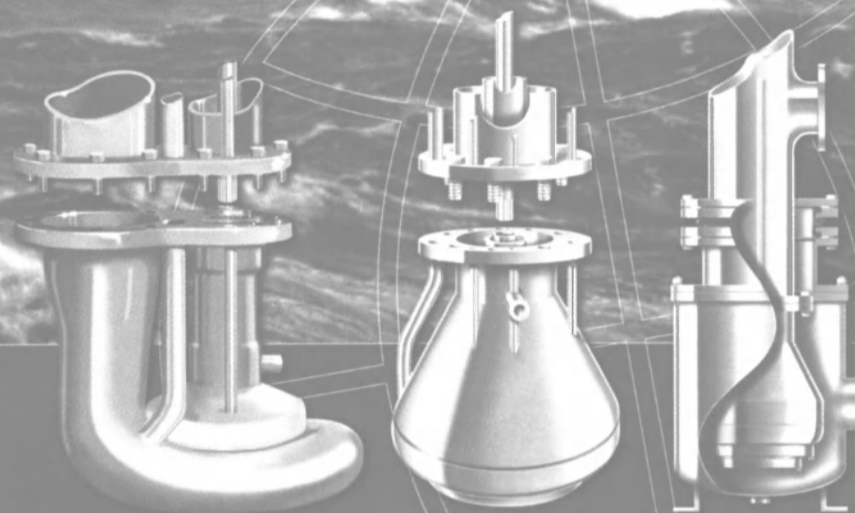
(See Fig. 3)

Finally, ASC hasn't forgotten to account for the time-honoured programmers dictum, "nonsense in, nonsense out (replace the word "nonsense" as you please). What if data that should have been manually entered somehow gets omitted? What happens if a sensor is mis-reading, or if an operator enters incorrect data? This is where the 3-D model of the displacing vessel saves the day: Autoload Rig compares the "calculated draft" with the "real draft", and solves to find the "constant" weight that accounts for the difference. If this "constant weight" and its calculated centre of gravity are within a specified limit, then the loading condition is considered correct. If the constant weight falls outside the limits, the operator is warned and must find the reason for the discrepancy. If you need stability software for an offshore vessel of any kind, then it is worth contacting an ASC dealer for more information.

During the 24 years Autoship Systems Corporation has been producing world-class CAD/CAM and load management software, it has amassed thousands of customers — including the US Navy, US Coast Guard, Newport News Shipbuilding, Teekay Shipping Ltd, Halliburton Subsea, CS Marine Technology Corporation, Rolls Royce, Westwood Shipping Lines, and Wallenius Wilhelmsen Lines, plus private companies and government agencies in every corner of the world. ASC also recently partnered with CS Marine Technology Corporation to offer consulting services for owners and vessel designers doing business in China. ASC's latest load management and stability products include Lloyds and DNV-approved Stowage Management Systems for ro-ro, container, bulk, tanker, and break bulk vessels (all with Autoload included in the system). Their latest CAD/CAM offerings include Autoship 8.3 (for release next month) for hull design and surface modelling, Autostructure 3.0 for internal structural design, Production Manager 3.0 for nesting and other production support, and of course Autohydro 6.0.

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Circle 306 on Reader Service Card

VT Halter: King has Company Back on Track

It was little more than a year ago that **Boyd E. (Butch) King**, CEO, took the reins at VT Halter Marine, a designer and builder of small to medium-sized ships with a varied and rich history. After 15 months on the job, *Maritime Reporter* caught up with Mr. King to discuss the company's present initiatives and future prospects.

Q: Can you share some insights to your management philosophy?

A: My 35-year career with the U.S. Army started as an enlisted man and I worked my way through the ranks to Brigadier General. It has given me a unique understanding and a deep respect for the men and women that work at VT Halter Marine. I am very proud to be a part of the VT Halter Marine Team. I am a firm believer in accountability. Many of my career successes are due in large part to my conviction that we all need to be accountable. The ability to analyze a situation honestly and accurately helps one to recognize both weaknesses and strengths. Accountability comes into play when a person steps up to responsibility and acts to correct weaknesses and also improves those things, which are already being done well.

Q: What initially attracted you to the position of CEO with VTHM?

A: I can't resist a good challenge.

Q: What has been done recently to improve the company?

A: We've implemented a quality management system and received ISO 9001:2000 certification. Through this process we have streamlined operations, reduced operating costs, automated systems and improved our facilities. VT Halter Marine is in the process of relocating its corporate and engineering offices to its Pascagoula and Moss Point locations. We anticipate increased efficiency because management and engineering will be able to work with production in real time on a continuing basis. A reduction of operating costs will make VT Halter Marine even more competitive.

Q: What do you count as key accomplishments in firming the company's current and future prospects?

A: One of the most interesting projects is the VT Halter Marine design and con-



VT Halter's Pascagoula Operations.

struction of fisheries research vessels for NOAA. These ships are a great example of harnessing the technological advancements of the commercial industry and integrating U.S. Navy quieting techniques to meet the low acoustic signature requirements. The result is a quiet vessel that is capable of simultaneously conducting fisheries research and oceanography.

Q: What have been the biggest challenges to date?

A: Lack of enthusiasm in domestic offshore exploration and production and now, steel prices have caused some of our customers to delay vessel programs.

Q: Conversely, can you point to some areas that have exceeded your and/or VTS' expectations?

A: VT Halter Marine achieved ISO 9001:2000 certification in six months, and in 2003, the company captured approximately 40 percent of the projects that it bid.

Q: Lets discuss the 2 or 3 initiatives designed to ensure VTHM's future.

A: 1) Improving Operational Efficiency - We are striving for continuous improvement through our ISO 9001:2000 certification by increasing our quality, and by continuously looking for more efficient ways to execute and integrate vessel construction programs. 2) Developing New Markets, which include:

- **Short Sea Shipping** - innovative program sponsored by MarAd to develop a market for vessels to transport cargo within the U.S. and relieve congestion due to truck traffic on our high-

ways.

- **Army TSV and Marine HSV** - US military vessel programs to provide a rapid method for deployment of military cargo and personnel throughout the world.

- **MarAd Tanker Program** - MarAd program designed to add U.S. fleet and crew capacity in foreign service, and to strengthen U.S. shipbuilding. (see story, *Maritime Reporter*, March 2004, pg. 64).

Q: In your estimation, what are VTHM's greatest strengths?

A: VT Halter Marine's greatest strength is its experience, which comes from designing and building a mix of commercial and defense related projects. Across the board, all of our customers have common goals, solid designs and affordable vessels that perform well.

Most research and development projects rely on integrating existing with emerging technologies. Risk is minimized when you deal with known factors and by incorporating technical advancements; it is possible to continually improve each project. It gives us the ability to leverage technological advancements from across our product line and remain industry leaders.

VT Halter Marine specializes in shipbuilding design, construction and repair. We are small enough to be responsive to the unique needs of each customer while large enough to construct Panamax-sized vessels.

Our facilities are strategically located which make it possible to accommodate multiple projects at the same time. Multiple vessels could be built in tandem or simultaneously through creative



Boyd "Butch" King, CEO

Mr. King, is a retired Brigadier General who served in the Army for more than 35 years. He was in leadership/command positions as a sergeant, warrant officer, commissioned officer and general officer. He was responsible for the operation of seven Repair and Overhaul Depots in three European Countries. Mr. King has experience in requirements, operation and procurement of Army Watercraft. He helped develop the Army's sea prepositioning program for rapid deployment and was the Army's functional representative on the Large Medium Speed RoRo procurement. He is a graduate of the Army War College and the Industrial College of the Armed Forces.

utilization of VT Halter Marine facilities, which could reduce production time by as much as half.

Q: What is the biggest challenge to building vessels in the U.S. today?

A: Labor costs and material costs are higher in the U.S. than some countries.

Q: What do you count as the most promising markets for business in the coming five years?

A: The most promising market will be for vessels that can serve more than one purpose. A common platform that can be tailored to meet variable requirements will reduce risk, support interoperability and provide affordable solutions. VT Halter Marine is conducting a MarAd feasibility study to assess the design and manufacture of a dual use RoRo ferry design. A common platform that could be used as a base for both commercial and military applications would strengthen the relationship between U.S. industry and our national security and enhance interoperability between defense and commercial vessels.

For more information on the company Circle 50 on Reader Service Card

(Continued from page 36)

Bollinger's upper management, engineering was allowed to route pipe 2.5-in. and above. Bollinger's design group then generated spools and arrangements without structural backgrounds.

Bollinger's in-house engineering group then created outfitting parts and machinery arrangement in the model. This was performed mid-way through the design and included the creation of a 2-D and 3-D model.

After the spools were fabricated in the yard for 2.5-in. and above piping, the yard requested smaller pipe runs and penetrations, indicating high confidence in both the design group and ShipConstructor's capabilities.

This job was the first for which Bollinger used ShipConstructor's Pipe module. The piping drawings were developed in 2-D and 3-D modeling. On their next job, Bollinger plans to develop piping arrangements, spools, machinery arrangements and penetrations in the ShipConstructor model.

See ShipConstructor2005 at OTC

Albacore Research Ltd. will be showing ShipConstructor at OTC in Houston at booth 4173. ARL representatives will be on hand to demonstrate the new ShipConstructor2005 version, which is scheduled for release in May 2004. ShipConstructor2005 will include an improved Bill of Material (BOMs) and the anticipated appearance of the new Hull module. The new smart BOMs are dynamically linked to the backend SQL server database to make updating production drawings much easier. The entire BOM is a smart object that the user can resize, while also changing col-

ors, styles, and grid types to conform to company standards. A change in a BOM will automatically update any labels in place, retaining the often-significant effort users have made when placing labels in the best position for production. The intelligent BOMs will also

become part of the assembly drawings, enabling users to include labeled pipe spools, non-spoiled pipe items and outfit items based on the build strategy.

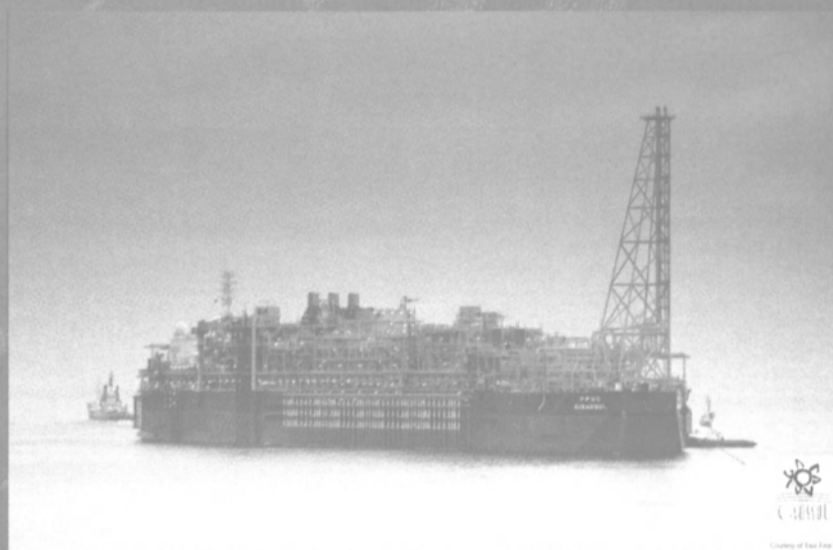
With the introduction of the Hull module, ARL will bring much of the functionality of the stand-alone ShipCAM

solution into ShipConstructor, thus running inside of AutoCAD. Users will be able to open ShipCAM files, import 3-DM (Rhino), IDF (IMSA) and IGES (most hull design programs) files, and export to IGES, IDF and GHS formats.

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Cargo Offloading Pumps for FPSO's



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Girassol FPSO	Total	Block 17, Angola	2.2 mill bbls
Bohai Bay QHD32-6 FPSO	ChevronTexaco CNOOC	Bohai Bay, China	1 mill bbls
EA FPSO	Shell	Block 79, Nigeria	1.5 mill bbls
Bonga FPSO	Shell	Block 212, Nigeria	2 mill bbls
Amenam FSO	Total	Block 99, Nigeria	2.4 mill bbls
CPTL 137B FPSO	CPTL	Libya Block 137B	1 mill bbls
Bijupira&Salema FPSO	Shell	Bijupira&Salema, Brasil	1 mill bbls
Kizomba A FPSO	ExxonMobil	Block 15, Angola	2.2 mill bbls
Erha FPSO	ExxonMobil	Block 209, Nigeria	2.2 mill bbls
CFD FPSO	CNOOC/Kerr McGee	CFD, Bohai bay, China	1 mill bbls
Kizomba B FPSO	ExxonMobil	Block 15, Angola	2.2 mill bbls
Albacora Leste	Petrobras	Albacora Leste, Brasil	2.0 mill bbls
Bozhong FPSO	CNOOC/Chevron Texaco	Bozhong field, China	1 mill bbls
Dalia FPSO	Total	Block 17, Angola	2.2 mill bbls
Baobab FPSO	Modec/CNR	Ivory Coast	2.0 mill bbls
BP Plutonio FPSO	BP	Block 18, Angola	2.0 mill bbls

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OTC 2004 Fact Sheet

When May 3-6, 2004

Where Reliant Convention Center
Houston, Texas, U.S.A.

Theme Innovation Without Limits

Who Engineers, technicians, executives, operators, scientists, and managers from more than 110 nations representing a variety of fields in the offshore industry.

Frequency Annual

Founded 1969

Projected Statistics (04)

Exhibiting Companies

2,000 representing 27 countries (including divisions and subsidiaries)

Exhibit net square feet

398,000 NSF projected (including outdoor exhibits)

Attendance

50,000-plus representing 110 countries (includes exhibit personnel)

Technical Presentations 318-plus

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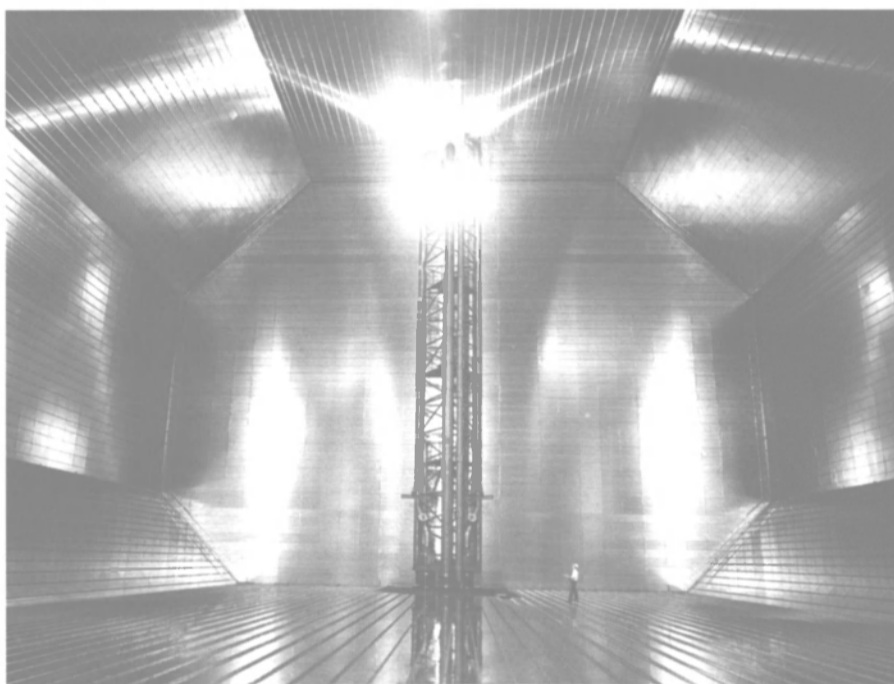
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Teekay Enters LNG With Tapias Acquisition

Teekay Shipping Corporation has entered into a definitive agreement to acquire Naviera F. Tapias S.A., a leading independent owner and operator of LNG carriers and crude oil tankers in Spain. Teekay has also entered into an agreement with the shareholders of Tapias to establish a 50/50 joint venture that will pursue new business in the oil and gas shipping sectors, focusing specifically on the Spanish market. The Tapias acquisition will establish Teekay's presence in LNG shipping, one of the fastest growing sectors of sea-borne energy transportation. It will position the company as a key supplier of LNG shipping to Spain, the world's third largest importer of LNG, and provide a strategic growth platform for Teekay. As a major provider of crude oil transportation to Spain, the acquisition of Tapias will also extend Teekay's leading position in the crude oil tanker sector.

Teekay will acquire Tapias for a total enterprise value of approximately \$810 million through a combination of cash, and the assumption of existing debt. In addition, Teekay will assume approximately \$540 million in newbuilding commitments, most of which is expected to be fully debt financed prior to the vessel deliveries, thereby requiring a relatively small total cash outlay by the company. Teekay expects the acquisition to be immediately accretive to earnings and to provide cash flow from vessel operations of approximately \$85 mil-



lion in 2004 (on an annualized basis), \$120 million in 2005 and \$125 million annually thereafter, following delivery of the newbuildings. The company anticipates that the acquisition will increase Teekay's annualized cash flow from vessel operations from long-term fixed-rate contracts to approximately \$400 million by the end of 2005.

The transaction is expected to close by April 30, 2004.

Inigo Tapias Performance Proven

The LNG carrier *Inigo Tapias* has reportedly performed very well in the six months since its delivery. The ship was built at the Izar's Sestao Shipyard and has performed 13 shipments since it was delivered: the first one from Qatar to Spain and the other 12 from Trinidad-Tobago to the U.S. During this period, Gas Natural assures that this LNG with a capacity of 138,000 cu. m. has per-

formed "perfectly."

Inigo Tapias is the first of a series of five LNG Tankers with a capacity of 138,000 cu. m. ordered with Izar. These five LNGs, ordered by three ship owners — F. Tapias, Elcano and Knutsen O.A.S. — will transport natural gas

for Repsol YPF-Gas Natural and Union Fenosa, to satisfy the growing demand of this kind of energy within the industrial and domestic markets.

The LNGs built by Izar are double hull, double bottom in the cargo area, and feature four cryogenic cargo tanks with GTT Membrane Type No. 96 E2, where the natural gas is transported at atmospheric pressure and at a temperature of -163° C.

These membranes, directly attached to the ship's double hull/double deck, have two missions:

To reduce the transfer of heat to the atmosphere and the cargo tanks to minimize the evaporation of liquefied natural gas and thermally insulating the structural steel and transmitting the cargo's weight to the steel structure.

Each of the 0.7mm thick and 500 mm large membranes, made of Invar sheets (metal alloy with a 36% content of nickel), counts with an insulating barrier of two layers of perlite (aluminium oxide of granular shape with silicon)-filled plywood casings to prevent water and humidity. Each LNG carrier counts with 52,000 cases. These ships are able to load and unload in a maximum of 12 hours.

Drewry Forecasts Strong LNG Growth

Drewry Shipping Consultants' latest report, "LNG Shipping Market Review 2003/04" provides insights and detailed assessment of the LNG shipping market's discrete, yet substantial, growth since the turn of the century.

The report identifies which market trends have been contributing towards this growth and what will enable the market to sustain it. Various factors apply but, since the turn of the century, there has been a massive surge in interest in the previously conservative LNG business with unprecedented levels of ordering activity for new vessels and much increased interest in new supply

projects and new/expanded projects.

Drewry has highlighted the following current market characteristics as key to the LNG shipping industry's growth:

- LNG trade set to grow at 7-8% per annum for the next decade
- Costs are declining due to new technologies
- South Korea and China emerging as major players
- U.S. Federal Reserve calling for more LNG receiving terminals to be built
- Industry opening up to new players

Drewry's report highlights new technologies as a key element in the rise of

the LNG shipping market by helping to bring costs down and make previously uneconomical projects viable. In ship design, new propulsion systems aim to replace the traditional steam turbine engines with smaller more efficient units that will not only reduce fuel costs but will also increase cargo carrying capacity.

Ships could also be about to become bigger with the new Qatar projects to supply the U.S. and UK with gas widely tipped to produce the first order for a 200,000 cu. m. ship.

Several new ships have been ordered with on board regasification facilities

that will open up many new areas to the possibility of LNG imports and help overcome environmental objections to new LNG receiving terminals.

"The remarkable growth currently being experienced within the LNG shipping market is not just a flash in the pan - market conditions indicate that it is likely to continue for at least another ten years due to, amongst other factors, reducing costs, increasing trade opportunities and a host of new entrants coming into the market," said Susan Oatway, Director of Bulk Shipping at Drewry.

For information on ordering the report Circle 51 on Reader Service Card

ChevronTexaco to Operate New LNG Carrier

ChevronTexaco Shipping Co. LLC said one of its affiliates - Chevron Transport Corp. Ltd. - will serve as the operator of the North West Shelf Venture (Venture) Gas Project's newest vessel, the Northwest Swan. The vessel is currently planned to deliver LNG from the project's Western Australian operations to customers in Japan, Korea and China, as well as provide opportunities to deliver into the LNG spot market.

The membrane containment system ship was built in Korea at the Daewoo Shipbuilding and Marine Engineering shipyard in Okpo. The vessel measures 941.5 ft. (287 m) long, with a beam of 142.4 ft. (43.4 m), a draft of 37.7 ft. (11.5 m) and a capacity of 138,500 cu. m. Participants in the North West Shelf Venture, each of whom hold an equal interest, are: Woodside Energy Ltd. (operator); ChevronTexaco Australia Pty Ltd.; BHP Billiton Petroleum (North West Shelf) Pty Ltd.; BP Developments Australia Pty Ltd.; Japan Australia LNG (MIMI) Pty Ltd.; and Shell Development (Australia) Proprietary Limited.

In July 2003, ChevronTexaco Global Gas was formed to commercialize the company's existing natural gas resource base and enable the creation and development of new natural gas growth opportunities worldwide. The organization includes -- ChevronTexaco Natural Gas, ChevronTexaco Shipping Co., Chevron Pipe Line Co., Global Power Generation, North American Regasification Ventures and International Marketing & Business Development. ChevronTexaco is one of the world's largest producers and marketers of natural gas, producing approximately 4.4 billion cubic feet of natural gas a day.

Kongsberg Chosen for Seven LNG Newbuilds

Kongsberg Maritime received an order for equipment for seven new LNG (Liquefied Natural Gas) tankers, scheduled to be built in Korea by Samsung Heavy Industries and Daewoo Shipbuilding and Marine Engineering. Delivery is scheduled from late-2004 to mid-2005.

Hamworthy Breaks Into Japanese Market

Hamworthy KSE has won a contract to supply shipsets of engine room pumps to two 145,000 cu. m. Leif Hoegh LNG carriers under construction at Mitsubishi Heavy Industries in Japan. Each shipset comprises 19 pumps,

including seven of the company's new C2G models. Hamworthy KSE's new generation C2G engine room pumps have been developed to deliver benefits when being used for all types of onboard duties, both in terms of operational costs and hydraulic efficiency. The company

based the range on as many standard components as possible to reduce costs and to minimize spare parts inventories. For example, only five sizes of seal bearing assembly and eight sizes of pump couplings are used throughout the C2G range, which includes 23 models.

The design is optimised for low NPSHr ('net positive suction head required') and good cavitation resistance. The C2G's lightweight compact design is available in spacer-coupled and close-coupled variants.

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Large LNG Carriers

ABS Addresses Tech Concerns

As the LNG trade significantly increase over the next decade, transporting the fuel in ever larger, more sophisticated ships means particular attention must be paid to technical issues to ensure the present and long-term viability of the new generation of larger LNG carriers.

Operators continue driving the demand for larger LNG ships to take advantage of the economies of scale. "By increasing the size of the standard LNG carrier from about 145,000 to 200,000 cu. m. and even larger, it is estimated that there could be a reduction in transportation costs by as much as 15 percent," said **James Gaughan**, ABS Senior Consultant, Energy Project Development Group. Another advantage with larger LNG ship designs is a reduction in the amount of cargo boiled off as a percentage of volume. The expected boil-off rate for the larger designs will be no more than 13 percent versus the current range of 15 to 25 percent. ABS has classed LNGs built with



all types of accepted containment systems, allowing it to extrapolate data from the previous generation of smaller LNG ships and apply it to designs now ranging upwards of 200,000 to 250,000 cu. m.

Historically, over the last 10 years the increase in size of LNG carriers has been fairly gradual, observes Mumtaz Mahmood, Manager, Technology Development, ABS Europe. "The size increases being contemplated for the new breed of LNG carriers right now in

the 200,000m³ to 250,000m³ range is significant. The entire design of the ship structure and containment system requires evaluation to ensure its adequacy to withstand the additional loads."

Key Technical Issues

The key technical issues that must be addressed with the larger LNG designs are: maneuverability, speed and power, cool down and loading and discharge rates, sloshing, ballast water exchange and visibility.

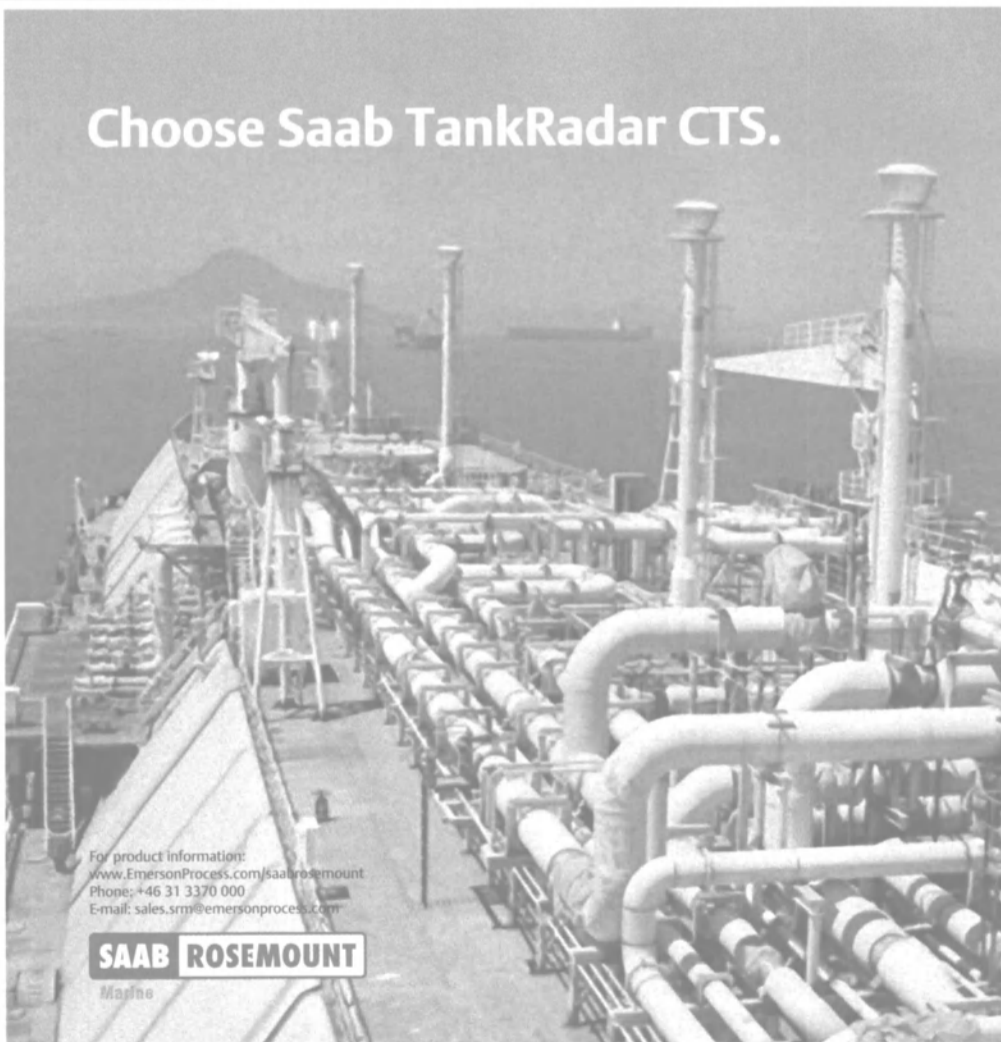
Maneuverability

Current designs for the larger LNG ships in the range of 200,000 cu. m. are considering twin screw propulsion which would significantly improve maneuverability. Since the vessels will be limited in draft to no more than 12 m to maintain operational flexibility, the beam of the vessels will be increased to as much as 55 m. These shallow draft, wide vessels need to be able to navigate in narrow channels for service to up-river terminals. This requires enhanced maneuvering capabilities and special rudders and features such as larger bow thrusters and possibly stern thrusters.

Speed/Power

Most LNG carriers have a design speed between 19.5 and 21 knots. It is expected that the new generation of large ships will be designed for the same speeds. This, of course, will require an increase in propulsion horsepower and for vessels to be equipped with steam plant units significantly larger than those built

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ChevronTexaco to Operate New LNG Carrier

ChevronTexaco Shipping Co. LLC said one of its affiliates - Chevron Transport Corp. Ltd. - will serve as the operator of the North West Shelf Venture (Venture) Gas Project's newest vessel, the Northwest Swan. The vessel is currently planned to deliver LNG from the project's Western Australian operations to customers in Japan, Korea and China, as well as provide opportunities to deliver into the LNG spot market.

The membrane containment system ship was built in Korea at the Daewoo Shipbuilding and Marine Engineering shipyard in Okpo. The vessel measures 941.5 ft. (287 m) long, with a beam of 142.4 ft. (43.4 m), a draft of 37.7 ft. (11.5 m) and a capacity of 138,500 cu. m. Participants in the North West Shelf Venture, each of whom hold an equal interest, are: Woodside Energy Ltd. (operator); ChevronTexaco Australia Pty Ltd.; BHP Billiton Petroleum (North West Shelf) Pty Ltd.; BP Developments Australia Pty Ltd.; Japan Australia LNG (MIM) Pty Ltd.; and Shell Development (Australia) Proprietary Limited.

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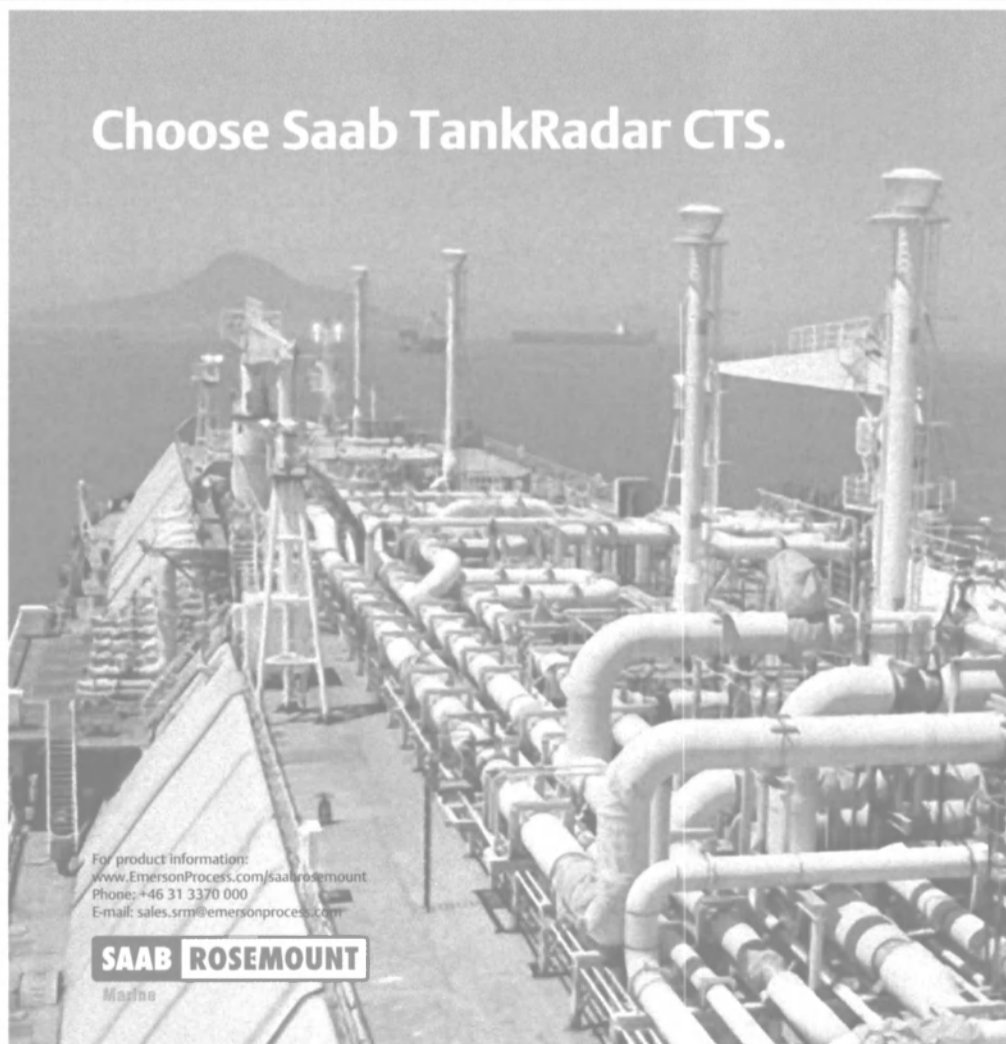
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before. This challenges the boiler turbine and gear manufacturers. The need to move to more efficient internal dual fuel combustion engines with diesel electric propulsion or a combination of one or more slow speed engines with a re-liquefaction plant is proven technology but has not yet been incorporated on a large LNG carrier in service. Given the expected future use of these systems, the issue of vibration associated with their operation must be examined to ensure that resonance frequencies are avoided during operations.

**Cool down/loading rate/
discharge rate**

The cargo handling systems, which include cargo pumps, spray pumps, vaporizers, heaters, compressors and all the associated piping, must be sized and designed for the same performance characteristics as the systems on conventional LNG carriers in terms of discharge, loading and cool down rates.

Sloshing

A key aspect of transporting LNG is

designing the membrane-type tank and containment systems to withstand dynamic loads and sloshing of LNG cargo. The high pressures due to liquid surge inside the cargo tanks with the vessel in a seaway may damage cargo tank systems and internal tank structures unless adequately addressed at the

design stage. ABS' 3-D sloshing software analyzes the deflections and stresses on membrane-type tank and containment systems. Membrane systems place the greatest stresses on the hull structure, particularly on the bulkheads and inner bottom.

Visibility A simple yet practical point. Increasing the length of the vessel and, in the case of the Moss spherical tank design increasing the height above the main deck with larger tank domes, requires a corresponding increase in the height of the navigation bridge.

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LNG Fast Facts

LNG (liquefied natural gas) is natural gas, primarily methane, which has been cooled to its liquid state at -260°F (-162.2°C). Liquefying natural gas reduces the volume it occupies by more than 600 times, making it a practical size for storage and transportation. LNG (the liquid itself) is not flammable or explosive

How is LNG shipped?

- Specially designed ships are used to transport LNG to U.S. import terminals. The ships can carry LNG over long distances and are constructed of specialized materials and equipped with systems designed to safely store LNG at temperatures of -260 °F (-162.2°C)
- All LNG ships are constructed with double hulls. This construction method increases the integrity of the hull system, provides insulation for the LNG and provides protection for the cargo tanks in case of an accident
- Three basic tank designs have been developed for LNG ship containment and transport: prismatic free-standing, spherical, membrane

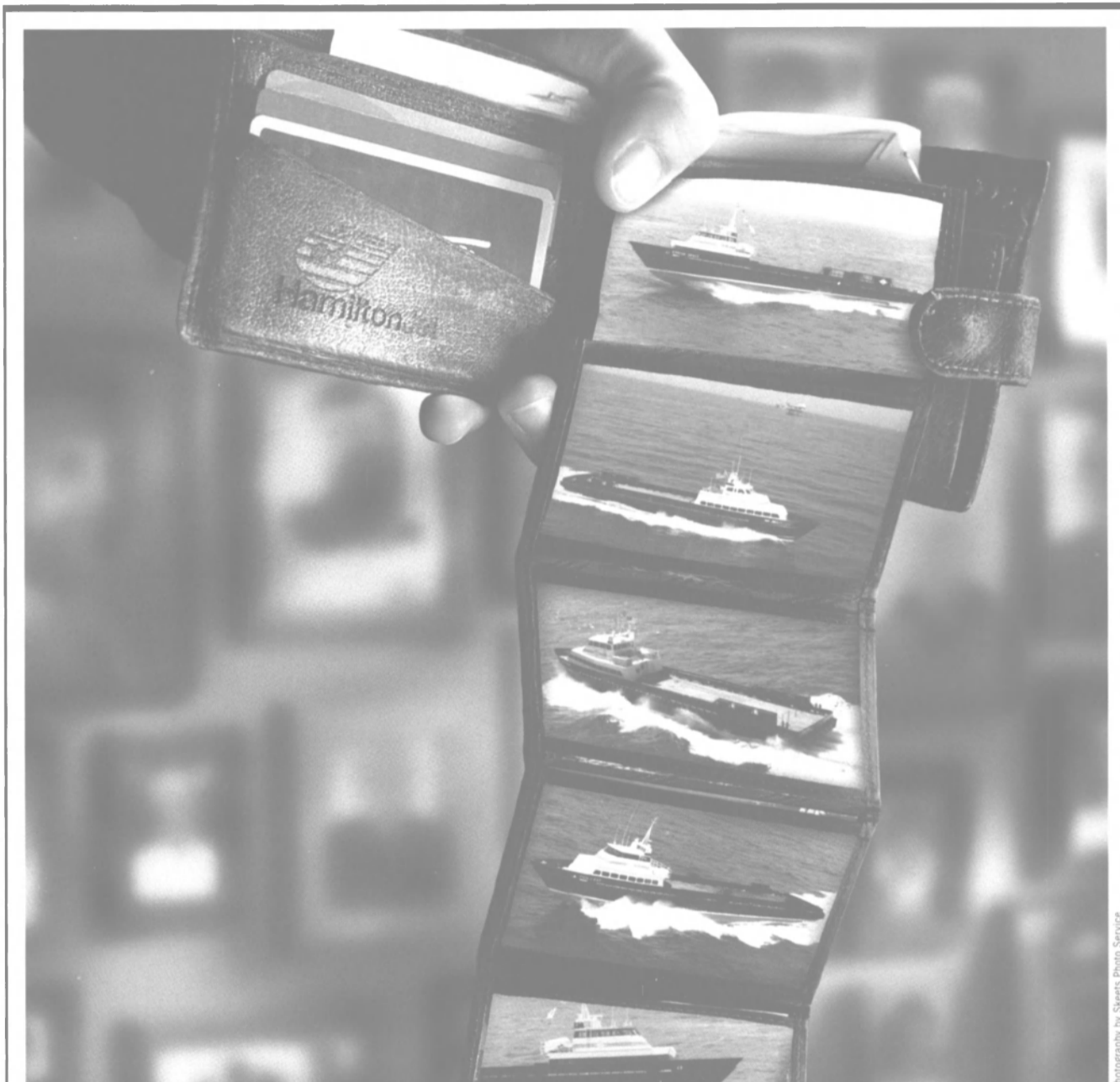
How are LNG tankers and facilities being kept secure?

Security measures for the offshore portions of marine terminals are required by U.S. Coast Guard regulations. The Coast Guard prevents other ships from getting near LNG tankers, while in transit or docked at a terminal.

Dispelling the explosion myth

- LNG is not explosive. Although a large amount of energy is stored in LNG, it cannot be released rapidly enough to cause the overpressures associated with an explosion
- LNG vapors (methane) mixed with air are not explosive in an unconfined environment

Source: Federal Energy Regulatory Commission (FERC)



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Gas Ships

Dual-fuel Diesel Engines for LNG Carriers

Recent orders for Wartsila 50DF dual-fuel engines for two LNG carriers, eight engines in all, are no coincidence. This engine type promises benefits for LNG

operators including larger cargo capacity, lower fuel consumption, higher flexibility in operation, and lower emissions. Gaz de France is the first to take

the plunge. Until now, steam turbines have dominated as propulsion machinery for LNG carriers, with their apparent reliability and the ease with which they

can burn the boil-off gas from the ship's cargo tanks while at sea.

The low fuel efficiency of steam turbines, however, has already encouraged almost all other shipping segments to switch to diesel-powered ships. As a result of both increased fuel efficiency and increased cargo capacity, an LNG carrier with dual-fuel electric machinery will deliver more natural gas to the offloading terminal even when gas is used as fuel throughout the voyage.

The order last autumn for a 153,000 cu. m. LNG carrier by Gaz de France at Chantiers de l'Atlantique proves a point. The ship, due for delivery in 2005, will be propelled by dual-fuel engines and electric propulsion. The heart of the system is four dual-fuel engines - three 12-cylinder and one six-cylinder Wartsila 50DF - giving a combined output of 39.9 MW.

The ship will be the largest LNG carrier in service. It will be employed to carry LNG from Norway or Egypt, but is also designed for the alternative of trading on the spot market. This is the second of two similar orders to Wartsila. In 2002, four six-cylinder 50DF engines, with an aggregate output of 22.8 MW, were ordered for Gaz de France Energy's 75,000 cu. m. LNG carrier, also being built at Chantiers de l'Atlantique in Sainte Nazaire.

Once delivered later this year, Gaz de France Energy will be the first LNG carrier in service featuring this new propulsion system. The membrane-type vessel will be employed to carry LNG from Algeria to France. The service speed is 16 knots, which can be achieved with three of the four generating sets. Like its newer sister ship, the vessel is also designed for spot market trading, such as voyages to the USA.

"Wartsila has done extensive research to find a more attractive propulsion solution for LNG carriers," said Mikael



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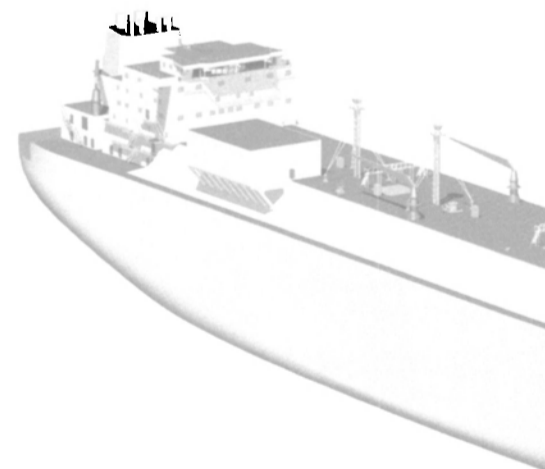
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Makinen, Group Vice President, Marine Division, when the second order was placed.

"We have studied the specific requirements of the LNG trade to determine the desired characteristics of the optimum propulsion plant, and we have now developed a number of attractive solutions."

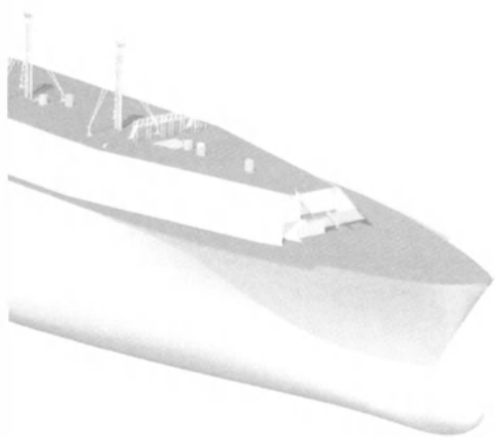
Dual-fuel engines have so far been successfully applied in eight onshore power plants and a number of marine installations, including two FPSOs and two offshore support vessels. LNG carrier operators will be watching with interest when the first ship with Wartsila 50DF engines takes to the sea later this year.

The basic propulsion solution for these LNG carriers uses dual-fuel engines for electric power generation. The electric power is supplied to an electric propulsion system, fairly similar to the diesel-electric propulsion systems on modern cruise ships. The solution offers LNG carriers a number of significant advantages.

Calculations from the engine manufacturer show that the earnings of a 145,000 cu. m. dual-fuel electric LNG carrier sailing between the Middle East and Japan will be several millions of dollars per year higher than the annual earnings of a steam turbine powered ship of the same size.

The Wartsila 50DF, derived from the Wartsila 46 diesel engine, is a true dual-fuel engine, using low-pressure natural gas as primary fuel. The engine can be run alternatively in gas mode or liquid fuel mode. It is also fully capable of switching over from gas to liquid fuel (marine diesel oil) automatically should the gas supply be interrupted, while continuing to deliver full power. When running on natural gas, ignition is triggered using a very small quantity of liquid fuel. Marine diesel oil can be used as a

Chantiers de l'Atlantique



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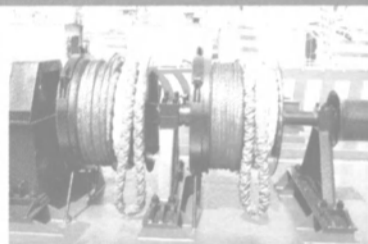
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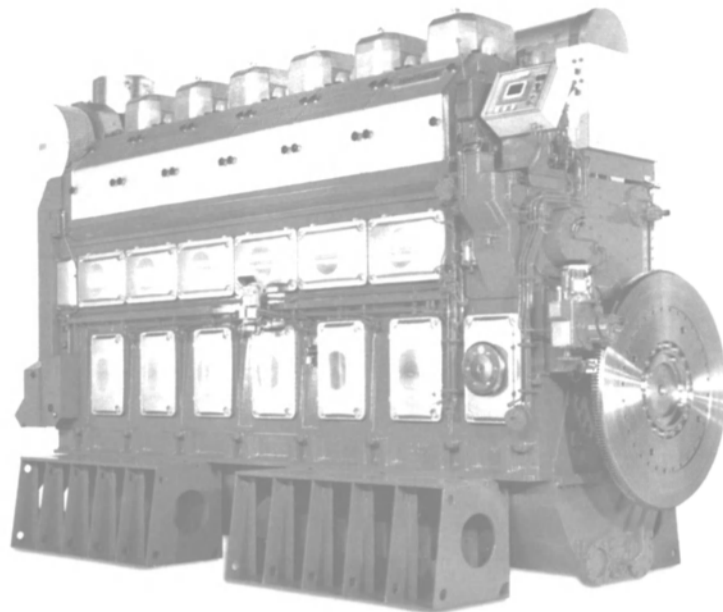
Gas Ships

secondary fuel.

The Wartsila 50DF

Developed from Wärtsilä's very successful type 46 diesel engines, the Wartsila 50DF engines have cylinder dimensions of 500 mm bore by 580 mm piston stroke. Available in configurations with six, eight and nine cylinders in line, and 12, 16 and 18 cylinders Vee-form, the Wartsila 50DF engines develop 950 kW per cylinder MCR at 500 or 514 rev/min for 50Hz and 60Hz electricity generation respectively.

Gas fuel is supplied at a low pressure (less than five bar) to the engines. In gas mode, the Wartsila 50DF engines operate according to the lean-burn Otto process. Gas is admitted into the air inlet channels of the individual cylinders during the intake stroke to give a lean, pre-



6L50DF

mixed air-gas mixture in the engine combustion chambers. Reliable ignition is obtained by injecting a small quantity of diesel oil directly into the combustion chambers as pilot fuel which ignites by compression ignition as in a conventional diesel engine. The Wartsila 50DF engines use a 'micro-pilot' injection with less than one per cent of the fuel energy being required as liquid fuel at nominal load. Electronic control closely regulates the 'micro-pilot' injection system and air-gas ratio to keep each cylinder at its correct operating point between the knock and misfiring limits.

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The preceding was excerpted in part from a paper by Glenn Mattas, Sales, Wartsila Finland Oy and Barend Thijssen, Solutions, Wartsila Corporation.

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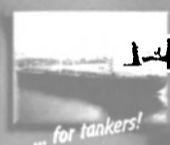
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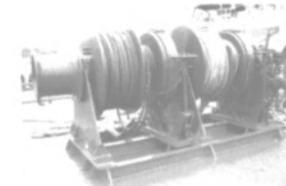
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ABB Wins \$45M in Propulsion Contracts

ABB in Norway has secured new contracts worth \$45 million for delivery of complete electric propulsion systems to two icebreakers to be built for CJSV Sevmorneftegaz by the Norwegian shipyard Havyard Leirvik, and four Platform Supply Vessels to be built in China for Groupe Bourbon by Zhejiang Shipbuilding. The contracts with Havyard Leirvik encompass system supply to two multifunctional icebreaking offshore supply vessels for the Russian company CJSV Sevmorneftegaz. For each vessel, ABB will deliver a main propulsion package including Azipod propulsion system and a complete onboard electric power plant. The ships will be delivered in 2005 and 2006 for service in the Prirazlomnoye oil field in the Barents Sea. To Zhejiang Shipbuilding, ABB will supply a comprehensive equipment package including electric power, propulsion, dynamic positioning and automation systems for four new supply ships for French shipowners Groupe Bourbon.

Hapag-Lloyd Orders Two 8,600-TEU Ships

Hapag-Lloyd ordered two 8,600-TEU containerships from Hyundai Heavy Industries for delivery in spring and autumn 2007. The newbuildings will have a length of 335m, width of 43m and draft of 14.5m and be able to carry 8,600 standard containers (TEU). They will have a speed of 25 knots. It is planned to deploy the vessels between Europe and the Far East. Hapag-Lloyd will take delivery of the last newbuilding in a series of four 6,750 TEU containerships in late April 2004. Two vessels of 8,400/8,600 TEU will be added in 2005, and a further 8,600 TEU newbuilding will follow in 2006. Hapag-Lloyd's fleet currently consists of 47 modern vessels.

TEN Exercises Options for Product Carriers

Tsakos Energy Navigation Limited (TEN) has exercised options for two handysize, double hull, 1A ice-class tankers, with carrying capacity of 37,000 dwt each. The vessels have a contract price of just under \$30 million per ship and are scheduled for delivery in March and June of 2007. These vessels are sister ships to the newbuildings announced in January of this year. The vessels are to be constructed by Hyundai Heavy Industries at their Mipo shipyard, and represent the 28th and 29th vessels in TEN's newbuilding program since 1997.

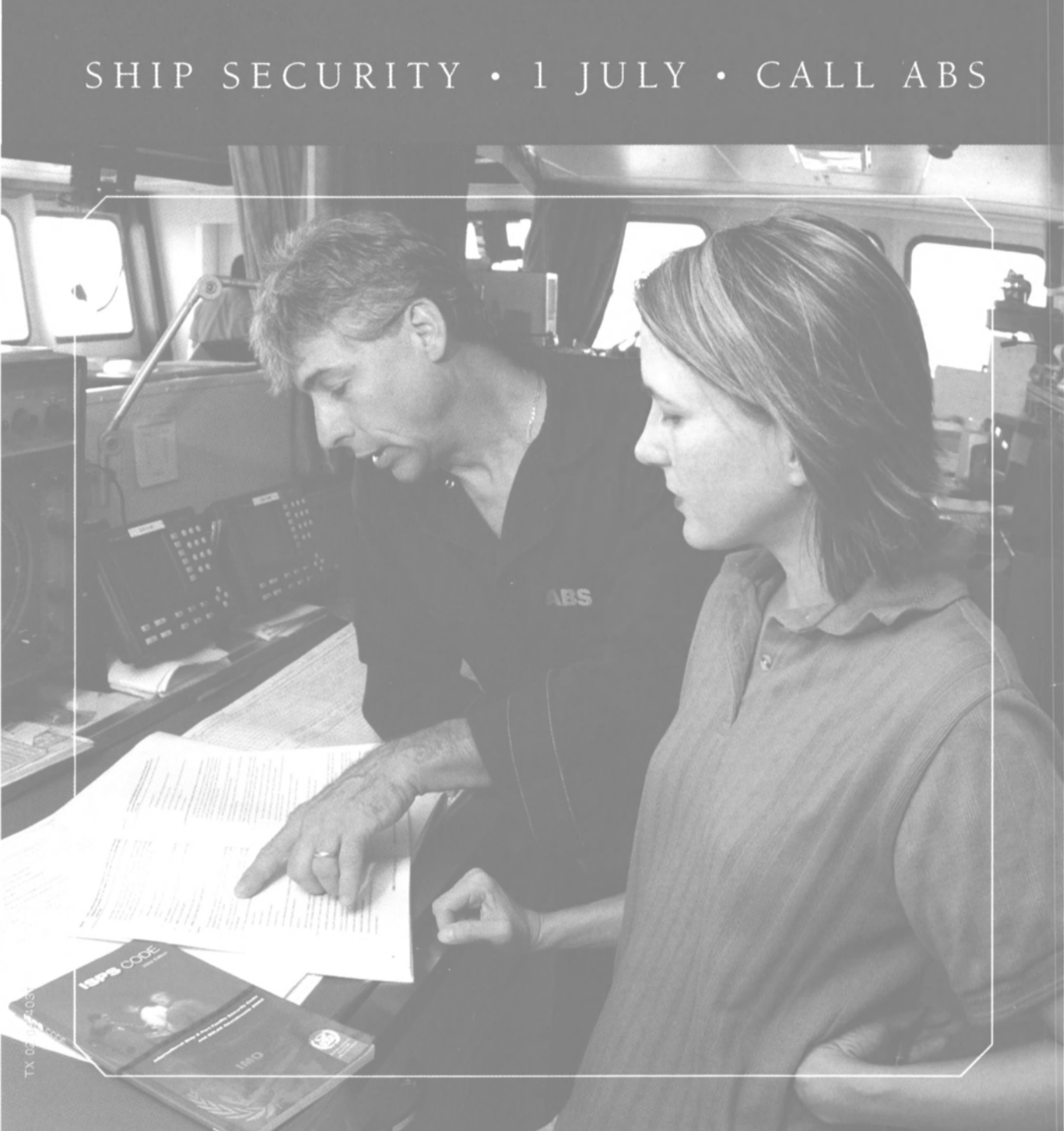
Graig Extends Cooperation With Vinashin

Graig Group is to build on its recent 15-ship order in Vietnam by developing series production of a full range of modern-design bulk carriers at Vietnam Shipbuilding Industry Corporation (Vinashin) yards. The series will range from handysize up to capesize. Speaking

after announcement of the Strategic Alliance formed with Vinashin, Graig CEO **Hugh Williams** said, "We see significant potential here in Vietnam, and we will be working together with our Vinashin partners to meet the growing demand for modern bulk carriers. The success of our Diamond 53 handymax project in China and in Vietnam proves


that owners want well-thought-out and strong vessels at good prices. We will shortly be announcing new sizes of the Diamond range for Graig and its partners. Vinashin is investing heavily in yard capacity, and with our help it will be able to build series of bulkers to quality levels, but with good prices and attractive delivery dates."

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Norway

Teekay Seeks to Grow Suezmax Fleet



These oil producing fields in the North Sea are served by Teekay's shuttle tankers, which bring the most of the cargoes ashore to terminals and refineries in North West Europe. Some volumes are also transported to the Mediterranean and to US.

Teekay's shuttle tanker Navion Britannia was built in Spain in 1998. This DP II vessel loads 860 000 barrels of crude oil.

Expanding the Suezmax fleet and greater involvement in carrying oil products are among the ambitions being pursued by the Teekay Tanker Services (TTS) business unit of Teekay. "At the same time, we're working to expand our strong Aframax position," said TTS Vice President **Peder Farmen**, who heads the product transport sector of TTS from the group's Norwegian office in Stavanger.

Teekay's conventional shipping operations in Norway have further diversified the company's fleet, the majority of which is comprised of Aframax vessels. Since Teekay's acquisitions of Bona Shipholding in 1999, Uglund Nordic Shipping in 2001 and Navion in 2002, Teekay has established itself as a leading tanker operator in the North Sea and Atlantic, in addition to the Pacific. The group now owns and operates a fleet of approximately 100 conventional tankers and has chartering offices in Connecticut, Houston, London, Singapore, Stavanger and Tokyo.

Teekay's conventional shipping business in Stavanger derives from Navion, which was established in the late 1970s as a support function for the growing crude sales of the Norwegian oil company, Statoil. Over two decades, Navion developed into one of Norway's largest shipping companies. Its main markets were in the North Sea and the Atlantic basin. While TTS is led from Vancouver, Canada, approximately 30 staff at the Stavanger office are involved in the business development, chartering and post fixture operations together with a team in London.

Most of the conventional tankers operated by Teekay from Norway are chartered from shipowning companies - some for periods as long as 10 years. The fleet comprises 32 double hull ships with an average age of less than four years.

The main traffic areas are northwestern Europe and the North Atlantic, but Mediterranean and West African destinations are also served.

NORSElight Adds Wipers

NORSElight extended its product line with a new heavy duty straightline window wiper system. The new wiper system has customized features, such as overlapping blades and tailor-made control panels for groups or separate wiper units. The wiper system is suitable for use on larger vessels or applications with large windows, and is particularly suited for vessels that operate at high speeds. The fully sealed, water-tight motor is integrated into the wiper house is an integral part of the complete assembly. Wiper length is from 50 - 500cm. Blades and arms use stainless steel materials that have a matte brown finish to prevent glare. The blades are articulated type suitable for curved or flat glass.

Circle 47 on Reader Service Card



Tanker approach

SMT: Safe and Cost Effective Mooring

Tandem offloading from a spread moored FPSO is a high-risk operation that involves significant challenges with respect to safety and regularity. Based on extensive operational experience with shuttle tankers, combined with state-of-the-art knowledge on mooring systems, APL has in cooperation with Statoil developed SMT, a concept designed to improve safety and regularity.

The SMT system improves tandem operations and seeks to dramatically reduce risk. The basics of the concept is to utilize the mooring lines of the FPSO to introduce a collision barrier between tanker and FPSO and to prevent the tanker from extensive rotation in case of a change in weather direction or abnormal operation. The aft most mooring lines of the FPSO, or two dedicated mooring lines, are routed in an appropriate direction. At a distance of 100m to 150m from the FPSO two mooring buoys are connected to the FPSO mooring lines. The forward mooring lines of the export tanker is connected to these buoys. Between the buoys a collision barrier, consisting of heavy-duty fenders, is



Restricted tanker movement by tenders.

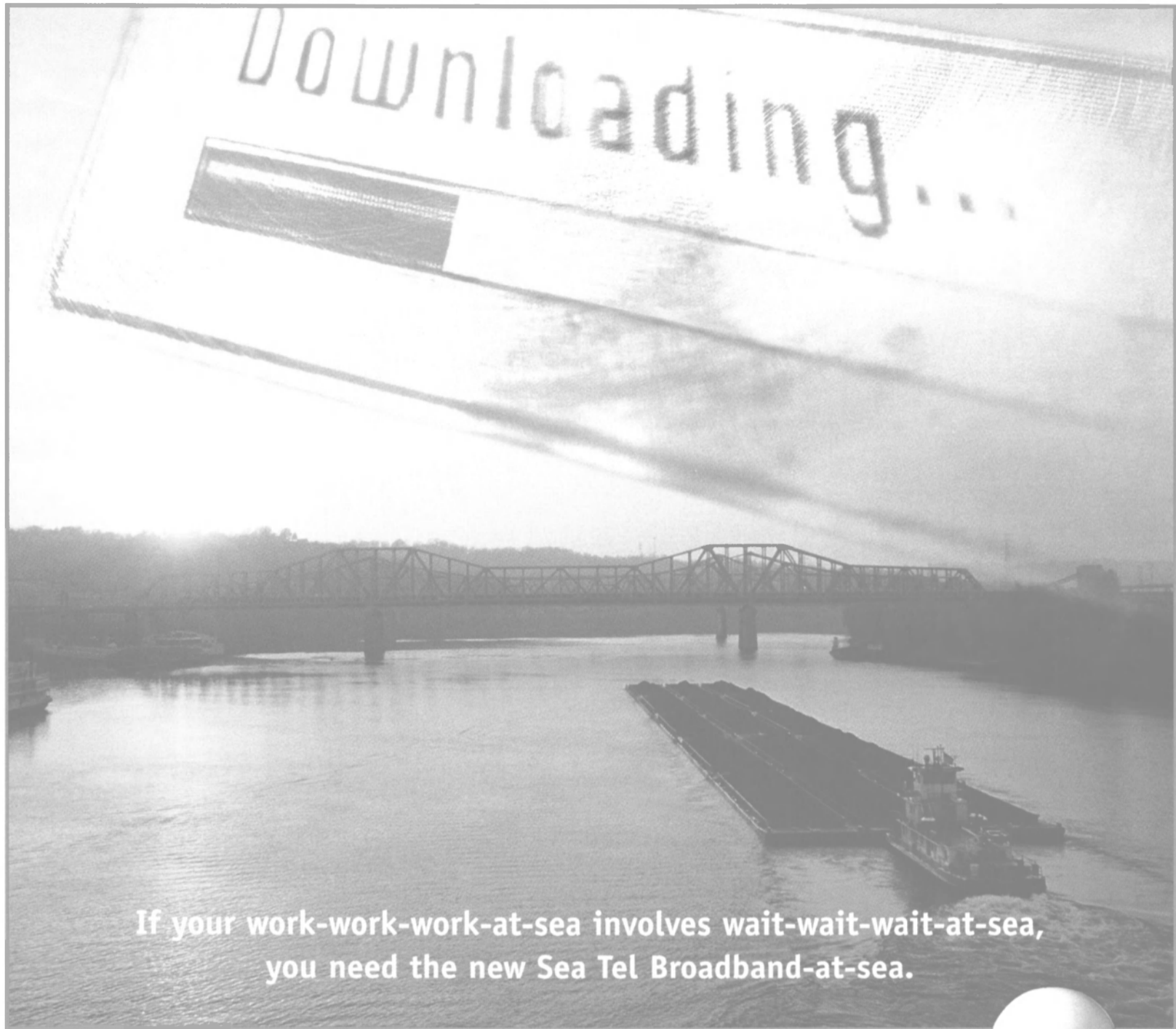
arranged. At a distance of approximately 700m from the FPSO a second set of buoys are connected to the mooring lines. The aft mooring lines of the export tanker are further connected to these buoys. The loading hose (floating hose string) is routed from the manifold on the FPSO to one of the mooring buoys, and further to the midship manifold of the export tanker. A rigid spool pipe is arranged on the mooring buoy with a flange connection to the loading hoses. In idle condition the outer loading hose can be tied back to the FPSO to avoid entanglement and obstruction during tanker berthing.

The berthing operation will be similar to a standard SPM berthing. During approach a tug with sufficient bollard pull will be attached to the stern of the tanker for safeguard. The collision barrier will be a second safeguard for avoiding collision with the FPSO. When the tanker is in position the assistance vessel will hand over the fwd mooring lines, which will be pulled in and locked in the chain stoppers. The aft mooring lines will then be picked up by the assistance vessel, handed over to the tanker and attached to the strong points aft. Finally the loading hoses are tugged over to the tanker and connected to the midship manifold.

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Tanker moored to FPSO



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4.15.03. ¹Source: KVH website ²Source: Delta Communications website

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Norway

Wilh. Wilhelmsen ASA: Profits to Roll Through 2004

Wilh. Wilhelmsen ASA's intent is to transition from traditional shipping activities to be a leading international supplier of maritime transport and associated services. The company has a

workforce in excess of 13,000 in 250 offices across 60 countries running a fleet of more than 200 ships. As the company transforms itself, though, it continues to be a leader in terms of fleet

innovation and construction. WW's liner and car carrying business was up in 2003, with net operating income at \$89.6 million, versus \$78.2 million the year before. The company attributes



MV Tamesis is a new generation Mark IV RoRo ship with a groundbreaking design. The Mark IV RoRo provides 35 percent more covered capacity for specialized RoRo cargo than the previous Mark III design.

this success to high utilization rates, a number of operational efficiencies, and a reduction in net financial expenses. Global transport of new cars and other light vehicles increased by four percent in 2003.

WW joined forces in December 2002 with OW, Hyundai Motor Company and Kia Motors Corporation to establish EUKOR Car Carriers Inc, following the acquisition of Hyundai Merchant Marine's car carrying division. While results for the first year were lower than expected the trend for transported volumes was very positive. WW secured its position in the car carrier market with several newbuilding order. The group placed a contract during 2003 with MHI of Japan for the construction of four car carriers. The first of these vessels is due for delivery in October 2004. Each ship will cost about \$50 million, and will be employed by WWL. The company recently activated an option for two additional ships. In January 2004, WW awarded a contract to Hyundai Heavy Industries for the construction of two car carriers with delivery in 2006-07. These vessels, which are rather simpler than the tonnage from Mitsubishi, will sail under long-term charters to EUKOR.

WW sold the Takamine car carrier in October 2003 to ARC for \$40 million, which yielded an accounting loss of \$1 million. The ship then changed to the American flag and is now part of ARC's fleet in the North Atlantic.

The conversion project for four RoRo carriers was completed in early 2003 as planned. A garage with substantial car capacity was installed on the container deck of each vessel. These ships are employed in WWL's round-the-world service. A similar conversion project began in January 2004 for five older RoRo ships belonging to Mark I K/S (owned 50 percent by WW). These vessels will also secure substantial additional car capacity.

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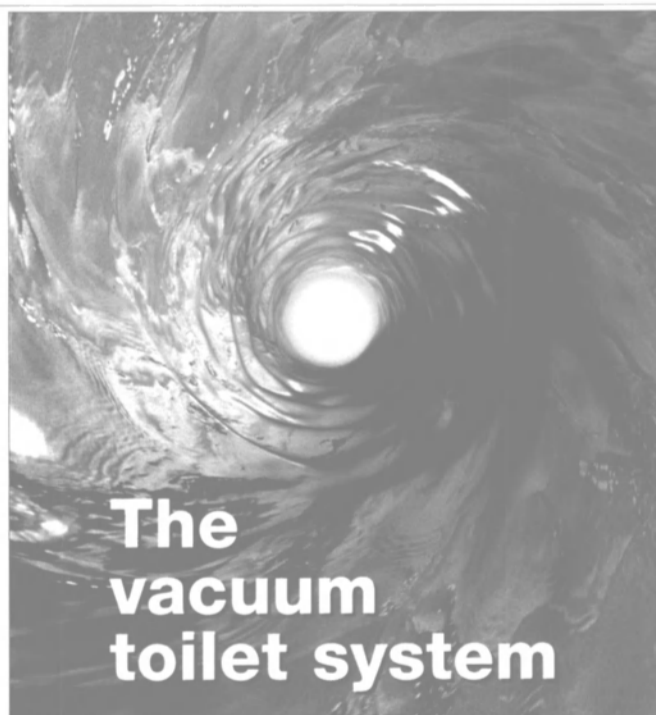
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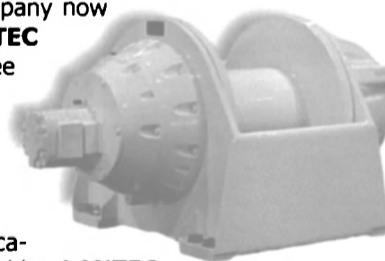
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FPSO Market: 60 Ships in 10 Years

Good news for the ship conversion industry — Norway's Advanced Production & Loading AS (APL) predicts that there may be up to 60 FPSO's required throughout the world over the next 10 years. **Fredrik Major**, Vice President Europe Business Development at APL, also predicted that half of this requirement was likely to be conversions. He added that those FPSO involved in large projects, especially in the U.S. Gulf, were likely to be newbuildings — the rest conversions. APL is a leading manufacturer of FPSO mooring and loading/discharge systems. APL has been involved in four FPSOs — for Shell's Pierce Field in the North Sea, and the Lufeng, Wenchang and Pan Yu Fields off China.

Circle 8 on Reader Service Card

Jotun Launches New Coating

Norway's Jotun has launched **Balloxy HB Lumi**, a system, which aids ballast tank inspection. Following on from the original Balloxy HB epoxymastic ballast tank coating system, the new 'Lumi' system allows for inspection of the new coating with the aid of UV light clearly indicates areas with too great or too little coverage. In this way, not only are the standards of inspection improved, but also very considerable savings in time and materials can be achieved. The use of Balloxy HB Lumi ensures defect-free application at both newbuilding and during maintenance and, hence, reductions in re-working time, paint consumption and VOC emissions. Maintenance-free service periods are increased. Early detection and repair of defects prevents the need for more extensive repair at a later date.

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DNV: There is no Alternative to Class

According to **Terge Staalstrom**, Senior Vice President at Norway's Det Norske Veritas (DNV) "There is no alternative to Class," although he added, "The independency of Class raises concerns both within the shipping industry and among regulators. The integrity and quality of performance are questioned." However, looking to the future, he "can see a time when Class would take on a more involved role. We are looking to the surveyors for vetting and surveying for tanker owners and underwriters to replace in the long run. However, it is unlikely that Class will ever replace the Port State Control."

He also said that Class should look at expanding its scope to offer the owners/managers more. "Class will continue to provide top notch quality services and technical competence". According **Claes Isacson**, CEO of Norway's Gard, "I would be happy if the Class returned to previous years and were able to carry out surveys for insurers such as Gard, but this is still some way off - not an immediate decision."

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Farstad: North Sea Utilization Rates Down

Farstad Shipping ASA is an Aalesund, Norway-based company that operates a fleet of 49 supply-vessels, AHTSs and PSVs. In December Farstad received two new PSVs from Ulstein Verft AS. Immediately after delivery Far Symphony took over a contract for Norsk Hydro from Far Scandia. Far Scandia left the North Sea in December



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to start a long-term contract for Esso in Australia. Far Splendour has started a five-year contract for Peterson Supplylink in Holland.

Farstad Shipping has through its Joint Venture (BOS) in Brazil, three AHTS under construction at Brazilian yards for delivery in 2004/2005. These vessels have all got long-term contracts to Petrobras.

The demand for supply vessels in the North Sea has decreased during the fourth quarter and the number of vessels on long-term contracts was by the end of the year down to 122. The spot market has varied between 27 vessels and 39 vessels, and has resulted in a total demand for vessels in the fourth quarter of 161 vessels on average. The average for the year was 179 vessels. The supply side in the North Sea has seen a continuing departure of vessels and even though a number of new vessels were delivered from yards in the North Sea area during this quarter, the fleet still ended at 182 vessels. The average utilization ratio was as low as 86 percent, resulting in a low rate level during the quarter. The prospects for the North Sea are uncertain for the rest of the year. If the rate level is to recover, the activity has to increase and the fleet will have to be reduced.

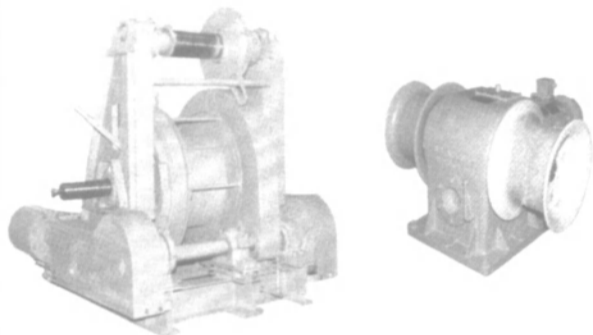
In Australia/the Far East the level of activity has remained good, but the supply side is increasing and the rates are coming under pressure. In addition there is now a temporary lower activity level due to the monsoon season in the Southeast Asia during the first quarter.

The activity in the Mediterranean and West Africa is increasing, but a large part of the departure of vessels from the North Sea has been to these areas, and it is uncertain how much the fleet in these areas can increase in the time to come. However, a larger part of the world's fleet is more than 20 years old, so a renewal will be required. This together with an expected increase in activity on a world basis and a reduced activity in new building, give expectation of a balance between supply and demand during the year.

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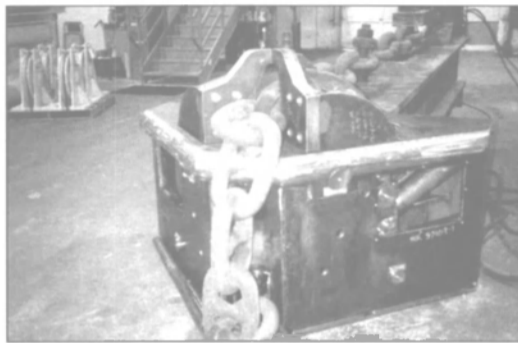
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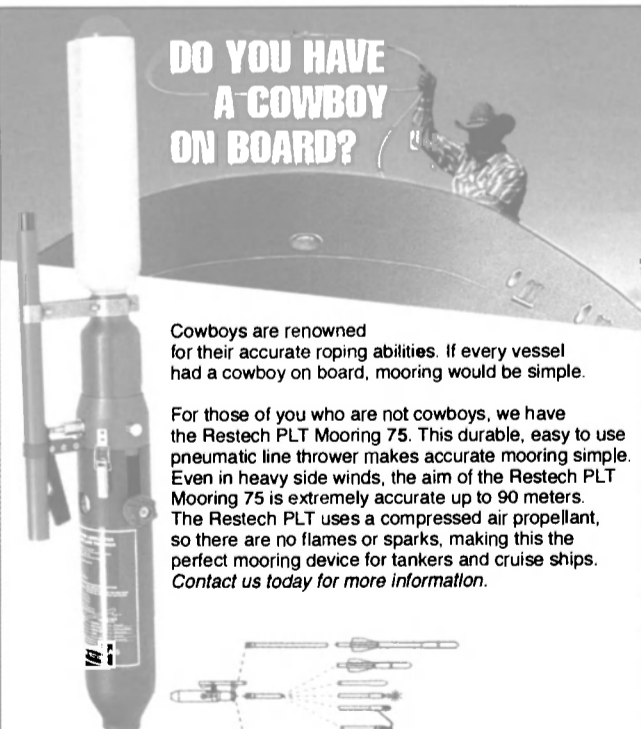
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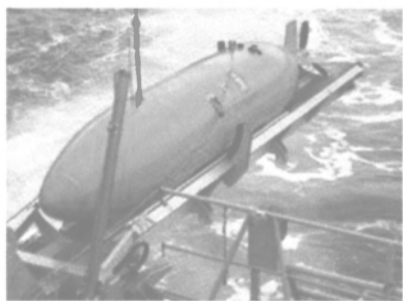


Kongsberg Maritime and Uniteam International are pursuing new clients by placing them directly on the ConCat Survey Catamaran, with the intent of delivering a first-hand experience of the innovative boat's capabilities. Demonstrations of the turnkey survey platform ConCat have now started across the U.S., U.K. and Canada.

ConCat is fitted with Kongsberg high performance navigation and surveying equipment, factory installed and calibrated. Proving that big things do come in small packages, the vessel is transportable in an ISO 40 ft. container, making it mobile and flexible. ConCat is flexible in another manner, as it can be designed to suit a customer's requirement, taking into account required survey performance and logistical considerations. Oslo based Uniteam International, is an experienced manufacturer and supplier of turn-key mobile systems for military and commercial customers world-wide. Increased demand for mobility has positioned the Uniteam range of special purpose vessels, shelters and complete systems in focus. Freddy Pøhner at Kongsberg Maritime said, "In addition to displaying the integrated ConCat vessel itself, we are looking forward to demonstrating Kongsberg Maritime's new EM3002 Multibeam Echosounder and the EA400 Survey System package, alongside Uniteam who will be host to a marketing offensive for its entire product range."

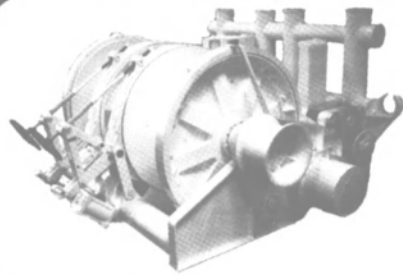
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Hugin 1000 AUV Successfully Tested



The Royal Norwegian Navy has successfully tested the first HUGIN 1000 Autonomous Underwater Vehicle (AUV), developed and manufactured in co-operation between the Norwegian Defence Research Establishment (FFI) and Kongsberg Maritime AS, according to the manufacturer. Delivery of the HUGIN 1000 is part of the Norwegian HUGIN Mine Reconnaissance System Program (HUGIN MRS).

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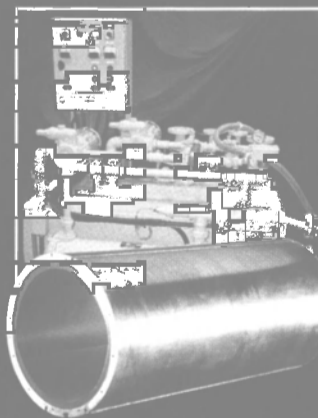
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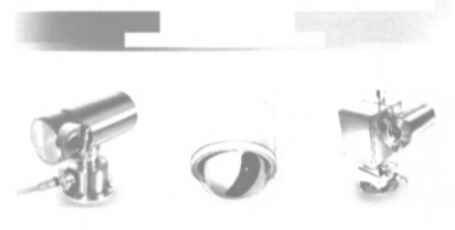
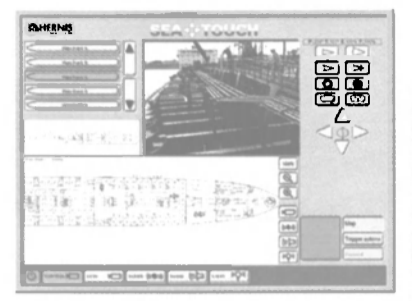
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Berge Boston Gets New Ship Security System

The first vessel certified by DnV to comply with the new International Ship and Port Facility Security (ISPS) Code by IMO, Berge Boston, has installed a new integrated Ship Security System by Norway-based HERNIS Scan Systems A/S. HERNIS is offering three alternative standardized ISPS packages: Basic, Advanced and SeaTouch. **Cato Borch.**



Company Security Officer (CSO) for the owners Bergensen, said "What SeaTouch can do, is to minimize the size of the watch keeping force onboard and is, at the same time, an excellent tool to comply with the ISPS Code, being implemented on 1 July 2004."

The Basic package consists of up to eight fixed cameras, a monitor and a switch; the Advanced system can have up to 16 remotely pan and tilt controllable cameras; and the SeaTouch System - run with the a newly developed intelligent software - is able to simultaneously handle inputs and alarms from multiple sensors, including CCTV, Hull perimeter detectors, thermal cameras for day and night vision, acoustic sensors, intrusion detectors, as well as a short range radar system. A multifunctional redundant supervision of the vessel and its surrounding waters results in full control of the vessel and can, at the same time, act as an early warning system from possible piracy at sea or at anchor.

The previous need for manual watch-keeping of the crew, relying on a single source for early warnings or installing multiple types of security equipment, is now replaced by the single integrated SeaTouch system. SeaTouch allows for an effective supervision of a large number of inputs from independent detection sources in one single control unit.

The user-friendly Man-Machine-Interface (MMI) consists of just one touch-sensible flat screen, administrating inputs from the entire security system. The graphical interface, including a GA drawing of each deck, immediately and clearly identifies the location of a breached alarm. It visually verifies the alarm condition using video images from the area in question.

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Kongsberg Maritime: United, Diverse

Kongsberg Maritime can provide complete integrated systems and solutions across the board. The systems available range from hydroacoustic survey solutions and subsea autonomous vehicles and transponders, through DP, Automation, Navigation and Simulation. The company has enjoyed recent success, and is energized for 2004 and beyond via the amalgamation of Kongsberg Simrad, Kongsberg Maritime Ship Systems (KMSS) and The Marine IT Company (MARITCO); all separate Kongsberg companies until the official merger date of January 1, 2004. Kongsberg Maritime is now the home to the hydroacoustic and DP expertise that made Kongsberg Simrad a leader in the offshore market. The ship electronics capabilities of KMSS and the sophisticated software coming out of MARITCO complete the full picture to offer the marine industry a portfolio for most applications.

"Kongsberg's marine companies have always been major players in their respective fields but bringing them closer together under the Kongsberg Maritime banner means that the experience and expertise throughout the organization can be shared and utilized in a much more efficient manner," said **Torfin Kildal**, President, Kongsberg Maritime. "The companies still provide

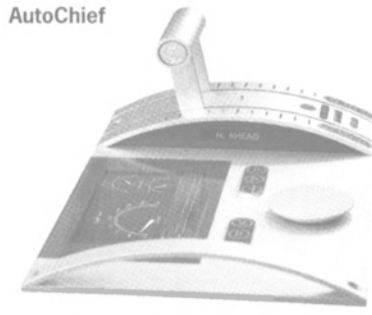


solutions within specific remits but as Kongsberg Maritime. As a united force we can provide the marine and offshore sectors with solutions for almost every conceivable electronics application on a vessel, platform or under the sea. We like to call it the full picture."

Kongsberg Seatex stays a separate division of the Kongsberg Maritime group, but its products in the position reference sectors including its AIS infrastructure business will be marketed under the Kongsberg Maritime banner.

Kongsberg Maritime offers a broad range of products and solutions, including DP, Automation and Software.

The AutoChief C20 propulsion control system, first announced at Nor-Shipping 2003, has received a good deal of attention and, more importantly, early orders. AutoChief embodies a striking minimalist design, but the unit offers both form and function. By reducing the amount of buttons and controls on the panel itself,



operation of the propulsion control system has been simplified, leaving crewmembers to concentrate on more complex actions. AutoChief C20 is actually the fifth generation AutoChief, with the first AutoChief appearing in 1967. So Kongsberg Maritime certainly has the technology to back up the grand design, but this new interface has taken it in an entirely new direction. When quizzed about plans for the design of Kongsberg Maritime's other bridge

equipment, **Ole Gunnar Hvam**, VP Navigation and Automation said, "We will follow the AutoChief closely and listen to feedback from the users before we commit to the direction of the design of our other bridge equipment." The design is proving popular already though, with the Norwegian Design Council recently awarding the AutoChief C20 a sought after design award.

Newbuild and Retrofit

Kongsberg also has a busy refit department. "It's not just about providing Kongsberg's high quality systems, it's about providing integrated solutions in a timely fashion with the least disruption to the vessels operation," said **Roy J. Larsen**, Marketing Manager, Refit

(Continued on page 59)

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Oil Spill Response & Recovery

This directory is the result of an e-mail survey conducted in March 2004. Please send any additions, deletions or corrections to mren@marinelink.com. Publisher is not responsible for errors or omissions.

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email: info@alphaboats.com
Descr: Trash/Debris Skimmer Boats, Aquatic Harvesters, Multi-Purpose HydroMate, Dredges, Cranes, Transport, Crane, and Work Boats along with Tilt-Deck Trailers and Shore Conveyors.

Applied Science Associates (ASA)

email: asa@appsci.com
Descr: ASA develops and uses computer modeling tools to address some of the greatest challenges regarding oil and chemical spills, drill cuttings, produced water and crisis management.

Aqua-Guard Spill Response Inc.

email: rickc@aquaguard.com
Descr: RBS Multi Purpose Oil Skimmers, Containment Booms, Storage Reels, Offloading Pump Systems, Dispersant Spray Systems, Floating Storage Tanks, Beach Vacuum Units

Argo Environmental Engineering Ltd.

email: jmiles@argoengineering.com
Descr: Beach Cleaning, Water Cleaning, VOC recovery, flare ignition, flare recovery

Avimar Logistic, Aviation, Marine Ltd.

email: avimar-tr@usa.net
Descr: Oil Spill Barriers, Fire Barriers, Oil Booms, Oil Skimmers, Fire Booms, Marine Equipments,

BMT Cordah Limited

email: lorraine.simpson@bmtcordah.com
Products: Environmental Consultancy, Modelling and Oil/Chemical Spill Response

Brown Marine Service, Inc

email: tbrown01@brownmarine.com
Descr: Tugboat, crane and deck barge services to the North Gulf Coast of the US. Based in Pensacola, Florida, we offer many services that can assist with

Spill cleanup and containment.
Products: Oil eating microbes, booms, floats, deck and crane barges, cleanup supplies.

CDI-Marine (SDD)

email: bla@cdicorp.com
Descr: Designers of Hovercraft & high-speed craft
Products: Hovercraft for support in Oil-Spill recovery

Coos Bay Response Cooperative

email: webmaster@portofcoosbay.com
Descr: Port of Coos Bay Spill Response Cooperative

Delaware River Tow LLC

email: delrivertow.com
Descr: Towing, Marine Salvage, Oil Spill Response

Desmi Inc

email: stewart@ro-cleandesmi.com
Descr: DESMI manufactures a wide range of spill equipment including the DESMI offloading pumps and skimmers

Hudson Marine Management Services Inc.

email: ole.schroder@hmms-usa.com
Descr: Consultancy engaged in response management for marine emergencies such as oil spills, environmental damage, groundings and collisions.

InterOcean Systems, Inc.

email: sales@interoceansystems.com
Descr: Slick Sleuth Oil Spill Monitor & Alarm System. Oil Spill Sampling Buoy (air deployable)

Kvaerner Masa-Yards Inc.

email: mikko.niin@masa-yards.fi
Descr: Shipbuilders
Products: Oil spill recovery vessels for ice conditions

L-3 MPR Ship Analytics

email: crisis@shipanalytics.com

Descr: Ship Analytics was founded in 1972 to provide emergency management and simulation products.
Products: L-3 CRISIS - Oil Spill Management Software and various Maritime Training Simulators

Marco Seattle

email: marpo@marcoseattle.com
Descr: Oil Recovery Vessels, Oil Recovery Equipment, Pumps

Marine Electric Systems

email: gmandell@marineelectricsystems.com
Descr: Monitoring, alarm, control, bio-sorbent spill clean up
Products: Pristine Sea bio-sorbent spill cleanup materials, salinity, temperature monitors, proximity sensors.

Maryland Coast Towing Inc. TowBoat/U.S.

email: greghall@ezy.net
Descr: Towing, diving, salvage
Products: Hazmat, spill containment

McNovick Inc

email: mcnovick@csi.com
Descr: Distributor Exhaust Lubrication and Filtration Products
Products: Oil Absorbent Booms, Mats, Socks, Pads. Serving Heavy Industry Since 1993

North American CLS, Inc.

email: dpotts@nacls.com
Descr: Satellite telemetry and tracking solutions
Products: Oil tracking buoys, vessel monitoring and anti-piracy equipment / service

OHMSETT-National Oil Spill Response Test Facility

email: bschmidt@ohmsettnj.com
Products: Testing of: *Booms *Skimmers *In-Situ Burns *Oil in Ice *Dispersants *Remote Sensing Equipment *Wave Studies *Emulsion Analysis

*Viscous Oil Pumping Capabilities

Oil Pollution Environmental Control Ltd

email: james.ilsley@opec.co.uk
Descr: Oil pollution control products & equipment
Products: Absorbents, spill kits, Mop skimmers for docks, harbours and open sea, Permanent & inflatable booms, shoreline & open sea, Oil storage tanks.

PCCI, Inc.

email: all@pccii.com
Products: Response planning and training, and salvage engineering for the recovery of spilled or submerged oil.

Potomac Marine Inc.

email: potomactowing@comcast.net
Descr: Towing and Salvage, Oil Spill First Responder
Products: Towing Salvage Services

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email: mvelluto@ribcraftusa.com
Products: Rigid Inflatable Boats ranging in size from 15' to 26'

Sarva Bio Remed, LLC

email: sales@sarvabioremed.com
Descr: Manufacturer and R & D
Products: SpillRemed (Marine); SpillRemed (FW); BilgeRemed

Sea Spill Western Long Island Sound

email: Seatow@harbor-marine.com
Products: Oil spill recovery

SEACOR Environmental Products

email: products@seacor-env.com
Descr: Oil Spill Containment and Cleanup Equipment Manufacturers, Suppliers and Consultants
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email: host@tbs-adjusting.com
Descr: maritime and oil pollution claims handling

Titan Maritime, LLC

email: titan@titansalvage.com
Descr: Salvage/Wreck Removal
Products: Specialized oil removal equipment

TowBoat One Inc.

email: towboatonechris@bellsouth.net
Descr: Commercial Towing/ Salvage / Oil Response
Products: First responder, towing/salvage labor and materials available 24 /7/365

USFilter

email: robinsbd@usfilter.com
Descr: Recycling of oils, fuels, water, antifreeze
Products: Recovered 4 oil, gasoline, antifreeze

VT Halmatic Ltd

email: enquiries@halmatic.com
Descr: Boat Builders
Products: Oil spill recovery & response vessels

Washington State Dept. of Ecology

email: djen461@ecy.wa.gov
Descr: State governmental agency
Products: Spill Prevention, Preparedness and Response

William E. Munson Company

email: billmunson@seanet.com
Descr: Aluminum Boat Builder
Products: Packman & Packcat Landing Craft

Workskiff, Inc.

email: info@workskiff.com
Products: 16 to 27ft Spill Response Boats

(Continued from page 57)

Systems, Kongsberg Maritime. This awareness of the market has been demonstrated with the completion of several refit projects already this year, not least a project involving 14 Royal Norwegian Navy Hauk Class MTBs. The initial refit contract was for the supply and installation of Kongsberg Maritime's DC 2000 alarm and engine

control system. As the project developed, Kongsberg Maritime continued to research new technology in parallel and the final specification on all 14 MTBs has become the DataChief C20 alarm, engine control and manoeuvring system. The DataChief C20 is one of Kongsberg Maritime's most requested systems for retrofit. Kongsberg Maritime Sweden AB retrofitted a

DataChief C20 system with WatchCall, Deadman and Power Management System (PMS), onboard the Stena Germanica. It also completed a full automation systems refit onboard the 20,000 ton passenger/car ferry the M/S Jupiter, which was the first vessel to install Kongsberg Maritime's DataChief C20 system some five years ago.

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Oil Tankers

The Rules are About to Change



David Tinsley, Technical Editor

A seminal approach to class following the landmark decision by three of the classification societies two years ago to develop common edicts governing oil tanker hull structures, a complete draft set of new, unified rules is to be circulated for industry comment in June 2004. Drawn up by American Bureau of Shipping, Det Norske Veritas, and Lloyds Register, the new rulebook is expected to be published next January, and to be brought to bear on all oil tankers of 150-m length and over ordered from July 1, 2005 onwards.


The rationale behind the project for a

single set of rules governing tanker scantlings was to eliminate possible competition on structural requirements and standards. The initiative grew out of the joint plan laid down by the three societies in March 2001, identifying 10 safety-related points where a unified approach would be developed and implemented. The central theme of the so-called 'ten commandments' was that classification bodies should not compete on standards, and should place more emphasis on ensuring consistency of approach, greater transparency, and improving the overall quali-

As new oil tanker regulations come on the books, owners that have steadily invested new ships and new technology will presumably have a headstart. (Photo Courtesy Stena)



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ty of the world fleet. The most technically complex element within the raft of measures was the decision to establish common basic criteria for ship design, regarding scantlings, loads and margins. As an indication of the level of commitment and to a particularly challenging task, the societies have ploughed some \$15-million since January 2002 into the project to secure harmonized tanker rule requirements.

At the outset, the focus was on the main scantlings only. However, according to LR's **Vaughan Pomeroy**, "It became evident very early in the project

that the scope had to expand to cover the entire hull structure, including the local elements, if the end result was to satisfy the declared aim of developing a common set of scantling requirements for oil tankers that would put an end to competition, real or perceived, on steel weight between classification societies." A very significant aspect of the endeavor has been to satisfy the call from the industry for greater robustness in ship design and construction, arising from concerns over issues of safety and longevity, and with the aim of reducing problems for shipowners during the service life.

(Continued on page 63)

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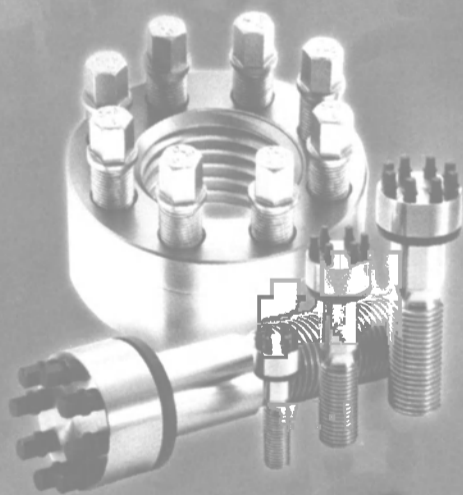
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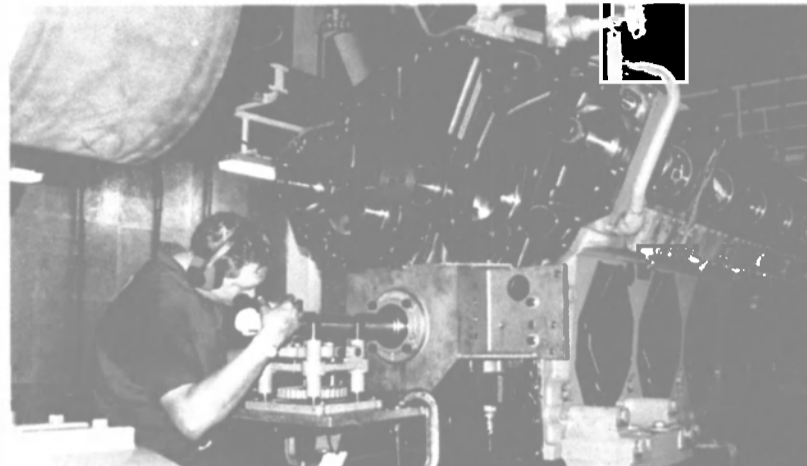
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Investment in Design

Cool Technology

While debate continues on whether or not fuel cell-based power generation can be a viable proposition for the commercial marine market, its advocates in the

engineering industry are making headway in giving practical form to the technology. The installation of a fuel cell power unit aboard a 12-m (approx. 40-

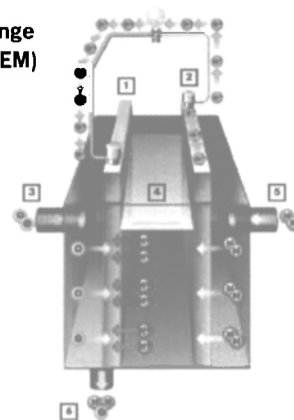
ft) yacht, fully approved and safety-certificated by Germanischer Lloyd, has provided an important, albeit modestly-sized, new waterborne platform for the concept.

Using Proton Exchange Membrane (PEM)-type fuel cell modules supplied by Ballard Power Systems of Canada,

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MTU Friedrichshafen has prepared a complete propulsion system which enables the craft, known as No. 1, to run at seven knots under fuel cell power alone. Installation of the plant was overseen by German power station operator IPF, owner of the yacht, sailed on Lake Constance, a very large body of water bordered by Germany, Austria and Switzerland.

Given the lake's role as Europe's largest public water supply reservoir, the silent operation and claimed emissions-free performance of the powering arrangements confer the requisite, exemplary ecological credentials. No 1's plant is an electric hybrid system consisting of multiple fuel cell modules, lead-gel accumulators, and electric drive motor, plus the hydrogen tanks for feeding the fuel cell, and a quantity of electronic control and monitoring equipment.

The CoolCell system, so named because of its operation at a relatively low temperature of about 65-degrees Centigrade, compared with the 650-degrees C of the HotModule type, for instance, comprises four modules with a unit electrical output of 4.8-kW. "Even if the yacht market is not yet ready for the wide-scale introduction of fuel cell technology, we want No 1 to be proof of the fact that we are in the position to successfully manufacture mobile fuel cell propulsion systems," said Dr. **Rolf A. Hanssen**, chairman of MTU



Dr. Rolf A. Hanssen, chairman of MTU

Maritime Reporter & Engineering News

(Continued from page 61)

Presenting a paper*, jointly prepared by the three societies, to The Royal Institution of Naval Architects' 'Design and Operation of Double Hull Tankers' Conference in London, Pomeroy said that the relationship with other members of the International Association of Classification Societies (IACS) had been an important consideration throughout the project. "Although conceived by ABS, DNV and LR independently from any discussions within the IACS, the existence of the project had stimulated debate," he said.

The IACS position now is that its 10 members will develop common rules for ship structures, and the international body has accepted the work by ABS, DNV and LR on tankers as a pilot project in the development of IACS common structural rules. Accordingly, the three have made the proposed new generation of rules and many of the working documents available to other societies for consideration in terms of possible adoption as common structural rules. Cooperation at the IACS level is also expressed in the joint bulker project, which aims to develop common rules for double side-skin bulk carriers across the member societies.

The major portion of the rules will cover the prescriptive requirements, and include stipulations for global longitudinal strength as well as local requirements for the hull envelope, transverse and longitudinal bulkheads and other primary support members. The prescriptive rules will cover the entire ship, including the fore and aft ends, to ensure consistency throughout the structure. "The general rule format will provide greater transparency and ease of use than in typical class rules of today," observed Mr Pomeroy.

"The new Rule requirements will provide a ship structure that will be recognized by the marine industry as being at least as robust as would have been required by the current rules of ABS, DNV, and LR, although in some aspects, the scantlings may be lighter than those required by one or more of the current rules, due to a redistribution of steel that will achieve a more efficient structure," he said. The assessment of design loads and capacity models will generally be based on a 'first principles' approach.

Minimum design fatigue life of the vessel will be 25 years, based on North Atlantic conditions. In addition,

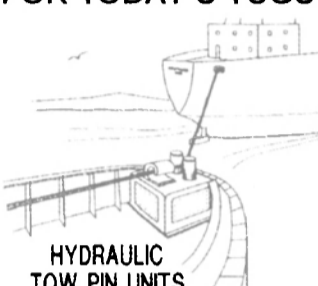
the fatigue assessment procedure in the envisioned new rules has been specifically developed to evaluate the design fatigue life of tanker structural details known from experience to be potentially vulnerable to fatigue damage. This will apply to appraisals of all longitudinal stiffener end connections in the cargo tanks and associated ballast spaces, and other critical details such as the hopper knuckle joint.

A major effort is now in progress to test and calibrate

the new rule set, using a number of demonstrator vessels of various sizes.

*'Developing the next generation of classification rules for oil tankers', by Jim Card, Senior Vice-President, Technology, ABS; Bjorn K.Haugland, Manager, Maritime Development Center, DNV; and Vaughan Pomeroy, Manager, Research & Development, LR.

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Friedrichshafen and head of the DaimlerChrysler Off-Highway business unit. MTU is part of DaimlerChrysler, which also has a 25-percent stake in Ballard. CoolCell is regarded as suitable, in principle, not only for yachts but also for power generation in many other mobile applications, including commercial and military vessels, and for rail transport.

MTU is in the vanguard of fuel cell technology in Europe, and the company's developmental work on commercial marine applications has been undertaken in cooperation with Ballard, which also supplies the modules for the Mercedes Benz A-class fuel cell automobiles. MTU's Hot Module fuel cell, a decentralised and versatile, miniature power station, is expected to be put into series production in 2006, following a growing number of field trial plants at locations in Europe, America and Asia.



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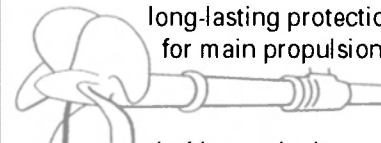
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Advanced Joint Health Service Support and Sea Basing Concept

by RDML Clinton E. Adams, MC, USN
Command Surgeon

&
CDR William J. Upham, MSC, USN
Chief, Medical Concept Development &
Experimentation

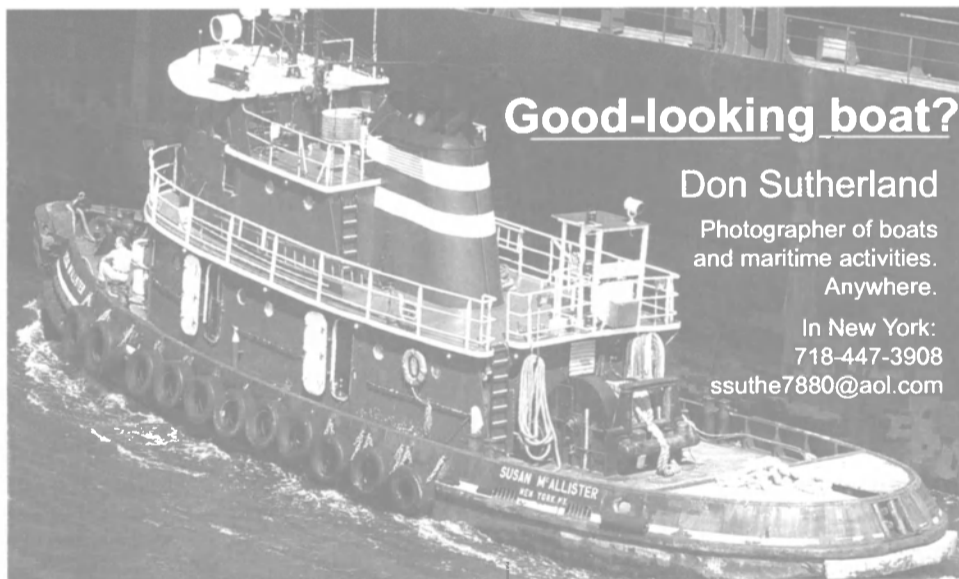
Deploying Joint Forces into a challenging and uncertain future poses many unanswered logistic questions for Joint Health Service Support, (JHSS), functions. These challenges are described in terms of the revolution in military affairs (RMA). The first revolution, system of systems, already working its way into doctrine but rapidly on its heels is the second RMA, information dominance. It is this second revolution that is forming the battlefield. It is determining the way we will fight the future battle space, including identifying who our enemies are, how they fight, and the asymmetric threats they pose. In fact, future joint military operations are likely to be conducted by relatively small and agile joint forces at far-forward locations in austere environments with limited base support. In-theater advanced Health Service Support in casualty care management requires a lighter medical platform that

is capable, flexible, technologically advanced, and mobile. As cited by President George W. Bush, during a Citadel Speech on December 11, 2001, "Our military culture must reward new thinking, innovation, and experimentation". The President further directed the Department of Defense (DoD) to transform to meet to meet an uncertain future and the unfolding challenges of the 21st Century.² In direct support of this directive, the DoD Joint Operations Concepts (JOpsC) was developed to describe how the Joint Force intends to operate within the next 15 to 20 years. As cited in the JOpsC document "to mitigate the risks and uncertainty of the future, DoD will transition from a threat-based, requirements-driven, force development process to a capabilities-based, concepts-driven force planning process. The JOpsC provides the conceptual framework to guide future joint operations and Service, combatant command and combat support defense agency concept development and experimentation".³

Joint Force Health Protection will require the same capabilities-based, con-

cepts-driven force planning process in order to sustain operations to support the war fighter on the future battlefield. Information dominance will fuel the speed of the conflict not only allowing but also requiring the more rapid medical evacuation of casualties to higher-level medical treatment for definitive care without sacrificing quality of care. At the same time enhancement of the "Golden Hour" on the battlefield requires a rapid coordinated response in support of the e medic, and use of advanced on scene casualty care management technology to stabilize and prepare an injured patient for evacuation. During Operation Iraqi Freedom, the need for rapid medevac was repeatedly demonstrated between the Battalion Aid Stations, Surgical Company, and Combat Support Hospitals because of far forward surgical stabilization not seen in previous conflict. Another example is the Urban Warrior subject to trauma of a blast injury from detonated explosives, such as victims targeted by suicide bombers or car bombs require rapid stabilization and evacuation for definitive care.

In order to reduce and or mitigate the risk of forward deployed forces, Force Health Protection should be achieved through the tailored selection and application of multi-layered active and passive measures, within the domains of air, land, sea, space, and information across the range of joint military operations. Applying the science of information dominance through the "bit stream" reduces the risk of injuries and loss of personnel.⁴ The employment of the bit stream through active and passive measures include employment of advanced sense and response technology and fully networked/jointly integrated information exchange capabilities to enhance medical situational awareness on the battlefield. As our ability to fight and understand the parameters of the second revolution in military affairs, there are readily available initiatives, which should be considered, asset visibility, protection, and responsiveness of the delivery of health services to support future joint military operations "out of harms way" can be achieved through Sea Basing.



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SWATH Demonstrator Launched for German Navy



On January 31, Abeking & Rasmussen in Lemwerder/Germany launched a 25m SWATH@A&R vessel The Explorer will be used as a demonstrator vessel for the further development of the Minehunting 2000 remote controlled minehunting system. The contract for developing this system was awarded in 2002 to a consortium consisting of Abeking & Rasmussen, Atlas Elektronik, EADS and Lurssen. The SWATH is based very closely on the proven 25m SWATH@A&R Pilot Vessels, which are in operation in the North Sea since 1999. Application trials were scheduled to be completed in March, with final outfitting of Navy and Sonar equipment in April. From May on, when the 25m SWATH@A&R vessel will be handed over to the German Armed Forces Procurement Agency (BWB) it will be the first SWATH vessel to fly the German ensign.

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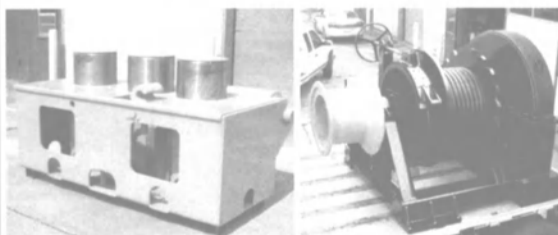
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Sea Basing is one enabler to assure the Joint Force's ability to effectively and decisively achieve its mission in providing direct access to the level of care needed. By definition, Sea Basing may comprise a pre-positioned mobile platform off a hostile coast in an anti-access area or denial type of environment. It may comprise a contingency of surface vessels that are networked to augment specific joint Health Service Support capabilities, such as enhanced resuscitative surgery, to help support and sustain the war fighters mission. As applied to the JOpsC, the networked Sea Base Concept will enable the joint forces to increase operational effectiveness by allowing dispersed forces to more effectively communicate, maneuver, share an enhanced common operating picture of the battle space, and in achieving the desired end-state. Sea Basing would

also further minimize the inherent risks to forward deployed personnel, physical assets, and information domains. In addition, Sea Basing would reduce resource and logistics requirements and footprint for reception, staging, onward movement, and integration, which suggests the need to consider new mobility means. As evident with our Nation's Emergency Medical System, most major cities are networked with major trauma centers to effectively respond and treat life-threatening injuries. This capability can similarly be applied to the Sea Basing concept the future Sea Base will provide resuscitative surgery capability augmented by Amphibious Ships (LHA/LHD) and Aircraft Carriers (CVN), as part of an enhanced networked Sea Basing concept. In addition, more definitive care may be provided with a modular medical package

in the Marine Pre-positioned Group, e.g., Hospital Ship (T-AH or the LPD-1 or MPF Future). Sea Basing mobility capabilities such as the "High Speed Surface Vessel" (HSV), super short take off/landing, heavy lift vertical take off/landing capabilities, all contribute to the JFT Commanders options for Joint Deployment, Employment, and

Sustainment (JDES), which is part of the transition process being used by U.S. Joint Forces Command as it works to re-engineer and transform the U.S. Military into a more agile and coherently joint force. Although JDES concepts are beginning to merge, there is an identified need to create an Afloat Medical JDES system that has the ability to sup-



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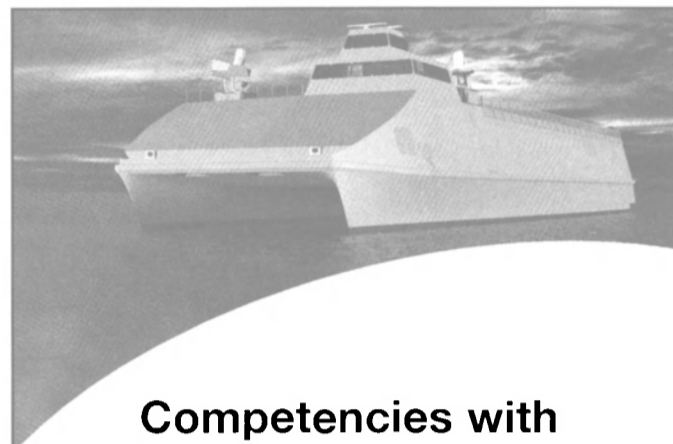


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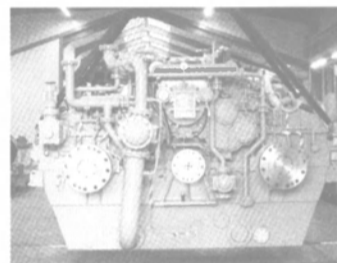
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port a variety of widely dispersed, non-contiguous, complex joint operations, simultaneously, that leverages the Joint Sea Basing concept.

Future military operations cannot continue to rely on traditional field medical facilities ashore as they have in the past, e.g., Fleet Hospitals, Surgical Companies, and Battalion Aid Stations, the support of the joint forces ashore will require other creative solutions such as medical support at sea, along with a significant change in medical evacuation capability. Casualty evacuation from the field will require additional assets to quickly MEDEVAC patients to the Sea Base. Evacuation of casualties from the shore to the Sea Base will

require either air (rotary wing aircraft such as the U.S. Marine Corps OSPREY, or shallow draft High Speed Surface Vessel) to quickly move patients out of harms way.

Sea Basing and the use of HSVs configured to provide advanced Health Service Support in the current global threat environment need further study. Fleet Forces Command in Norfolk, VA and NWDC, Naval Warfare Development Center, Newport, RI, recently conducted preliminary experiments in order to evaluate the potential capability. This new approach to centuries old problem is a potentially viable concept that needs to be studied, developed and evaluated for support of future

joint military operations. Secondly, Sea Basing may alleviate the need for a land based Intermediate Staging and Support Base (ISB), which historically has required a large logistical tail and forward footprint. In addition, Sea Basing can offer tailorable capability to provide essential care to, and preparation of patients being evacuated out of a war zone for more definitive care. This advanced concept also provides a unique opportunity to integrate new/emerging technologies with Advance Health Service Support at the operational and tactical levels of war. The end result will be the provision of a highly flexible, but robust casualty care throughout all phases of joint deployment, employment and sustainment operations, especially Military Operations Other Than War (MOOTW), such as evacuation operations following a natural disaster. Enhanced networked Sea Basing utilizing HSV's provides the

future Joint Forces and our coalition partners with the enabling capabilities to provide our Nation and its Regional Combatant Commanders unprecedented versatility and flexibility to exploit the force protection benefits inherent to areas outside the Littorals, relatively unconstrained by the political and diplomatic restrictions inherent by our uncertain global security environment. In summary, as our military transforms its capabilities to prepare for asymmetric warfare and better-equipped adversaries, we must utilize robust, mobile, and precise assets/capabilities in order to sustain our combat advantage. As the future joint war fighter undergoes this transformation, we must also rely on advanced military technologies and capabilities that will advance battlefield health care. Sea Basing that is augmented by Advanced Joint Health Service Support shows significant promise as a winning combination.



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SWATH Demonstrator Launched for German Navy

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RR Unveils Family of Naval Ships


Rolls-Royce debuted designs for a family of four fast naval ships recently, all based on a fast monohull commercial design. The 580.7 ft. (177m) Fast Naval Sea-Lift Vessel is designed to carry 2,500 tons of cargo for 3,000 nm at 40 knots. This design, debuted last summer, has been expanded to include a smaller Intra-Theatre Logistics Vessel (ITLV), a Fast Surface Combatant, and a smaller Fast Attack Craft. The ITLV is 393 ft. (120 m) long and is designed to transport troops and equipment. A Combined Diesel and Gas power arrangement allows the ship to achieve 40 knots but still have excellent loiter capability. A 5,000-ton Fast Surface Combatant, based on the same fast hullform, is capable of 40 to 60-knots. Finally, a Fast Attack Craft again provides high speeds of up to 60 knots, high agility, and a simple steel construction.

Fuel Cells for Future Ships

The Office of Naval Research (ONR) is developing propulsion systems based on fuel-cell technology for efficient generation of electrical power and greater design flexibility. To ensure a relatively quick transition to this promising technology, ONR is funding development of a method to extract hydrogen from diesel fuel. A diesel reforming system would take advantage of the relatively low cost of the fuel and the Navy's established infrastructure for buying, storing and transporting it. The Navy's DD(X) program is interested in fuel cell technology as a supplemental power source. ONR is testing a 500-kW diesel fuel reformer, or integrated fuel processor, that is compatible with a proton exchange membrane (PEM) fuel cell, at the Department of Energy Idaho National Engineering and Environmental Laboratory in Idaho Falls. Reforming diesel is especially tricky due to the sulfur present in the fuel. The integrated fuel processor heats and vaporizes the diesel, then the sulfur in it is converted into hydrogen sulfide. The hydrogen sulfide is then exposed to zinc oxide, oxidizing the sulfur into sulfur dioxide and separating it from the hydrogen.

(By Ed Walsh, Office of Naval Research Public Affairs)

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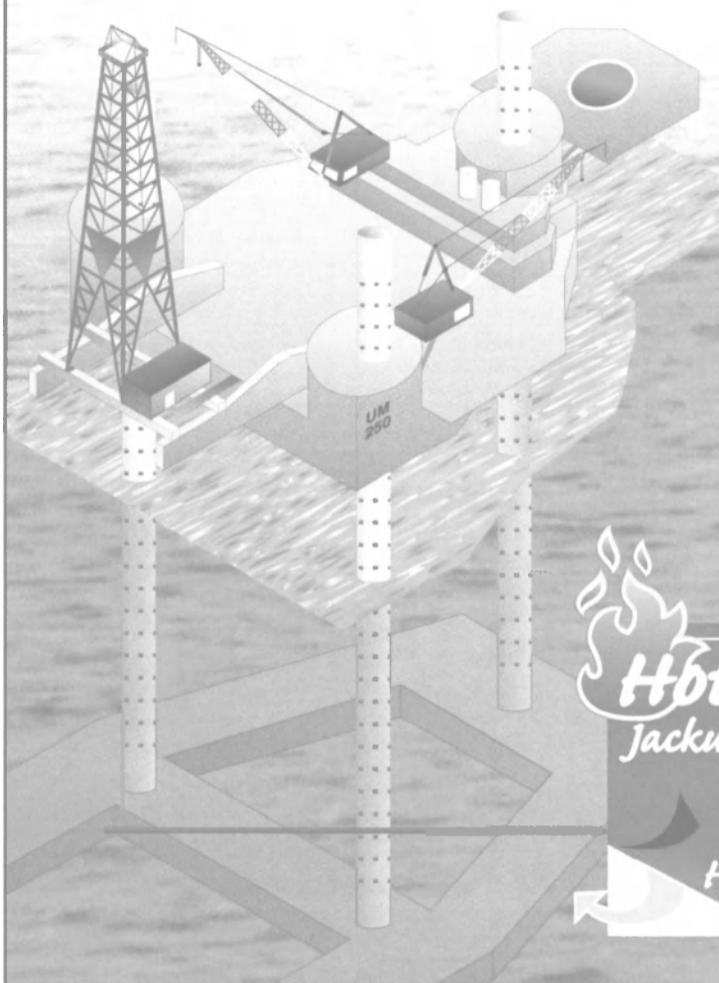
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Grove New ABS Americas President

ABS has named **Todd Grove** President of its ABS Americas Division effective May 1, 2004. He will replace **Robert E. Kramek** who, as previously announced, will assume the role of President and Chief Operating Officer of ABS at that time. Grove currently serves as Vice President Western Region, ABS Europe.



Nav System Contract for 12 Tankers

Northrop Grumman Corporation received orders to supply Sperry navigation and bridge systems for 12 new tankers to be built for Italian ship owners at shipyards in South Korea and China.

CMES Orders New Simulation Suite

The Board of Trustees for the Training Plan of the Marine Engineers Beneficial Association (MEBA), approved the procurement of a Transas bridge simulator training suite for installation at the Calhoun MEBA Engineering School (CMES). The Transas team jointly with its distributor, NavSim company, will provide a suite based upon the Navi-

Trainer Professional 4000 Navigational Simulator software from Transas.

Merger Results in New Company

Following the recent merger of Kobelco Marine Engineering and Marine Business of Eagle Industries, the company recently announced the formation of a new company: Kobelco Eagle Marine Engineering Co., Ltd. Visit www.kobelcoeagle.com after April 1, 2004.

Ultraship Completes VEBO Takeover

Netherlands-based Ultraship Towage & Salvage has acquired a majority share in VEBO BV, the holding company of Verenigde Bootlieden BV and Vebocab BV, a leading boatman/mooring service provider in the port of Terneuzen.

GL-Classified Fleet Grows 8%

The total fleet of merchant ships classed with Germanischer Lloyd (GL) increased by eight percent in 2003, to 44.1 million gt. To assist with the growing workload, the classification society boosted its workforce by almost nine percent, to 2,148 employees.

Phoenix Energy Joins Aframax Pool

PDV Marina, S.A. (PDVM), the marine transportation subsidiary of Petroleos de

Venezuela, S.A. (PDVSA), and Overseas Shipholding Group, said that Phoenix Energy Navigation SA (Phoenix) has joined the Aframax International Pool, contributing two double-hulled Aframax tankers.

Todd Wins Icebreaker Contract

Todd Pacific Shipyards won the contract to provide long-term maintenance of Polar Class icebreakers, awarded by the U.S. Coast Guard. The contract contains multiple options for the planned maintenance availabilities and docking planned maintenance availabilities for the Polar Star (WAGB-10) and Polar Sea (WAGB-11). The total value of all options, if exercised by the Coast Guard, is almost \$50 million.

Thrane & Thrane Service Net

Thrane & Thrane Capsat is saying that users of Fleet77, 55 and 33 terminals are now guaranteed world-wide service via its Fleet Service Center network. Thrane & Thrane's service network offers Capsat Fleet users, as well as distributors, yards etc. involved in sale and installation, a very flexible and efficient service concept performed by the newly established Fleet Service Centers.

Thrane & Thrane Receives SSAS Type-Approval

Thrane & Thrane's mini-C solution for Ship Security Alert System (SSAS), the Capsat Ship Security Alert (TT-3000SSA) received an extended Type Approval by Lloyd's Register EMEA as well as Inmarsat.

Alfa Laval Recognized by DOD

Alfa Laval has been recognized by the Department of Defense as the first supplier to implement its new Distribution Management and Planning System (DPMS). The Distribution Management and Planning System is a web-based distribution tool that reduces each shipment's administrative time and provides military shipping labels that can be used for inventory and tracking purposes.

Keppel Divests, Sells Ships for \$91M

Keppel Group sold its entire fleet of ten feeder vessels for a total cash consideration of \$90.9 million. The ten vessels were sold to Interorient Navigation Co. Ltd. or its nominees on a willing buyer willing seller basis, taking into account the vessels' specifications and condition, among others. Completion is expected to take place by April 30, 2004.



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Circle 101



Bryce

Keyed-lok, manufactured by Bryce Fastener Manufacturing features different, randomly selected, privately exclusive socket geometry for every purchaser. The screws feature a lock "keyway" forged into a screw head. Millions of variations are randomly available on each customer order, giving users a private or exclusive fastener.

Circle 102



Fender Care

Fender Care Marine Solutions distributes and operates the Yokohama pneumatic fender including Naval grey fenders. Manufacturer of deck mooring equipment, quayside bollards, navigation and safety buoys, marine hardware (anchors, chain), with bases in U.K. Europe, ME, Africa, SE Asia and the U.S. Full ship-to-ship transfer service world-wide.

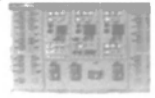
Circle 103



Intenselite

Transit, developed by Intenselite, is a flexible lighting system. Using a development of traditional fiber optic technology, the cable is energized by a very compact high efficiency laser, resulting in the generation of light along the entire length of the cable. It can be used in diverse environments, and the lack of electricity in the rope makes it intrinsically safe.

Circle 104



IPS

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Circle No. 105



RENK

The marine planetary gear units of series PLS and PWS have been specially designed for use in fast vessels, such as corvettes, patrol boats and yachts. With a capacity range from 1,500 to 10,000 kW and reduction ratios from 1.5 to 7.1, they cover all known requirements. The RENK planetary gears for fast vessels are available as a disconnectable reduction gear unit and as a reversing gear unit.

Circle 106



York

York Marine Systems is the name of the multinational division within YORK International that operates as one organization to supply naval and commercial marine air conditioning and refrigeration products and services.

Circle 107



MS Pumps

MS Pumps now offers the April 2004 availability of its latest marine/industrial pump: The LiL Squirt. Built with 316 investment cast stainless steel, it delivers corrosion resistance in the transfer of chemicals and sea and potable water used in live wells, bait tanks and general wash down.

Circle 108



Teleflex

Teleflex Marine engineers has created two new products- CH5600e and CH4400e- for boaters who want the familiar look and feel of Teleflex's venerable mechanical controls with all the benefits of state-of-the-art electronic control technology. And they've hit the target by combining these control heads with the performance of Teleflex's award-winning i6000 electronic shift and throttle system.

Circle 109



Blue Sea

Blue Sea Systems now offers backlighting as a standard feature, as well as "ON"-indicating LED lights for all circuits. They have expanded their line-up of AC, DC and AC/DC panels with digital and analog meters to 66 configurations. Among the new offerings is a line of 240V main circuit breaker panels that join the existing 120V and 230V models.

Circle 110



Verint

Verint is a set of analytic software solutions for communications interception, digital video security and surveillance, and enterprise business intelligence. Verint Video Solutions transform raw video into actionable intelligence - mission-critical analysis to enhance security, surveillance and increase enterprise profitability.

Circle 111



SIGNAL INTERNATIONAL

Signal International

Signal International is a marine and fabrication company in the Gulf of Mexico. From Mississippi to Texas, their six facilities are located to allow unrestricted access to the Gulf. S.I. has a proven track record for quality repair, new construction and modernization of offshore drilling rigs, barges and other vessels for the marine industry.

Circle 112



Ryton

Oberdorfer Pumps now offers the new Ryton Seal-Less Mag-Drive Pump as an alternative to the high cost of Alloy C. The pump design and materials selection together provide the longest life available from the Ryton Mag-Drive Pump. This Seal-Less rotary gear pump offers a wide range of chemical compatibility utilizing Ryton and Alloy C.

Circle 113



Midwest

The model 120 series Filter Minder differential pressure gauge manufactured by Mid-West Instrument is a rugged, accurate gauge designed specifically for seawater applications. The new 120 gauge may be used in a variety of applications where seawater may pose a problem, both on shore and offshore. The differential pressure is sensed by the movement of a floating piston magnet against a calibrated spring.

Circle 114



Hamilton Jets

The larger Hamilton Jet HM Series of waterjets are an extension of their range of smaller jets. As boat speeds rise above 25 knots, Hamilton Jet waterjets return higher propulsive coefficients than conventional propellers. Hamilton Jet innovation is the result of ongoing research and development utilizing its on-site hydrodynamic test rig facility and test boat program.

Circle 115



Frank Mohn

Frank Mohn supplies submerged cargo pumps to the world tanker market. The company was founded in 1938 and is located outside Bergen in Western Norway. They offer FRAMO Cargo offloading pumps for FPSO applications. A FRAMO cargo pumping system includes professional assistance during project evaluation, technical support during engineering.

Circle 116



Offshore Davits

Offshore Davits lifeboat systems incorporate launching capacity for up to 80 people, controlled gravity lowering 0-60 m/min., minimal interface connection, final paint finish, electric cabling, among other features. It is designed and manufactured to handle all types of totally enclosed lifeboats and rescue boats onboard fixed and floating facilities.

Circle 117



Westfalia

Westfalia's Separator is regarded as a leader in the field of centrifugal separation technology. Centrifugal separators have been in the company's production schedule since its formation in 1893. Today, thousands of centrifuges from Westfalia Separator take care of the reliable and economical treatment of mineral oil and oily water.

Circle 118



MSA

The Ultima XE Gas Monitor from MSA Instrument Division now features an integral XP push button switch that enables easy resetting of latching alarms. The switch has earned cUL approval for Class 1, Div 1, Groups B, C and D. The monitors provide continuous monitoring of combustible and toxic gases and oxygen deficiency, using catalytic and electrochemical technologies.

Circle 119



Marlow Ropes

Marlow Ropes Ltd. an approved BS EN ISO 9001 Company are leaders in the innovative use of new specialist fibers and rope constructions. Their extensive rope production and purpose built rigging facilities at Hailsham, combined with buoyancy equipment manufactured at their Coatbridge, Scotland factory, gives allows for total capability in the quality manufacture of complete SPM and Tandem mooring systems.

Circle 120



Leslie Controls

Leslie Controls has released their new Steam & Thermal Fluid Controls brochure. The new brochure includes photos and descriptions for every product in Leslie's extensive line, suitable for Industrial/Commercial, Power, Process and Maritime applications.

Circle 121



Wynn

Traditional wiper control systems run on an analogue basis but the digital nature of the Series 3000 Network Control system makes it a far more powerful utility. Among the many features, the Series 3000 has a LCD console mount control panel, modular systems that offer full flexibility and full wiper control including integral wash and air purge.

Circle 122



Nauticast

A specialist in AIS technologies, Austrian based Nauticast AG introduced the X-Pack DS, a mobile Class A AIS unit, which was among the first systems to receive BSH Wheelmark (EC) type approval, and holds worldwide approvals by the U.S. Coast Guard, FCC, CCS (China Classification Society) and many others.

Circle 123



Marflex

Marflex manufactures electric driven Deepwell pumps for cargo, slop, condensate and ballast water discharge on board of inland barges, Product- & Chemical tankers, FSO's & FPSO's. Capacities from 50 m³/hr up to 2000 m³/hr for 1000 DWT up to 300,000 DWT vessels Marflex was founded in 1980 and has experience on board of barges, tankers and FSO/FPSOs.

Circle 124



Thrustmaster

Thrustmaster of Texas, Inc. is a privately-owned corporation based in Houston, Texas. Thrustmaster manufactures marine propulsion equipment, including deck-mounted propulsion units, thru-hull azimuthing thrusters, retractable thrusters, tunnel thrusters, and portable DP systems.

Circle 125



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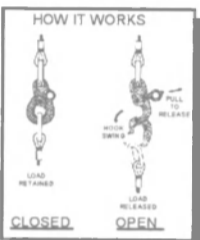


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- Follow-up leads and report progress to the VP, Engineered Products
- Assist on new projects/programs, and develop new sales and product opportunities.
- Develop and maintain a sales activity plan, including targeted opportunities; shipyards and naval architects, military commands and programs.
- Propose to the VP, Engineered Products a travel schedule for sales calls, trade shows, and professional meetings.
- Perform reviews of contract terms, customer correspondence, and negotiate issues of price, terms, and delivery as required during the life of the contract. Prepare contract information for order processing.
- Follow-up on quotations for order status. Review the quotation status.
- Prepare quotation correspondence and conduct sales for engineered and standard products.

Position requirements:

- This position requires at least 3 years outside selling experience calling on military or commercial marine accounts.
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- Experience in propulsion, heat exchange and shaft sealing technologies
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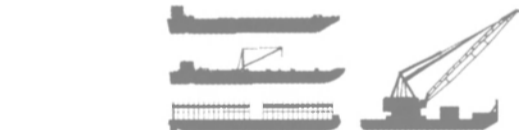
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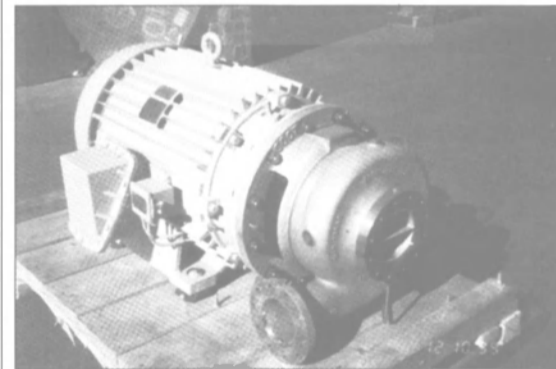
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