

May 2006

MARITIME REPORTER AND ENGINEERING NEWS

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Combat Craft Report
Boatbuilders Storm Ahead

Eye on the Navy
Navy Plans for 313-Ship Fleet

Government Update
C-TPAT & the GreenLane

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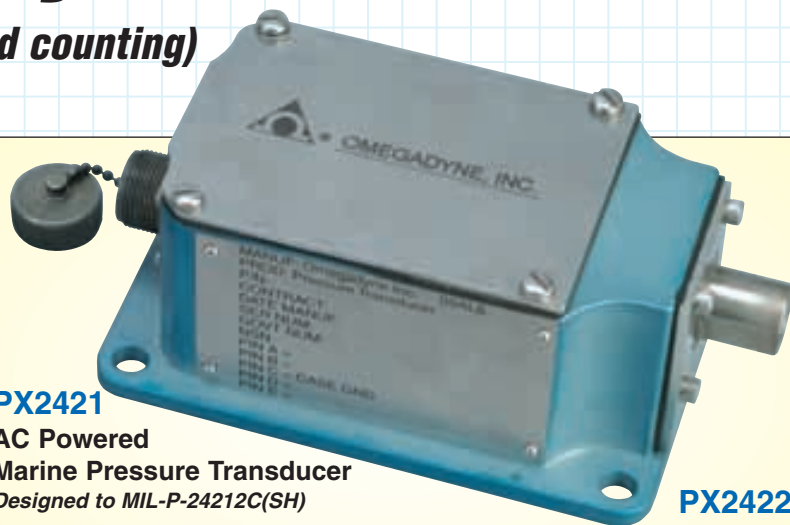
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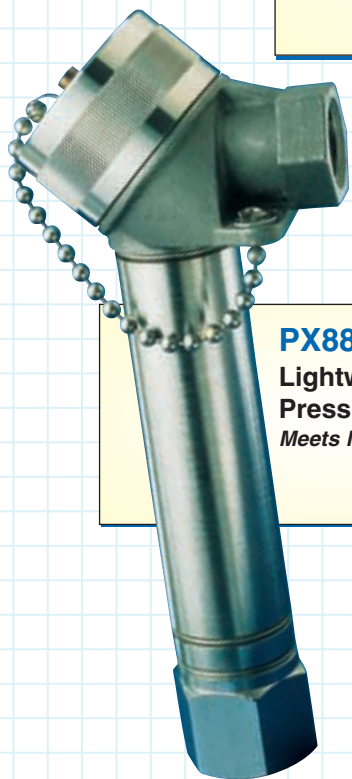
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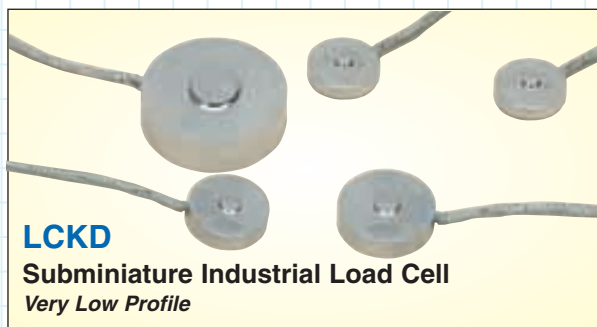
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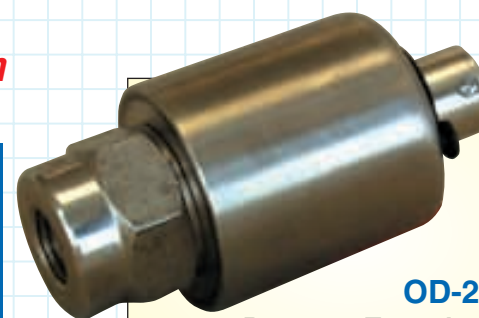
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The U.S. Navy, in a move to reverse the decade-long trend of fleet reduction, has a plan to rebuild with an eye on a 313-ship fleet. — by Edward Lundquist

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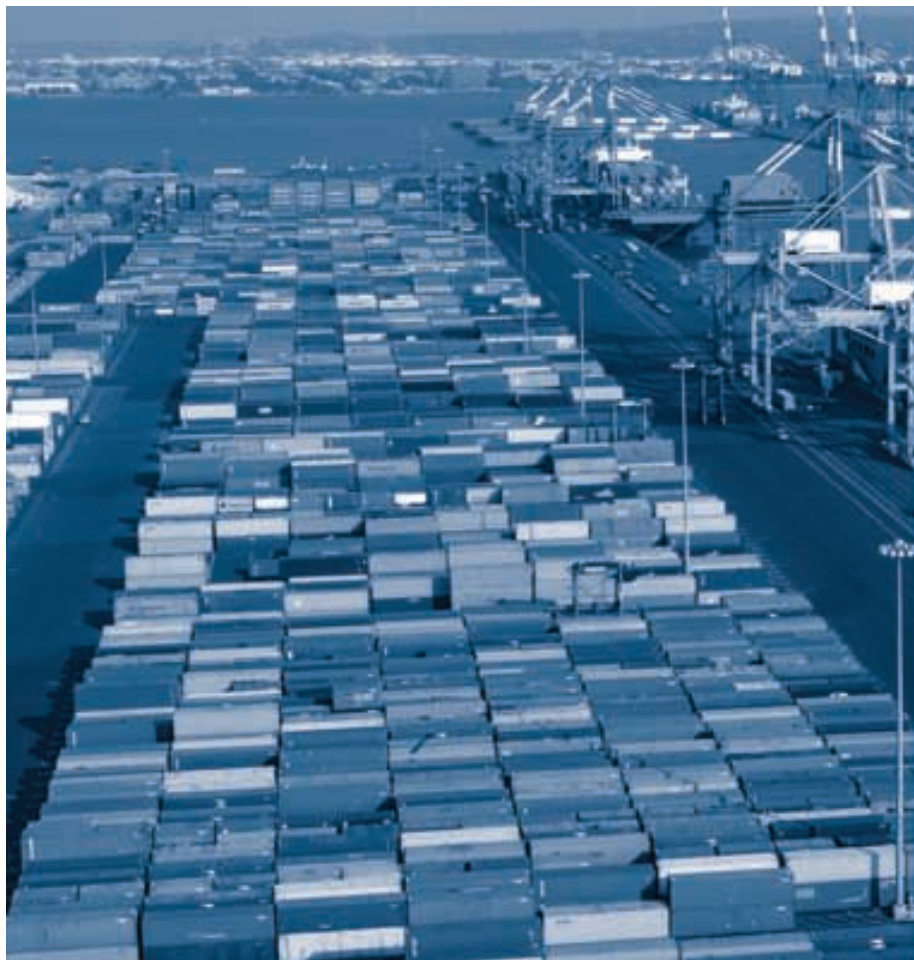
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Rollin' on the Rivers

Combat Craft have evolved significantly in recent years. Above is a Vietnam War era 17-ft. Whaler. Below is the Nighthawk 38-ft. from Brunswick Commercial & Government Products. See the Combat Craft report starting on page 34.



Tiger Woods' Lawsuit Against Shipyard Settled

Tiger Woods' rights-of-publicity lawsuit against Christensen Shipyards Ltd. has settled on undisclosed terms. Woods filed his suit against Vancouver, WA-based Christensen Shipyards in October 2004 in federal court in the Southern District of Florida. Joe Foggia, President of Christensen, stated: "We made a mistake and truly regret the company's conduct."

French Navy Loses \$3.6M Sonar

The French navy reported that it had lost a multi-million dollar sonar navigation device after its cable ripped in stormy waters. French defense minister Michele Alliot-Marie confirmed a report in the country's satirical weekly *Le Canard Enchaîné*, and said an investigation had been launched into how the device was mislaid. *Le Canard Enchaîné* reported that the captain of the *De Grasse* frigate decided, against his lieutenants' advice, to try out the 10-ton sonar in rough seas in an exercise in the south western Gulf of Gascony on March 24. The device is one of the most sophisticated in the world, capable of detecting an enemy submarines 150 km away.

Wet Laptop



This extremely rugged laptop caught our eye while at OI in London. Terralogic manufactures several models. What is pictured is the Tough Note Series 4. They can withstand being submerged, being frozen and even heated. www.terralogic.co.uk

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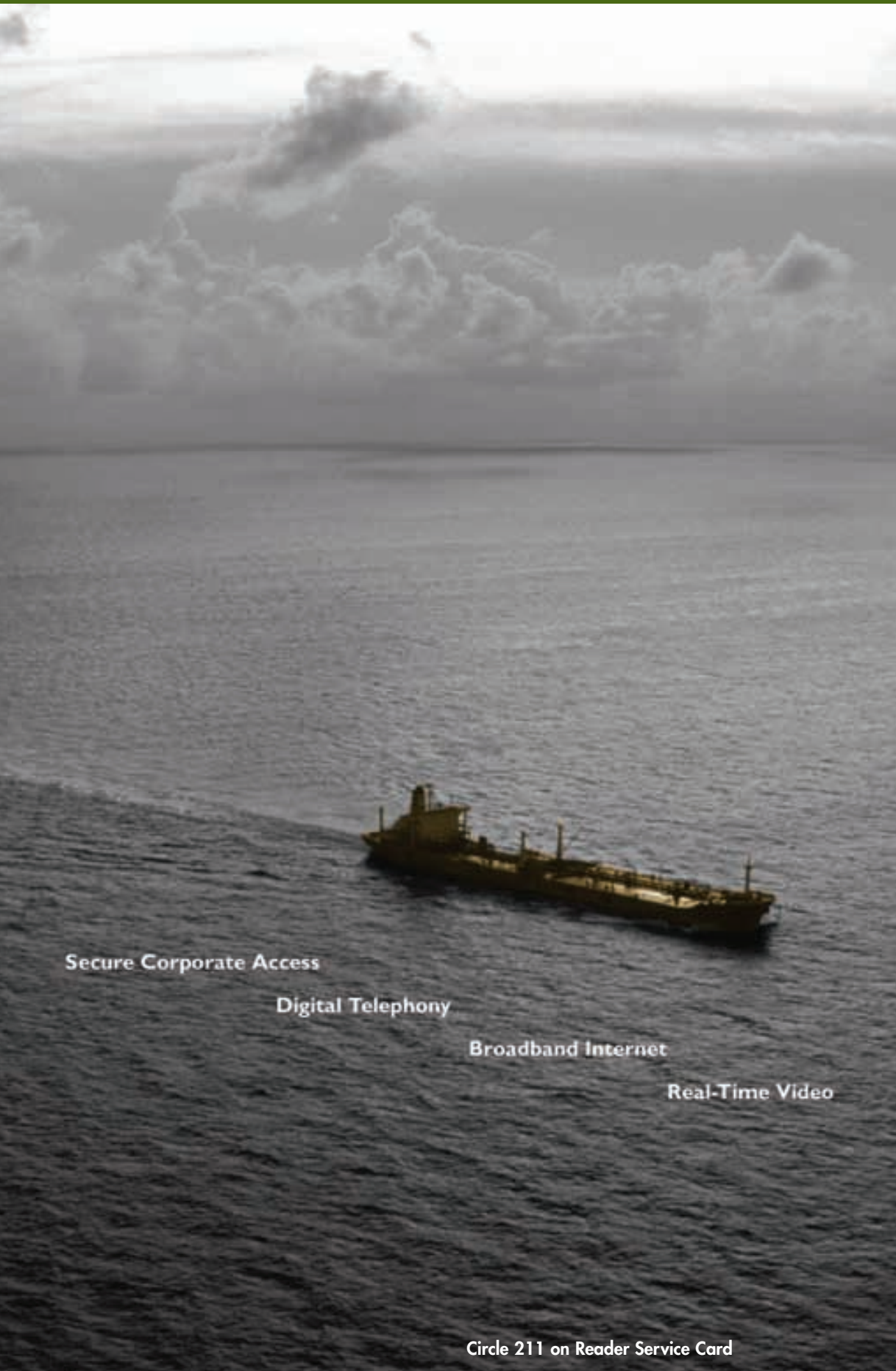
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Editor's Note

Don't get me wrong, I really love my Jeep. However with gasoline prices again soaring — currently at \$3.20 a gallon in the New York metro area — and the fact that I get at most 2.5 trips between my home on Long Island and my office in NYC, I'm starting to like it a little bit less. Consumer complaints aside, the oil and gas markets are motoring along as strong as ever, a feeling confirmed by the nearly 60,000 visitors who turned out in Houston earlier this month for the annual Offshore Technology Conference. Based on its roller coaster history, it would be foolhardy to put all eggs in the offshore basket. But most any marine company looking to expand should look no further than the offshore oil and gas market, as most companies serving the needs of these companies worldwide are reporting record business levels and full orderbooks.

Another niche gaining strength is the military/port security markets, and this month marks the first installment of the monthly "Eye on the Navy" column authored by Anteon's Edward Lundquist. Regular readers of *Maritime Reporter* probably know Mr. Lundquist's name, as he has been a regular contributor to *MR* and sister publications *MarineNews* and *Marine Technology Reporter* for several years. Each month he'll deliver a unique perspective and exclusive insights to trends in naval vessel construction.

On the eve of one of my personal favorite small exhibitions, the Multi-Agency Combat Craft Conference (MACC 2006) scheduled for June 6-8 at the Naval Amphibious Base Little Creek in Norfolk, Va., we examine emerging designs and vessel offerings from the cadre of military and commercial patrol boatbuilders, starting on page 34.



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On the Cover



On the Cover: Pictured on the cover is the Nighthawk 38-ft. from Brunswick Commercial & Government Products. See the Combat Craft report starting on page 34.

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GD to Build Sea Robots

General Dynamics Corp. (GD) won a \$8.5 million contract to build two sea robots for the U.S. Navy. The unmanned surface vehicles will be part of an anti-submarine warfare package for the Littoral Combat Ship, a new U.S. Navy vessel designed to chase down enemy

forces in coastal waters. The sea robots will carry a variety of sensors and will have the ability to operate autonomously. These sensors include sonar, listening devices and towed arrays of information collectors, the company said in a press release.

General Dynamics said its contract

covers up to four of the robots. If all options are exercised, the deal could be worth \$11.3 million.

Nichols Brothers to Build WTA Boats

The San Francisco Bay Area Water

Transit Authority is starting to build boats, issuing a Letter of Intent to Award a contract to Nichols Brothers Boat Builders to construct two new 149 passenger vessels.

Vessel construction will start this summer, and the first boats will be delivered by 2007. "We're proud to be leading the way with regional ferry service," says Charlene Haught-Johnson, chair of the Board of Directors of the Authority. "We've promised to deliver a reliable, cost-effective, convenient and environmentally friendly water transit system. And that's just what we're doing."

These boats are the first of 10 new boats that the Authority expects to build over the next 10 years.

Mary Frances Culnane, the Authority's Manager of Marine Engineering, will manage the construction contract for the Authority. "These boats have the potential to alter the course of the entire ferry industry in a technically feasible, economically practical and environmentally responsible fashion", says Culnane. "We are developing the most stringent emission standard for ferryboats anywhere in the world. The propulsion systems used will be 10 times cleaner than current vessels. In addition the boats will be built to the highest level of reliability, passenger comfort, safety, and low wake impact."

Teri Shore, Clean Vessels Campaign Director for Bluewater Network agreed adding "the new ferries will usher in the next generation of clean water transit."

Lewis and Clark Goes to Sea



Lewis and Clark is the first of an expected class of 11 T-AKE dry cargo and ammunition at-sea replenishment ships, went to sea for the first time on April 25.

General Dynamics NASSCO has contracts to build the first nine ships. With modular cargo holding and handling systems, the Lewis and Clark can resupply combat ships at sea with ammunition, food or fuel in one mission and then be quickly reconfigured to conduct

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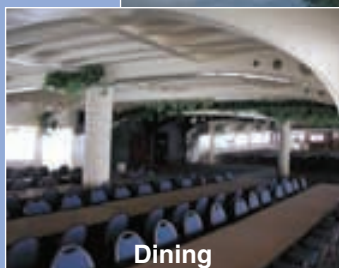
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The Kulamanu was originally built in 1946 in Wilmington, Delaware by Lancaster Iron Works. It was converted to a four-master barkentine passenger vessel under Subchapter H in 1980. She is U.S. Coast Guard certified for 1,000 passengers and a crew of up to 60 for a total of 1,060 persons. She has been primarily operating for dinner cruises every evening off Waikiki Beach with occasional special daytime charters. Her marine crew is approximately 14 persons.

The vessel is all steel-welded with a long bow sprit and has four steel masts that carry small sails, essentially for visual and aesthetic purposes. The vessel is powered by twin 1,000 hp Superior engines.

Measuring a full 282 feet long and 55 feet wide, the Kulamanu is licensed to carry 1,000 passengers. Her four masts stand 131-feet above the water, there are four decks giving her a romance and appeal which is truly unique.

WHY AN AUCTION?

The owners have elected to market the M/V Kulamanu via the accelerated selling method thereby eliminating additional carrying costs that are incurred with conventional marketing and passing these savings on the new owners.



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a humanitarian sealift of supplies on its next mission. Lewis and Clark combines international marine commercial technologies and commercial ship-design features to minimize operating costs over its projected 40-year service life.

Construction of Lewis and Clark began in September of 2003.

The ship was launched last May and since then has been installed with additional systems and equipment. It is scheduled to be delivered into the Navy's Military Sealift Command fleet this summer. When in service, the ship's name will be preceded by "USNS" for United States Naval Ship.

Panama Canal Details \$5.25B Expansion Plans

The Panama Canal Authority (ACP) announced its recommendation to build a new lane along the Panama Canal that will double capacity and allow more traffic. The project is estimated to cost \$5.25 billion and will be paid entirely by users of the Canal through a graduated toll system.

Expansion would entail the creation of a new lane of traffic along the Canal through the construction of a new set of locks. Environmentally sound water-saving basins will be built alongside the new locks, which will reuse 60 percent of the water in each transit. This technology eliminates the need for constructing dams, flooding and displacing communities along the Canal's Watershed.

This was also in keeping with ACP's adherence to sustainable development and environmental management best practices.

This project will be paid for by Canal customers through a graduated system of tolls. Potential construction is slated for completion by 2014. All creative means will be employed by the ACP to stretch capacity until the construction is completed. The ACP forecasts that the Canal will reach full capacity by the time the expanded Canal is operational.

Smiths Detection Awarded \$23m Contract

Smiths Detection was awarded a \$23 million U.S. Government contract for HCV Mobile II trucks, high-energy mobile cargo screening systems that will be deployed to several strategic ports throughout the country.

"The HCV Mobile II adds a unique, flexible layer of security in our nation's fight against terrorism," said Chérif Rizkalla, President of Smiths Detection, Americas. "This state-of-the-art mobile

detection system significantly increases the ability to secure the nation's ports by rapidly assisting in the identification of potentially lethal and illegal shipments."

The HCV Mobile II is a second generation system that meets all U.S highway

standards and can be driven from one port to another at normal freeway speeds.

A key feature of the HCV Mobile II system is its ability to generate high-resolution images of a container's contents.

The images are further enhanced through proprietary software designed to assist in the identification of contraband. Systems can also be deployed with integrated radiation detection capability.



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*Patents pending

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Disclaimer: HamiltonJet in no way suggests young children should be operating a vessel - even though they easily could with MouseBoat.



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Bollinger to Head Shipyard Association

Donald T. "Boysie" Bollinger, CEO of Bollinger Shipyards, Inc. was elected Chairman of the Shipbuilders Council of America (SCA). Bollinger replaced Herschel T. Vinyard, Jr., Vice President of Atlantic Marine Holding Company, who served the previous two years as

Chairman. Steve Welch, CEO of Todd Pacific Shipyards Corp., was elected the position of Vice-Chair. The elections occurred during the Council's annual Spring Meeting last week in Seattle, Wash. SCA is a national trade association representing the U.S. shipyard industry. SCA members build, repair and service America's fleet of commer-

cial vessels, and constitute the shipyard industrial base that maintains and repairs Navy combatant ships and other government craft, as well as builds small and mid-sized vessels for the U.S. Coast Guard, U.S. Navy and other government agencies. The Council represents 38 companies that own and operate over 100 shipyards, with facilities on



Pictured on the left, Donald T. "Boysie" Bollinger, Chief Executive Officer of Bollinger Shipyards, Inc. and right Herschel T. Vinyard, Jr., Vice President of Atlantic Marine Holding Company.

all three U.S. coasts, the Great Lakes, the inland waterways system and Hawaii. SCA also represents 26 affiliate members that provide goods and services to the shipyard industry.

MJP Waterjets Names Twin Disc Rep

To strengthen sales in North and South America as well as Israel, MJP Waterjets has signed a sales and service agreement with Twin Disc. The marine branch of Twin Disc manufactures and sells marine transmissions, surface drives, controls and propellers. The co-operation with Twin Disc is a valuable platform for the increasing growth of MJP Waterjets.

LR to Move Marine Ops to Southampton

The Lloyd's Register Group unveiled plans to move its London marine operations to a specially developed site at the University of Southampton. The move, which is planned for 2009, will see the transformation of the University's Boldrewood Campus to accommodate a building for Lloyd's Register, a training facility jointly-owned by Lloyd's Register and the University, and the University's School of Management.

"It will parallel and complement two other technology-driven initiatives we are taking - the establishment of marine R&D facilities in China and South Korea," said David Moorhouse, Chairman of Lloyd's Register. He stressed that the move would not affect the group's London link, as the corporate office and governance of the Group will remain firmly based there.

France Telecom to Sell Connexion by Boeing Maritime Service

Connexion by Boeing said that France Telecom Mobile Satellite Communications has been selected as the first sales associate to offer the Connexion by Boeing maritime high-speed connectivity service to the com-



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mercial shipping industry.

Connexion by Boeing is the first satellite-based, high-speed Internet system that allows transoceanic maritime vessels access to information they need at higher speeds. The service provides data rates up to 256 kbps from the vessel to the satellite and data rates up to 5 mbps from the satellite to the vessel. The high data rate enables multiple, simultaneous maritime users to access the Internet, corporate intranet, and e-mail, as well as obtain additional information for vessel management such as weather, routing and port information.

Connexion by Boeing's maritime service offers 2,000 minutes of high-speed data connectivity, 100 minutes of voice service, and access to the Connexion by Boeing global live television lineup for \$2,800 per month per ship, inclusive of equipment.

Hatlapa Takes Over KGW Business Unit

As of April 1, 2006 the managing partners of Hatlapa Uetersener Maschinenfabrik GmbH & Co. KG took over the former business division "ship technology and cargo handling" of KGW Schweriner Maschinenbau GmbH (KGW) and integrated this into a newly founded company KGW Marine GmbH.

Within the last almost 15 years KGW Schweriner Maschinenbau GmbH has become one of the leading suppliers of wind mill towers. To expand this successful and dynamic field of business and to further develop their own energy technology, the KGW management decided to separate the fields of business and sell the ship technology and cargo handling division.

Nigel Gee Retires

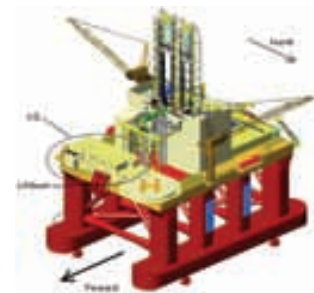
On April 30, 2006 Nigel Gee will retire from full time employment with BMT NGA. He will be succeeded by John Bonafoux who is taking over as Managing Director on May 1, 2006. Ed Dudson will be promoted from his current position of Ship Design Director to become Technical Director from the same date

Modular Cabins for Drilling Rigs

Aker Yards Piikkio signed a contract with Leirvik Module Technology for the delivery of modular cabins for living quarters of drilling platforms. Leirvik Module Technology AS is one of the leading suppliers of living quarters for offshore industry. The company decided

to use modular cabins of Aker Yards Piikkio in the construction of living quarters for two Aker H6-e drilling rigs. These sixth generation semi-submersible drilling rigs will be built by Aker Kvaerner Stord in Norway, and will be the world's largest drilling rigs.

The contract includes in all the delivery of 280 cabin units for two living quarters, as well as options for cabin deliveries for another two similar drilling rigs. The modular cabin production will start in the cabin factory in December 2006, and the cabins will be



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Crowley Christens ATB

Crowley Maritime Corp. christened the first of six new 185,000-barrel Articulated Tug-Barge (ATB) tank vessels that the company will take delivery of over the next two and half years. The vessels christened were the 9,280 hp-tug Pacific Reliance and barge 650-1.

At ceremonies held at the Mobile Convention Center on South Water Street, Constance Crowley Peabody, aunt of Tom Crowley Jr., company chairman, president and CEO, christened the Pacific Reliance, while Janet Bishop from ConocoPhillips, christened barge 650-1.

Crowley's Petroleum Services group will charter the VT Halter Marine-built ATB from Crowley's vessel construction and naval architecture subsidiary, Vessel Management Services, and operate it for ConocoPhillips under a three-year agreement. Crowley already has four, 155,000-barrel ATBs operating on the U.S. West Coast.

"We are thrilled to be expanding our ATB fleet with these new, larger, state-of-the-art vessels," said Crowley. "Our existing ATBs have performed extremely well for our petroleum customers and we're confident that this new ATB will provide ConocoPhillips with many years of safe, reliable and efficient transportation for their products."

Crowley and VT Halter Marine jointly designed the ATB tank vessel. The barge 650-1 was built at Halter's shipyard in Pascagoula, Miss., and the Pacific Reliance at its shipyard, in Moss Point, Miss.

The new ATBs feature the latest systems technology and double-hull construction for maximum safety and reliability. Not only does the unit have the capability of transporting refined products, but it can also carry heated cargoes and easy chemicals, which require special arrangements of vents, stripping systems, pump components and tank coatings above that normally required for product carriers.

All of Crowley's ATBs are built under the ABS SafeHull program for environmental protection. This program puts the vessel design through an exhaustive review to identify structural loads and strengthen the vessel structure. The 650-Class barges will be 27,000 dwt, 587 ft. long, 74 ft. in breadth and 40 ft. in depth. The fully loaded draft will be 30 ft.

There is an electric cargo pump in each of the 14 cargo tanks to assure maximum cargo integrity and segregation flexibility; two anchor windlasses and associated equipment to enable the vessel to accommodate offshore mooring operations; and a vacuum system with three retention tanks to easily handle cargo changes. There is also a dual mode inert gas system and vapor collection system for maximum safety. A layer of inert gas covers products in the tanks to make the atmosphere too lean for combustion. An enhanced mooring system features 1,000-ft. Spectra-type lines on split drums with a high-speed recovery rate of 100 feet per minute.

These six new ATBs will join a fleet of four, 155,000-barrel Crowley ATBs already in service. The Sea Reliance/550-1, Sound Reliance/550-2, Ocean Reliance /550-3 and Coastal Reliance/550-4 have each made over 100 successful voyages. The ATB fleet has moved over 65 million barrels of product with zero spills and only two Lost Time Incidents (LTI) in three and a half years, averaging approximately 20 million barrels moved a year.



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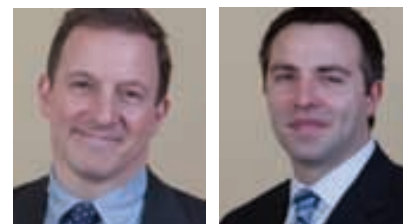
delivered to the customer in Norway during the years 2007 and 2008.

Alstom Power Conversion Becomes Converteam

The company formerly known as ALSTOM Power Conversion is now Converteam. Converteam operates in three core markets (marine and offshore, particularly with electrical propulsion systems for civil and military vessels, oil and gas and process industries) and addresses several other markets (renewables and wind, test benches, power generation). Converteam, since November 10, 2005, is a stand-alone company held by Barclays Private Equity France (BPEF), and employs over 3,300 people around the world. The new website will be www.converteam.com.

New Maritime Law Firm Formed

Frederick B. Goldsmith and E. Richard Ogradowski have formed Goldsmith & Ogradowski, LLC, based in Pittsburgh, which will focus on admiralty and maritime,



Goldsmith

Ogradowski

insurance coverage, personal injury defense, and commercial litigation on the Western Rivers and Great Lakes. Heather L. Trainer joins the firm as legal assistant. See www.golawllc.com.

PetroCom Offers Guaranteed Information Rates on new VSAT

PetroCom's new Very Small Aperture Terminal (VSAT) satellite communication system is structured around private communication networks that guarantee around-the-clock connection speeds.

"Instead of introducing an off-the-shelf solution, we carefully specified and selected the best equipment and software that allows customers unequalled tune-ability, committed information rates (CIR) and less time division multiplexing over IP," said PetroCom President Ken Wright. "Data transmits at the speed the customer expects and there is no waiting for dial tone." Recently, PetroCom signed agreements to provide VSAT voice and data services for Onyx Special Services,

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Even the best can be better



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Superior Offshore International and Tetra Applied Technologies. Last month, Helix Energy Solutions tapped PetroCom to provide VSAT services for its offshore fleet.

Multiplex VSAT communication networks with speeds from 64 to 512K are available for fixed and stabilized applications. Built around VIPERSAT Network's capacity management platform and RAD Data Communication's IP-based multiplexers, PetroCom's system guarantees a committed information rate, prioritizes voice over data to eliminate jitter and delivers superior voice quality.

Brunswick CGP to Distribute FB Design Boats

Brunswick CGP will co-manufacture and distribute FB Design's boats to extend its product line and offer larger, high-speed, performance craft up to 80 ft. Brunswick CGP will offer two FB Design lines: a line of traditional hard-sided patrol boats using the patented STAB system and ranging from 38 to 80 ft., and a line of high-performance RIBs from 33 to 55 ft. The STAB system combines advantages of RIBs with those of traditional hulls, resulting in a hybrid boat. The Nighthawk 38, a hybrid boat, was previewed at the 2006 Miami International Boat Show and will be showcased again at the Multi Agency Craft Conference (MACC) in Norfolk, VA., June 4-6, 2006

Darr Joins SeaWave&Rydex

SeaWave&Rydex said that Thomas Darr was appointed Senior Account Executive for the Americas. Located in Virginia Beach, Va., Mr. Darr is responsible for selling the entire SeaWave&Rydex product portfolio, which includes the SeaWave Integrator, its fully integrated voice, data and remote management platform, the NavSeries voice and data system with built in satellite, GPS and GSM/GPRS/EDGE, the software-only rmx2 email/data solution as well as their pre-paid crew product SMS CrewMail. Other services include IT from shore, STAR vessel tracking, Notice of Arrival/Departure (NOAD/WETREP), full color weather and the mySeaWave Web Portal.

W&O Supply Partners with Atlantic Marine

W&O Supply signed a Master Commodity Agreement with the Atlantic Marine Holding Company and its subsidiaries. The agreement allows

Atlantic Marine and its shipyards on the East Coast and the Gulf of Mexico to offer more aggressive pricing on new construction and repair products, carry a full line of inventory and enhance service arrangements for their customers.

BV Posts Strong Growth Again

Bureau Veritas announced strong growth in 2005, its tenth consecutive

year of growth. BV increased turnover to \$2 billion, up more than 16 percent over 2004.

Bernard Anne, managing director of the marine division of Bureau Veritas, said, "Focusing technology and delivering it where and when it was needed brought strong growth to both Bureau Veritas and its clients during 2005. Overall, the Bureau Veritas group grew across every industry on the planet, rein-

forcing its leading position as by far the largest and strongest body involved in ship classification and certification.

In 2005 it saw its share of the world newbuilding orderbook climb to over 10 per cent, and its classed fleet grew by fourteen per cent to over 7,100 ships, totalling over 49m gt.

That growth has continued in 2006 and as of April we class 7,188 ships totalling 50.1 m gt."

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Cat Ferry Delivered for Key West Express



Florida based operator Key West Express LLC, has taken delivery of its third Incat Crowther catamaran ferry for operation along the west coast of Florida between Fort Myers and Key West. The vessel is a 52 m high speed catamaran ferry capable of carrying 513 passengers at a speed of 41.5 knots. The main cabin contains seating for 268 passengers in a mix of lounge, bar and row seating. A centrally located bar provides full cocktail drinks service with counterside seating for 9. A kiosk, providing pre-packaged food, snacks and gifts is located aft amongst casual lounge and kiosk seating. The mid deck cabin has seating for 147 passengers primarily seated in rows. There is a small feature lounge at the rear of the cabin offering passengers a more relaxed atmosphere. An outdoor seating area for 56 passengers is fitted aft of the mid deck cabin and protected from the elements by enclosed sides. For the thrill seekers there is seating on the upper deck for 54 who will be able to experience the true force of this vessel when under way at full speed. The vessel is powered by four MTU 16V4000 M71's producing 3305 BHP each coupled to Hamilton HM811 waterjets. The vessel was built by Louisiana based ship-builder Gulf Craft Inc. This is the second high speed vessel that has been built to an Incat Crowther design in the past two years and has now helped to establish a strong bond between the two organizations. Gulf Craft Managing Director Kevin Tibbs said "with the help of the value adding service of Incat Crowther, this is one of the finest vessels we have had the privilege of building." Gulf Craft are also in the final stages of completing a third Incat Crowther catamaran being built for service in Honduras. This vessel is expected to be launched during the northern summer. Key West Express specialize in providing a high speed ferry service between the ports of Fort Myers and Marco Island to Key West on the southern tip of the Florida Keys. The 120nm route is arguably the longest and roughest passenger only trip in the USA. The Incat Crowther design was specifically developed with a combination of higher than normal freeboard and an interceptor based MDI ride control system to provide a very comfortable ride over the three and a half hour journey. The design was also optimised around the MTU 16V4000 M71's to provide a very fuel efficient vessel. Co-owner of the vessel Joe Miller believes "the new vessel will save us over 2000 gallons of fuel per day when compared with our existing two vessel operation". The Key West Express represents the 226th high speed catamaran designed by Incat Crowther and the 20th design in the 40m to 60m range.

Name	Key West Express
Builder	Gulf Craft, Patterson, La. www.gulfcraft.com
Designer	Incat Crowther, Sydney, Australia www.incatcrowther.com
Operator	Key West Express LLC www.seakeywestexpress.com
Length, o.a.	52.27 m
Length, w.l.	44.12 m
Beam	11.58 m
Draft hull	1.60 m
Fuel capacity	49,210 l
Fresh water capacity	10,500 l
Speed	41.5 knots
Deadweight	67.4 tons
Installed power	4 x 3305 BHP
Main engines	4 x MTU 16V4000 M71
Propulsion system	Waterjets - Hamilton HM811
Passenger capacity	513
Survey	USCG Sub Chapter K Limited Coastal

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The Navy has a Shipbuilding Plan ... and are Sticking to It

By Edward Lundquist

That the U.S. Navy needs to maintain its current fleet to the most modern standards, and recapitalize it to provide the right fleet for the future, seems obvious. But the investment has been uneven over the years, victimized by competing priorities within the Navy and the other services.

Chief of Naval Operations, Adm. Mike Mullen, thinks it makes sense to the Navy and to the industry to make a serious commitment to shipbuilding. The Navy will grow from the current 289 ships to 313, with an average of \$13.4 billion per year (in FY05 dollars) invested in shipbuilding - an amount that will not be tampered with. That's about 30 percent more money than the current expenditure. The 313 ship total is not arbitrary, but the result of consid-

"The practice around town has been for far too long, to pay other bills by robbing the shipbuilding accounts. We're not going to do that anymore. We're going to fence the funds we put in there, we're going to get a handle on requirements and we're going to stabilize the whole process."

Admiral Mike Mullen, Chief of Naval Operations, to the Surface Navy Association National Symposium, Hyatt Regency, Arlington, Va., January 10, 2006

erable study.

"The analysis concluded that a fleet of about 313 ships is the force necessary to meet all of the demands, and to pace the most advanced technological challenges well into the future, with an acceptable level of risk. The Navy expects to achieve this force structure by FY 2012," Mullen testified to Congress in March.

It isn't just the number of ships, or the amount of money, that is truly significant here. True, both reflect a serious commitment. The real news is how the Navy wants to stick to the requirements and stabilize the shipbuilding workload. Critics say the Navy's plan is too opti-

mistic. Rep. Roscoe Bartlett (R-Md.), chairman of the House Armed Services Committee Projection forces subcommittee, speaking at a Center for Strategic and Budgetary Assessments (CSBA) briefing at the U.S. Capitol on

March 30, said that Navy shipbuilding calls for "far more platforms than we will be able to procure."

Later that day, at a hearing, Bartlett said "the money is not there unless we [in Congress] raise the top line," refer-

ring to the Navy's shipbuilding budget.

Secretary of the Navy Donald C. Winter has testified to Congress earlier this year that "The FY 2007 budget for shipbuilding ensures that tomorrow's fleet will remain the world's preeminent.

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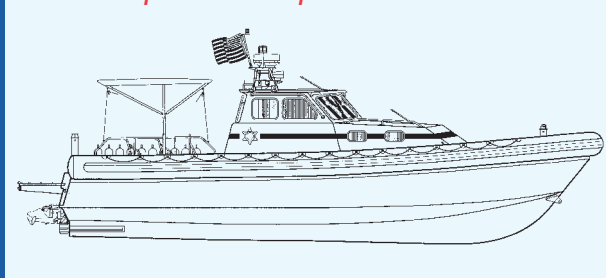


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Chief of Naval Operations (CNO) Adm. Mike Mullen speaks to members of the Brigade of Midshipmen during the Forrestal Lecture Series at the U.S. Naval Academy. The CNO talked about service, change and leadership to help enhance the education, awareness and appreciation for the social, political and cultural dimensions of the nation and the world. U.S. Navy photo by Chief Photographer's Mate Johnny Bivera (RELEASED)

In FY 2007, 14 ships will be delivered to the Navy that include: four Amphibious Transport Dock ships (LPD) - (Hurricane Katrina impact may delay two ships to FY 2008), three Dry Cargo and Ammunition ships (T-AKE), three Guided-Missile Destroyers (DDG), one Amphibious Assault ship (LHD), one Attack submarine (SSN), and one Oceanographic Survey ship (T-AGS). Also, the first of its class Littoral Combat Ship (LCS) will be delivered,

built in less than two years. This is the payoff of previous years' investments toward buying naval capabilities for the future."

The plan provides for transformational warships, like the multi-mission DD(X) destroyer and the focused-mission Littoral Combat Ship.

"The FY 2007 shipbuilding plan supports the Navy's vision of a new generation of ships with higher speed, more persistence and precision, and reduced

manpower and life-cycle costs. The Navy's challenge is to build a fleet of the future that possesses the capability and capacity to meet joint demands for naval forces across the spectrum of operations from major combat operations to humanitarian assistance and disaster relief," Winter said.

There are challenges with building fewer and more expensive ships.

These goals are attainable, say Navy officials. One of the officers in charge of executing the plan, Rear Adm. Barry McCullough, director for Surface Warfare, says the Navy must set achievable requirements, and stick to them.

The Navy Secretary doesn't want to tell the shipbuilding industry how to divide up the available work. Winter told attendees at the Navy Leagues Sea-Air-Space Expo in Washington this April that he is "looking for industry to come back to us with executable options, not just options focused on their own self-interests."

Capt. Edward Lundquist, U.S. Navy (Ret.), is a senior technical director with Anteon Corporation, Washington, DC. He supports the U.S. Navy's Surface Warfare Directorate. The view expressed in this article are his own.

This Month in the Navy

May 1, 1898 - Battle of Manila Bay, Adm Dewey defeats Spanish at Manila, Philippines

May 3, 1949 - First Navy firing of a high altitude Viking rocket at White Sands, NM

May 4, 1942 - Battle of Coral Sea, first carrier vs. carrier battle, begins

1961 - Pilot CDR Malcolm D. Ross, USNR, and medical observer LCDR Victor A. Prather, Jr., ascended in two hours to over 110,000 feet in Strato-Lab 5, a 411-ft. hydrogen filled balloon launched from from the deck of USS Antietam. This was the highest altitude attained by man in an open gondola. Tragically, Prather drowned during the recovery.

May 6, 1916 - First ship-to-shore radio telephone voice conversation from USS New Hampshire off Virginia Capes to SECNAV Josephus Daniels in Washington, DC

May 7, 1942 - Carrier aircraft sink Japanese carrier Shoho during Battle of Coral Sea

May 8, 1911 - Navy ordered its first airplane, Curtiss A-1, Birthday of Naval Aviation
1945 - VE - Day, Germany's unconditional surrender to the Allies

May 9, 1926 - LCDR Richard Byrd and Chief Machinist Mate Floyd Bennett make first flight over North Pole; both receive Congressional Medal of Honor.

May 10, 1775 - Force under Ethan Allan and Benedict Arnold cross Lake Champlain and capture British fort at Ticonderoga, New York.

1949 - First shipboard launching of LARK, guided missile by USS Norton Sound.
1960 - USS Triton (SSRN-586) completes submerged circumnavigation of world in 84 days following many of the routes taken by Magellan and cruising 46,000 miles.

May 11, 1898 - USS Marblehead cut trans-oceanic cable near Cienfuegos, Cuba, isolating Cuba from Spain.

May 13, 1908 - Pearl Harbor Navy Yard was officially established in the Territory of Hawaii.

1964 - Organization and deployment of world's first all nuclear-powered task group, USS Enterprise, USS Long Beach, and USS Bainbridge, to Sixth Fleet

May 14, 1836 - U.S. Exploring Expedition authorized to conduct exploration of Pacific Ocean and South Seas, first major scientific expedition overseas. LT Charles Wilkes USN, would lead the expedition in surveying South America, Antarctica, Far East, and North Pacific.

May 17, 1973 - First woman to hold a major Navy command, Captain Robin Lindsay Quigley assumes command of Navy Service School, San Diego, CA.

1987 - USS Stark (FFG-31) struck by Iraqi Exocet missile in Persian Gulf, killing 37 Sailors. 21 were wounded.

May 18, 1775 - Benedict Arnold captures British sloop and renames her Enterprise, first of many famous ships with that name
1798 - Appointment of Benjamin Stoddert as first Secretary of the Navy

May 19, 1912 - Navy establishes North Atlantic Ice Patrol following RMS Titanic disaster

May 20, 1943 - Establishment of Tenth Fleet in Washington, DC, under command of Adm. King to coordinate U.S. antisubmarine operations in Atlantic

May 21, 1850 - Washington Navy Yard begins work on first castings for the Dahlgren guns

1944 - During preparations for the invasion of Saipan an accidental ordnance blast on LST 353 sets off cataclysmic ammunition explosions at West Loch, Pearl Harbor, killing 163 and injuring 396. Six tank landing ships (LST-39, LST-43, LST-69, LST-179, LST-353, LST-480), three tank landing craft (LCT-961, LCT-963, LCT-983), and 17 track landing vehicles (LVTs) are destroyed in explosions and fires.

May 22, 1958 - Naval aircraft F4D-1 Sky Ray sets five world speed-to-climb records, 22-23 May

1967 - New York City reaches agreement to purchase Brooklyn Navy Yard, ending 166 years of construction and repair of naval vessels.

May 23, 1939 - USS Squalus (SS-92) sinks off Portsmouth, NH, with loss of 26 lives.

May 24, 1939 - First and only use of Vadm. Allan McCann's Rescue Chamber to rescue 33 men from sunken USS Squalus
1941 - Authorization of construction or acquisition of 550,000 tons of auxiliary shipping for Navy

May 26, 1944 - USS England sinks fifth Japanese submarine in one week

1952 - Tests demonstrate feasibility of the angled-deck concept conducted on simulated angled deck on USS Midway

May 28

1917 - First underway fueling in U.S. Navy, USS Maumee fuels 6 destroyers in North Atlantic. LCDR Chester W. Nimitz served as Maumee's executive officer and chief engineer.

1980 - 55 women become first women graduates from the U.S. Naval Academy.

(Source: www.history.navy.mil)

Saga of the USS Sigsbee DD 502

By Peter K. Hsu, Anteon Corp.

On April 14, the former USS Sigsbee (DD 502) crew, their families and friends pause to remember that day 61 years ago when Sigsbee was engaged in battle in the South Pacific during WW II. On that date in 1945, Sigsbee, was on radar picket duty off Okinawa leading a formation of five destroyers when she engaged and was hit in the stern by a Japanese kamikaze plane. Although a 16 ft. section of Sigsbee's stern was blown off by the explosion, her crew under the leadership of her captain, fought to save the ship with skillful damage control and at the same time provided effective continuous anti-aircraft fire support against the swarming kamikaze aircraft. Sigsbee was officially credited with assisting in the downing of four enemy planes as the kamikaze attacks continued.

(Figure 1) SIGSBEE's namesake, Admiral Charles D. Sigsbee, was the commanding officer of USS Maine (BB 10) in Havana, Cuba, when she exploded and sank setting off the Spanish - American War. Then Capt. Sigsbee went on to distinguish himself in that war and was cited for "extraordinary heroism" in action on June 22, 1898 with a Spanish torpedo boat off San Juan, Puerto Rico. USS Sigsbee (DD 502), a Fletcher class destroyer was built at the Federal Ship Building and Drydock Company at Kearney, NJ, and was commissioned at the Brooklyn Navy Yard in New York on January 23, 1943.

Sigsbee's commanding officer on that fateful day in 1945 was Commander Gordon Paiea Chung-Hoon a Chinese American from Honolulu, Hawaii Chung-Hoon, who had graduated from the U.S. Naval Academy with the class of 1934, was a lieutenant assigned to the USS Arizona (BB 39) when she sunk during the Japanese attack on Pearl Harbor on December 7, 1941. Commander Chung-Hoon took command of Sigsbee in May 1944 when he relieved the commissioning CO, Commander Benjamin V. Russel. During his tour, Chung-Hoon was awarded the Silver Star for his ship's work serving in advanced positions operating as close as seven miles from the Japanese mainland, participating in the Iwo Jima Campaign and in support of the Okinawa landing. Commander Chung-Hoon was awarded the Navy Cross for the "extraordinary heroism" in saving the Sigsbee, badly damaged by Kamikaze on April 14, 1945.

The following battle actions taken

from battle reports and Sigsbee's crew: (Figure 2) "On April 14, 1945, USS Sigsbee was on picket duty with Destroyer Division 104 off Okinawa. Sigsbee positioned 25 miles northeast off the main body steaming in a circular screening pattern. Combat Information Center (CIC) reported 15 bogeys in the immediate vicinity on various bearings attacking the picket formations.

At about 1351, CIC reported bogey at 240 degree distance four miles and closing. The fore and aft 5-in. gun mounts under the main battery director control bear at the rapidly closing target on the starboard bow about 025 degree true. The target, probably a Zeke, approaching at 200 knots 100 ft. off the water, distance about 3,200 yards. The forward 40mm guns mount 41 and midship mount 43 on the starboard side opened fire in local control. Commander Chung-Hoon ordered full left rudder and emergency flank. Sigsbee heeled to starboard in a high speed left turn. The midship 20mm guns mounts 21 and 23 on the starboard side opened fire as they came in line of sight with the approaching target, followed by the centerline 40mm gun mount 45 with director control. The fantail 20mm guns were also engaging fire on the target. The attacking Zeke appeared to be strafing but no tracers were visible. Holes on the starboard shell plating verified the strafing by the target. "The enemy plane approach was too rapid and the range

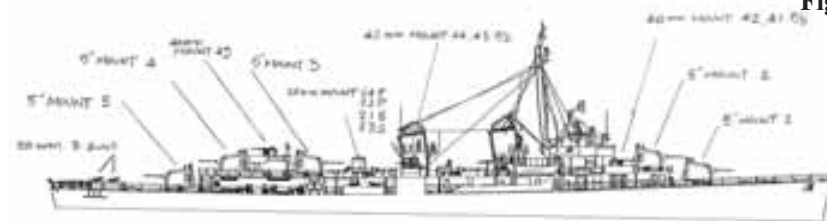


Figure 1



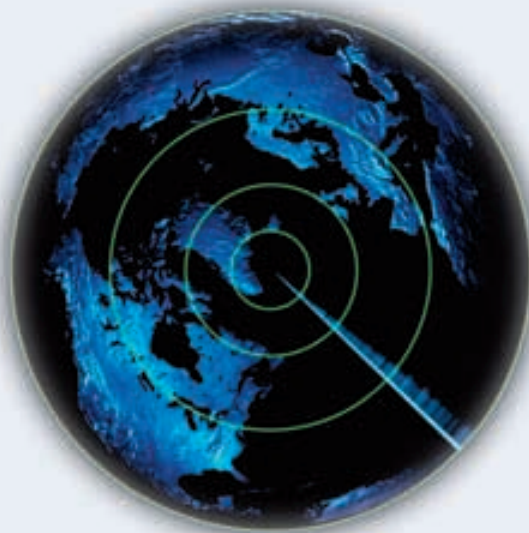
Figure 2

too short for the main 5-in. batteries to be effective." Only the 5-in. forward guns were able to fire. The following was from the Honolulu News: Commander Chung-Hoon recalled, "When this one - we think it was a Zeke - sneaked in on our starboard side. He came directly for the bridge. Our guns were hitting him all the way in, but it's hard for a destroyer to disintegrate them

completely unless you set a direct hit with a five-in. gun. The pilot must have been hit though because he came straight within 70 yards and then suddenly swerved, paralleling the ship, and hit the stern." The attacking plane apparently was taking the hits, but no visible damages were observed until it

(Continued on page 22)

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C-TPAT and the GreenLane

The Customs-Trade Partnership Against Terrorism (C-TPAT) is a voluntary program developed by the U.S. Customs and Border Protection (CBP) to provide a framework for supply chain security enhancement. At its most basic level, it envisions participants in the international supply chain (e.g., manufacturers, shippers, carriers, and importers) working collaboratively to tighten the steps and processes of international commerce so as to reduce the risk of terrorism. In exchange for the commercial sector undertaking these efforts, the CBP would provide various benefits, including a reduced number of inspections (resulting in reduced border

times) and an emphasis by CBP on self-policing (rather than agency inspections and verifications).

CBP views the program as a great success, but with room for improvement. Various members of Congress view C-TPAT as a good first step, but in need of more uniformity, more defined benefits, and systematic verification. Entities in the supply chain have a mixed perspective. Some see it as an excellent framework on which to erect a sophisticated security system and they participate whole-heartedly. Some others see it as a necessary condition of doing business in the United States and they participate reluctantly. A few see it as a means to

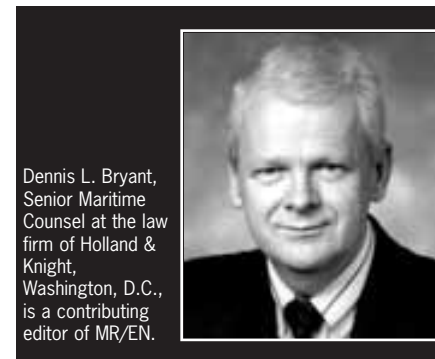
receive trade benefits at minimal cost and they participate on paper only. Most participants would concede that tangible benefits received from the government are minimal and difficult to quantify. Some security experts argue that C-TPAT has created a Trojan horse that creative terrorists could utilize to infiltrate and wreak havoc with the US trade system.

What is C-TPAT?

Commercial participants in C-TPAT must sign an agreement with CBP that commits them to undertake various actions. The participant must conduct a comprehensive self-assessment of its supply chain security utilizing as a reference the C-TPAT security guidelines. These guidelines address procedural security, physical security, personnel security, education and training, access controls, manifest procedures, and conveyance security. The participant must submit a completed supply chain profile questionnaire to CBP. The participant must develop and implement a program to enhance security throughout its supply chain in accordance with C-TPAT guidelines. Finally, the participant must communicate the C-TPAT guidelines to other businesses in its supply chain and work toward building those guidelines into its relationships with those companies. The problem from the beginning has been verification and policing. As revealed in a recent report by the Government Accountability Office (GAO), CBP devoted few resources to C-TPAT and performed few examinations to determine whether companies were actually doing what had been promised. Companies that did little or nothing were receiving the same benefits as companies that were devoting significant resources to the program.

Changes instituted March 1, 2006

Bowing to some of the criticism, the CBP instituted various changes effective March 1, 2006, with particular emphasis on sea carriers. A sea carrier wishing to join C-TPAT on or after that date must have written and verifiable procedures for screening its agents and service providers contracted to provide transportation services for the carrier. Taking a page from the aviation community's "known customer" program, the sea carrier must also have screening procedures for new customers, including indicators



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

of whether the customer appears to be a legitimate business or whether it poses a security risk. The sea carrier must periodically assess its supply chain partners to ensure that they are adhering to the C-TPAT requirements. The sea carrier must exercise prudent oversight for all cargo loaded on its vessel, pursuant to applicable law and regulation.

Emphasis on container security

Sea carriers and/or their marine terminal operators must have processes in place to comply with seal verification rules and seal anomaly reporting requirements once promulgated and mandated by the U.S. government. Importers participating in C-TPAT are required to have all containers inspected prior to stuffing. Sea carriers must visually inspect all US-bound empty containers, inside and out, at the foreign port of lading. Written procedures must stipulate how seals in the sea carrier's possession are to be controlled. Procedures should also exist for recognizing and reporting compromised seals and containers to the appropriate authorities consistent with the seal anomaly reporting requirements once promulgated and mandated by the U.S. government. The sea carrier must store containers in its custody in a secure area to prevent unauthorized access and/or manipulation. Procedures must be in place for reporting detected, unauthorized entry into containers or container storage areas to appropriate local law enforcement officials.

Transition

Sea carriers that are already enrolled in C-TPAT have been afforded ninety (90) days to meet or exceed these new requirements, which are only summarized and highlighted above. Verification examinations by CBP will be increased to ensure that C-TPAT participants are actively undertaking all required measures.



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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	13500	126" X 37' X 17'	YES	3rd QTR 06	200 TONS
Harvey Titan - DP 1	13500	135" X 36' X 16'	YES	YES	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
New Construction - Harvey War Horse II - DP 1	16500	150" X 45' X 18'	YES	YES	350 TONS
Offshore Supply Vessels	CLEAR DECK	SIZE	LIQUID MUD	DRY BULK	METHANOL
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Harvey Explorer - DP 2 Cert.	175' X 50'	240'X56'X18.5'	7,000 BBLS	9,600 CU. FT.	1,100 BBLS
New Construction	202' X 52'	280'X60'X19.5'	11,000 BBLS	12,000 CU. FT.	2,500 BBLS
Harvey Sprit - DP 2 Cert.					
New Construction	202' X 52'	280'X60'X19.5'	11,000 BBLS	12,000 CU. FT.	2,500 BBLS
Harvey TBN - DP 2 Cert.					
New Construction	202' X 52'	280'X60'X19.5'	11,000 BBLS	12,000 CU. FT.	2,500 BBLS
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Government Update

Congress still not satisfied

Influential members of Congress are well aware of the efforts of CBP to enhance C-TPAT. While supportive, they do not view these efforts as sufficient. Legislation has been introduced in both the Senate and the House of Representatives that will, if enacted, ratchet the process up even further.

In the Senate, the GreenLane Maritime Cargo Security Act (S. 2459) has been introduced by Senators Collins (R-ME) and Murray (D-WA). This bill would convert C-TPAT to a statutory program, with three levels of participation. The lowest (or tier one) level, with minimal requirements and self-certifica-

tion, would provide minimal benefits. The tier two level, requiring CBP verification, would provide defined benefits, including reduced searches, priority processing for searches when undertaken, and reduced scores in the CBP Automated Targeting System. The third tier - denominated as the GreenLane - would provide additional benefits to validated C-TPAT participants that demonstrate a sustained commitment beyond the minimum requirements. GreenLane participants would be entitled to: (1) expedited release of GreenLane cargo into destination ports within the US during all threat levels; (2) reduced or eliminated bonding requirements for

GreenLane cargo; (3) preference to GreenLane vessels; (4) a further reduction in CBP searches; (5) priority processing for searches; (6) further reduced scores in the Automated Targeting System; and (7) streamlined billing of any customs duties or fees.

In the House of Representatives, the Security and Accountability for Every Port Act or SAFE Port Act (H.R. 4954) has been introduced by Representatives Lungren (R-CA) and Harman (D-CA). This bill is largely similar to its Senate counterpart. While the House bill is not as detailed as the Senate bill with regard to the C-TPAT program, its overall goal of enhancing and regularizing the pro-

gram by directing establishment of clear standards and defined benefits is the same. The Senate and House bills are long overdue, but now appear to be on the fast-track to adoption. The missing elements, which these bills can not fill, are funding and regulatory standards for secure containers and container seals. The Department of Homeland Security and numerous others have been working to develop and implement container and container seal standards, but hurdles still remain. Funding will continue to be a problem until the appropriators recognize that the cost of prevention is far, far less than the cost of reconstruction following a terrorist incident.

(Continued from page 19)

burst into flames, blanked to the right and crashed into the stern on the starboard side killing 23 of Sigsbee's crew.

"A dull heavy explosion occurred, clouds of black and white smoke, accompanied the concussion..." The Zeke bomb must have detonated in the water when the plane crashed, blown off 16 ft. of Sigsbee's stern, deck platings peeled up forward just aft of the No. 5 5-in. gun mount. Steering control was lost. It was thanks to the ship's damage control groups that we saved her."

(Figure 3) Sigsbee lost 23 shipmates that day and 68 others were injured. Of the 23 who were lost, only four bodies

were recovered to be buried at sea the next day. Sigsbee survived that battle, was towed back to port, a new stern section was welded in place and Sigsbee was ready for more action. World War II ended before she could re-enter the battle.

With the end of the war, most of the crew returned to their civilian lives while a few remained on active duty. All were touched by their shared experiences. A few friendships were maintained, but most went their separate ways. Many years later those remaining friendships developed into an association and the Sigsbee sailors began gath-

ering for reunions. When the Secretary of the Navy, Richard Danzig, announced that a new AEGIS Guided Missile Destroyer (DDG 93) would be named Chung-Hoon to honor their former skipper and shipmate, new life was added to these aging sea warriors.

Plans to attend the Chung-Hoon christening ceremony in Pascagoula, Miss., and commissioning at Pearl Harbor developed quickly. The state of Hawaii

and the local people all made the commissioning a memorable occasion honoring one of their own local heroes of the war. The commissioning on September 18, 2004 with USS Chung-Hoon tied up to the wharf at Ford Island in the middle of Pearl Harbor gave all a chance to recognize the young sea warriors of the Chung-Hoon, their predecessors from Sigsbee and the Chung-Hoon family.

Figure 3



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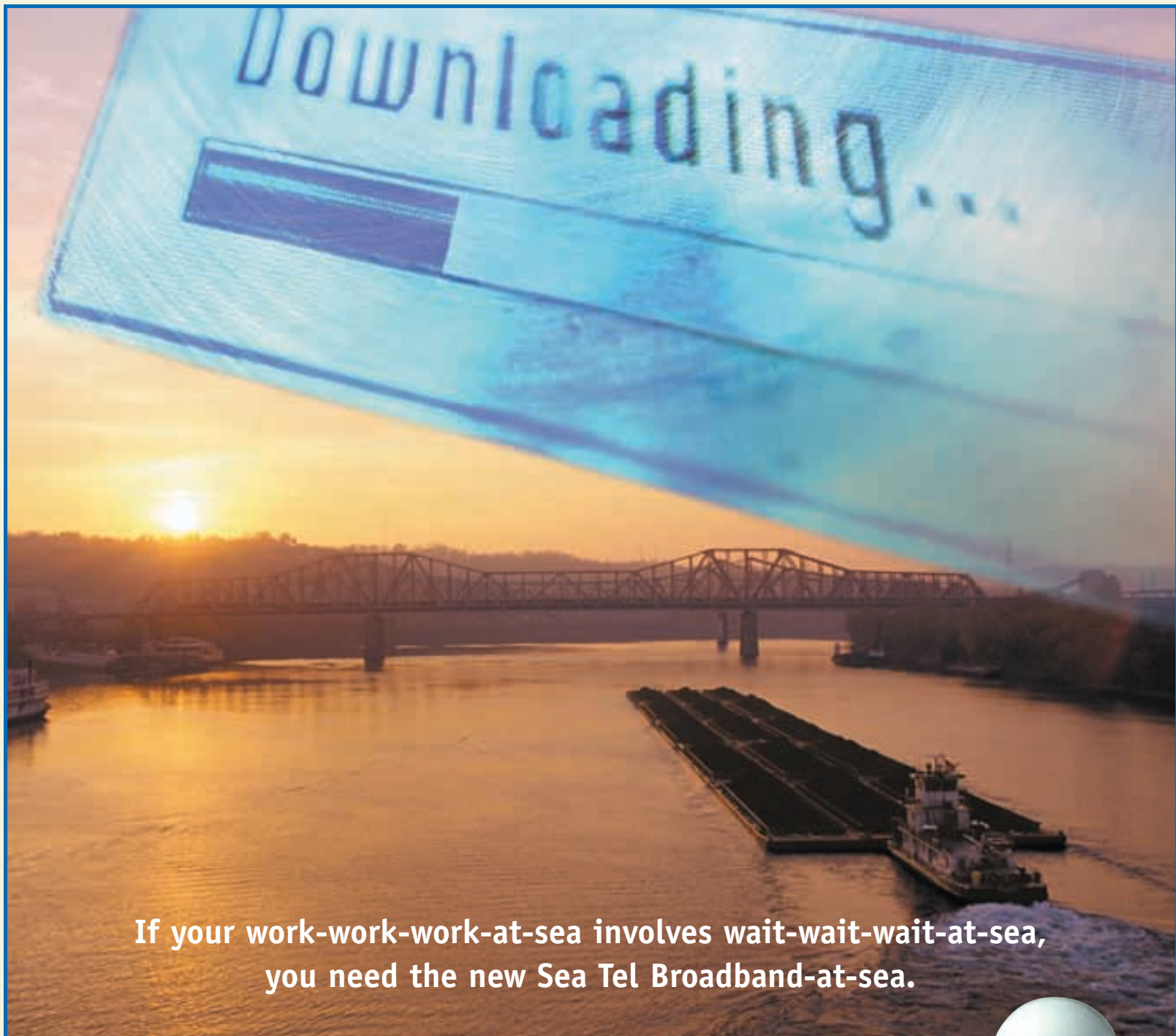
VT Shipbuilding Delivers HMS Daring Foremast

VT Shipbuilding completed its construction work on the Royal Navy's first-of-class Type 45 destroyer HMS Daring with delivery of the foremast to BAE Systems Naval Ships in Glasgow. The 89-tons steel structure was lifted onto a barge at VT's Portsmouth Shipbuilding Facility and towed more than 600 nautical miles by tug. After four days in transit, the foremast was transferred directly to HMS Daring where fitting out will be completed. The major element of the foremast is to house the Sampson multi-function radar suite, which will be linked to the ship's Principal Anti-Air Missile System (PAAMS). VT has already installed some 12,000 m of cable inside the 19 m high mast, with 800 different cables and 400 pipes included in the structure.

The HMS Daring foremast is loaded onto a barge.



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ACR: 50 Years of Helping to Save Lives

By Melissa Mendoza

David Rush was an ideas man. Never complacent or willing to accept the status quo, the founder of ACR Electronics continually pushed the technological envelope — despite having no formal engineering training — to develop a family of safety products serving prominent roles in commercial, military and consumer markets, ranging from mariners to astronauts to recreational hikers.

Though Rush supplied the initial vision, ACR has enjoyed explosive growth under the watch of Paul Frank, president for the past 12.5 years. Through an ever-evolving marketplace, Frank has led the company through more than a decade of double digit annual growth. This month ACR — which has grown into a global entity synonymous with safety — celebrates its 50th anniversary. On May 2, 2006, ACR Electronics — now owned by Cobham plc company — celebrated the company's adventurous past along with its promising future with a gala event in Fort Lauderdale.

Rush was "an entrepreneur in the classic sense" whose innovative spirit can still be found in ACR today, said Paul Hardin, vice president of sales and marketing. Rush, an owner of a photographic equipment distribution company and a member of the Air Force, was inspired by his experiences in two dif-



ACR President Paul Frank (seated) surrounded by employees who have been with the company for a minimum of 25 years.

ferent industries and came up with what would be ACR's first product. With camera flash bulbs and military flares in mind, Rush envisioned an electronic strobe light, a compact and portable

safety device that in an emergency could be used to send out distress signals and summon help.

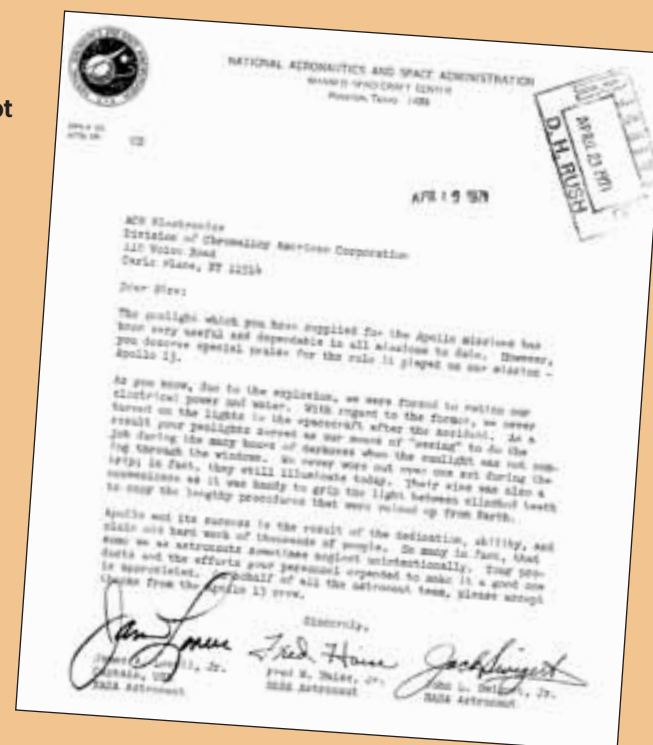
With this single idea ACR was created in 1956.

"David was always thinking to himself, 'Wouldn't this product be great?' or 'Couldn't we develop that?' The initial challenge was to take something that started out as an idea, make a prototype at a time when the technology needed did not exist, and sell the idea to someone," Hardin said. While it was ACR's team of engineers that supplied the solution and the know-how, Hardin credited Rush's enthusiasm for ACR's early success. "The company was founded through a highly entrepreneurial and creative spirit. It was very intuition based, and, fortunately for ACR, David's intuition turned out to be right for the most part."

Through the years, ACR's safety products have aided military (once ACR's primary market) and commercial users. Even crewmembers of Apollo 13 relied on ACR, using its magnesium-powered pen light in 1970 as a light source during the power failure in their space capsule. Today, Rush's vision of ACR has grown to include various industries. "ACR today is a very market-driven company," Hardin described. "We have a fairly integrated team of people who are looking at new markets for growth, but all the while remaining true to our mission statement, which is 'We build quality products knowing they are used to save lives.'" In addition to its military and marine core, ACR's current markets include the aviation and outdoor indus-



ACR's record of helping to save lives is not constrained to earthly ties. The Apollo 13 crew used an ACR magnesium-powered Penlight as a light source when power was lost during a 1970 mission to land on the moon.





Innovative thinking and engineering are ACR cornerstones from its inception. Left is an old ACR Firefly; center are some of the company's original EPIRBs; while right is a modern ECDIS display.

tries. For its customers, ACR offers products such as life vests for commercial airlines, emergency lights, strobe lights, Personal Locator Beacons (PLBs), Emergency Position Indication Radio Beacons (EPIRBs), emergency VHF radios, man-overboard lights, life jackets, robe lights and Search and Rescue Transponders (SART). Currently, ACR's most popular unit is the strobe light, such as the Firefly3, a product inspired by its namesake in nature. "David imagined the strobe light to work just the way fire flies lit up at night," Hardin shared. A 360 degree Xenon strobe light, the FireFly3 is an electronic flare that can be visible for up to two miles and is also a product that sailors or mariners can conveniently attach onto their life vests. It can be powered by two AA batteries and can operate a minimum of continuous eight hours at -1 degree Celsius.

According to Hardin, while ACR may sell more strobe lights than any other units, its 406 MHz beacons bring in the most profit for the company. One example of the company's beacons includes the 406 MHz Personal Locator Beacon, a safety device lightweight enough for diverse emergency situations. This particular unit floats on water and can be stored in extremely cold or hot conditions (-50 degrees Celsius to +70 degrees Celsius).

The last of ACR's core marine products are its EPIRBs, which can be used by any vessel on any body of water. In an emergency situation, ACR's EPIRB is designed to transmit an emergency signal that can be picked up by an aircraft more than 100 miles away and by satellites over earth.

Testimonies from those rescued using its products are "a testament to the dedication of ACR's engineers and researchers who want to develop high-quality safety and survival products that work," said Hardin. "That's why when we talk to customers who have used our

products, we listen to suggestions or comments that can make our products better."

While ACR intends to continue serving its core markets, it also seeks expansion into new markets. "We have not even begun to mature yet in our core markets," Hardin explained, "and there is still room to grow and new markets and applications in which our products can be used. We will continue to explore other industries, but don't expect us to lose sight of our core businesses." New markets include satellites, maritime security and bridge technologies. In October 2005, ACR launched the ACR ThunderBird SSAS (Ship Security Alert System), designed to allow certain ships to transmit an unde-

tected signal to shore in case of security alert. Also announced in February was ACR's line of bridge information technology designed to collect and track ship and radar data. With the celebration of the company's evolution in the last 50 years comes expectations for the company's future. ACR has been evolving lately, but this time, in the international scene. Today, "ACR is a global, cross-market company, which is different from how it originally was," explained Hardin.

This transition has been a challenge for ACR, but one that it is optimistic of overcoming. "We're seeing a lot of growth in Europe, in New Zealand, in Australia, Latin America, Asia and the Middle East and in Canada," said

Hardin. In February 2006, ACR announced the opening of ACR Europe GmbH in Vienna, Austria, which now handles international demands in Europe, Africa and parts of the Middle East. Certainly, changes are inevitable over the course of 50 years, but, in certain ways, ACR still mirrors the company that Rush founded back in 1956. Hardin said, "The job we have today, despite all the changes, is not that different from the job David Rush had 50 years ago. We still have to find new uses for the technologies and inform people out there of its potential, its strength, and how our products can reduce risks. If we're successful in our job, then these demands will fuel our growth in the future."

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Defining "Maritime Risk"

How do "Threat", "Consequence" and "Vulnerability" Interact in the Maritime Homeland Security Strategy

By Joe DiRenzo III and Chris Doane

Secretary of Homeland Security Chertoff and Commandant of the Coast Guard Admiral Collins both repeatedly express the impossible task of protecting everything from terrorist attack and the need to use a risk-based decision making processes to determine an effective and efficient employment of finite security resources. From a macro perspective, this concept is relatively simple, identify those components within a given domain at greatest risk, develop effective interventions to mitigate the risk and implement those interventions. The "devil is in the details" of agreeing upon the components of risk and how to quantify them.

If you input the terms "risk", "maritime risk" and "vulnerability" into a computer search engine you will receive more than 10 million hits...that is a lot of information to digest! In a similar manner ask any ten maritime stakeholders located in any one of the 361 maritime ports in the United States to define threat, consequence, vulnerability and risk...a similar result occurs, you will get at least ten different responses. So the first step in defining maritime risk is to develop common definitions for these pertinent terms. For the purposes of this article, the following definitions will be used:

Threat

"Threats to a target can be measured as the probability that a specific target is attacked in a specific way during a specific period. Thus, a threat might be measured as the annual probability that a city's football stadium will be subject to attack with a radiological weapon." (RAND, xvi)

Consequence

"The magnitude and type of damage resulting, given a successful terrorist attack." (Willis et al, xvi)

Vulnerability

The probability that damage occurs given a threat. Damage can be fatalities, injuries, property damage or other consequences; each with its own vulnerabil-

ity assessment." (Willis et al, xvi)

Risk

Mitchell and Decker define risk [R] as simply equaling threat [T] x vulnerability [V] x consequence [Co] or $R = T \times V \times Co$. This "equation" has been "adopted" by several federal agencies, including the Coast Guard and the Food and Drug Administration when explaining risk, threat and vulnerability.

Andrew C. Henrikson Senior Special Agent with U.S. Immigration and Customs Enforcement (ICE), assigned

to the Joint Terrorism Task Force in Seattle, WA. writing in Strategic Insights, advocates the use of a threat equation developed at the National Defense University by Dr. Lani Kass, a retired U.S. Air Force Colonel. Dr. Kass' equation uses a pseudo-mathematically defined methodology stating that the threat of an attack [T], is a product of vulnerability [V], terrorism capa-

bility [C] and intent [I] concluding that: "The character of T as a product of multiplication has important implications for strategy. If one or more of the variables in the equation increases, T increases. Similarly, if any one of the Variables V, C, or I approach 0 then the rules of multiplication dictate that T will also approach 0."

Pruitt, Deckro and Chambal with the Air Force Logistics Management Agency and Air Force Institute of Technology respectively, also promote the use of Kass' methodology adding: "Changes to these factors produce changes to the threat to America. Faced with limited resources, it is necessary to mitigate the risks associated with these factors. An examination of America's vulnerabilities and the intentions and

capabilities of terrorists can provide great insight into the growing threat of terrorism." (Pruitt, Deckro & Chambal, p.187) In the CATO Institute's Policy Analysis on response to the threat of smallpox bioterrorism, DeRugy an Adjunct Scholar, and Peña the former director of Defense Policy Studies, from the CATO Institute also look to Kass for their definition of threat.

If we combine Mitchell and Decker's risk equation, with Kass' definition of threat, we see that the risk of a terrorist attack is a product of terrorist capability, terrorist intent, target vulnerability to

If you input the terms "risk", "maritime risk" and "vulnerability" into a computer search engine you will receive more than 10 million hits

attack methods within the terrorist's capability and the potential consequences that can result from the type of terrorist attack. To evaluate the risk of terrorist action against a particular target, we must assess each of these risk factors. In regards to terrorist capability, intelligence community appears to have a pretty good handle on this and we certainly know the capabilities and

intent already demonstrated in previous attacks. For consequence, we can develop a fairly precise understanding through analysis by appropriate scientists and engineers. To access vulnerability, Special Forces personnel certainly have the requisite expertise. The greatest difficulty comes in assessing terrorist intent. We know that terrorist want to harm us creating as much damage as they can while ensuring a high probability of success. What we don't know is when they plan to turn their intent into action.

To counter this uncertainty in regards to timing of terrorist actions, intelligence services around the globe are doing everything within their capabilities to detect a pending attack. In addition, maritime security agencies utilize a

layered defense combining awareness of the maritime with various screening techniques implemented at various stages along the maritime transportation system to create multiple filters that a terrorist must navigate undetected through to reach their target. While these efforts decrease the probability of a terrorist reaching a target undetected, the reduction is not sufficient to rely upon completely. Hence the need for security systems, infrastructure and public and private security forces to reduce the vulnerability of individual targets.

After 9-11, security agencies made rapid assessments of vulnerability and consequence in order to assess risk. Since that time a more deliberate analysis of all risk factors as well as effective interventions to mitigate risk is ongoing using subject matter experts. To be successful these assessments require full, open and honest cooperation of academia, industry and security agencies. Weaknesses cannot be disguised to protect against closer regulation or more rigorous security requirements, nor can we permit political agendas or other self-serving reasons interfere with the analysis.

A true partnership between federal, state, local and industry communities built on frank communication provides us with the information we need to accurately assess risk and effectively spend our security resources, both funds and forces. It also provides us with the means to accurately convey to our political leadership the level of risk remaining and appropriately place in their hands the determination of what is acceptable vulnerabilities. For a successful maritime homeland security program it is imperative that there be an agreement amongst all stakeholders on maritime risk, effective mitigation and acceptable vulnerabilities.

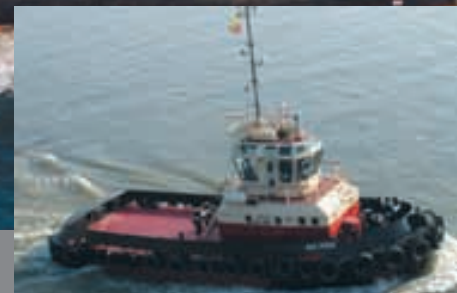
About the authors: Joe DiRenzo III and Chris Doane are both retired Coast Guard officers, who have written extensively for Maritime Reporter and Marine News. Both are Visiting Fellows at the Joint Forces Staff College in Norfolk, Va.



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Tyco Telecommunications Lays its Mark

With more than 350,000 km of installed and maintained fiber optic cable under its belt, Tyco Telecommunications turns an eye toward providing wide-bandwidth fiber optic communication pipelines for the burgeoning offshore oil and gas market. — by Greg Trauthwein

Despite centuries of exploration and work underwater, including the last 50 years in which technological capability has exponentially expanded the ability to work more efficiently in the ocean's depths, it is fair to say that the knowledge regarding 70 percent of our planet

is still in its pioneering stage.

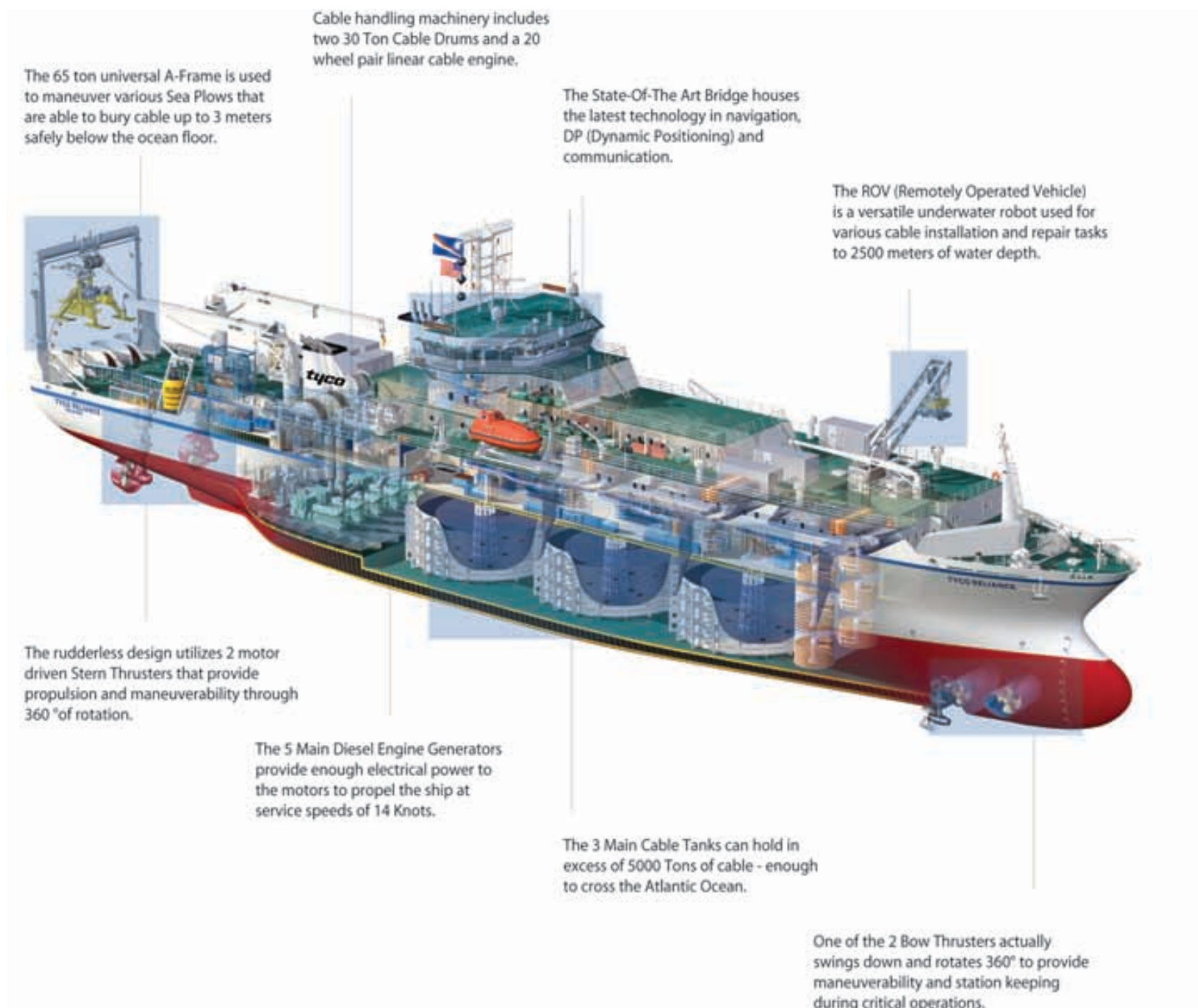
Enter Tyco Telecommunications, an undersea cable and sensor equipment provider that has deployed short and long haul global communications networks in the world's oceans for many years. Not only does Tyco Telecommunications install the fiber optic cables and ancillary systems, it is often responsible to maintain and repair them as needed. To enable the rapid recovery and repair of damaged cable, Tyco maintains a fleet of eight modern, strategically positioned ships and nine product depots around the globe.

"We've installed 350,000 km of fiber optic cable, including 2,200 amplifiers, and we've never had a product related fault that force the recovery of an amplifier," said Frank Cuccio, Vice President Marine Services for Tyco Telecommunications.

Cuccio has the responsibility for the marine engineering, construction and maintenance for everything that Tyco Telecommunications builds, and thus is involved at the earliest phase of any project, to help determine the customer needs and devise an appropriate solution. Cuccio counts the engineering

phase of the project as perhaps the most critical step of all. "The nature of the submarine business is a very demanding, turnkey and unforgiving. The engineering must be correct right from the start." Considering that many trans-oceanic cables lie more than 3.5 miles beneath the surface, the rationale for extensive front-end planning is easily understood.

First and foremost, a logical route for cable and burial depth, given seabed conditions and the nature of the shipping lane, must be set. Cuccio said that, by far, the biggest threat to a cable system





Tyco Reliance



Frank Cuccio, Vice President Marine Services for Tyco Telecommunications.

are "external threats," in the form of fishermen's nets, dredging operations, pipeline installations and ship's anchors. Depending on the surrounding traffic patterns and consistency of the seabed, the depth that a cable must be buried generally varies from 1.5 to 3 meters, and in special cases as deep as 10 meters.

"After determining the customer's requirement, Tyco Survey Engineers go

aboard a survey vessel to map the seabed along the entire cable route. Routing and Cable Engineers select the best route, most suitable cable type, and the slack required to enable the cable to lay flat on the seafloor."

Cuccio notes that each of the world's geographic regions poses its own particular considerations, for example the soft sediments offshore China in the Hong Kong region, which demand a cable to

be installed 10 meters below the seabed. "Even at 10 meters burial the cable is still vulnerable to anchors from very large ships."

In addition to installation, Tyco Telecommunications has a vibrant repair business. "We provide maintenance services to cables all over the world. If a cable is damaged, the cable repair ship is underway within 24 hours."

In depths to 2,000 ft., the company

will often deploy a Remotely Operated Vehicle (ROV) to identify the problem, cut the cable and attach a recovery line so that the cable can be brought to the surface for repair. In deeper waters, the ship deploys a grapnel to secure the cable and bring it to the surface for testing. While this technology is decidedly lower tech, it's rather effective given that the ship, using the latest in GPS and DGPS technology, knows where to find

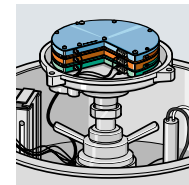
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the cable.

In fact, Cuccio considers the advent of dynamic positioning to be arguably the technology that has most dramatically enhanced his ship's ability to operate efficiently. "Dynamic Positioning, coupled with the very high accuracy of DGPS, enables us to plot a very specific route, to put the ship on station and to keep it on station in almost all weather conditions," Cuccio said. The company can repairs in up to Sea State 7, and can install in up to Sea State 8 or 9. (See Table 1 for reference). "DP enables us to make quick, efficient repairs, as once we have the cable onboard for splicing, it helps ensure that we're not dragging these cables all over the seabed."

Business in Change

Cuccio began his career in the business of subsea cable laying nearly two decades ago, starting with AT&T Submarine Systems in 1988 when fiber optic cabling was still in its infancy. Thus he has a broad perspective of the changing nature of the business, watching demand soar through the 1990s, powered by the dot.com explosion that saw Tyco Telecommunications employ more than 3,000 around the world. When the dot.com bubble burst, so too did the corresponding bubbles in many related industries, and there was a subsequent downsizing at Tyco Telecommunications to the 650 it employs today.

While painful, Cuccio notes that the company was able to retain its core of top-tier talent, and he said that today the business is in recovery mode, with the company slowly starting to increase its numbers to meet demand.

An area of growth of particular interest to the company is the burgeoning offshore market, which demands high-bandwidth communication capabilities at locations increasingly further offshore. Cuccio believes that Tyco Telecommunications is well-positioned to capitalize, as he notes it is the only U.S. company with its breadth of product, service and engineering expertise.

The offshore Oil & Gas market, particularly domestically in the Gulf of Mexico region, has recently undergone its own metamorphosis, both planned, with the expansion of operations further from shore in increasingly deep waters, and unplanned via the one-two natural disaster punch of Hurricane's Katrina and Rita late last summer.

"We look at the offshore industry as an emerging market, as we have the capability to provide a quality of service and are in a position to connect to the offshore environment with a high availability, high bandwidth communication

pipeline," said Cuccio.

The company broke into the market nearly six year ago with a submarine system installation for a Brazilian deep-water facility, and today's push further out in the Gulf of Mexico with semi-submersible, floating platforms and stationary drill ships presents a significant opportunity.

"Unplanned events (due to hurricanes) cost the Oil & Gas industry millions each year," as major hurricanes can take an offshore facility off-line for days, weeks, and in some cases, months, Cuccio said. With a robust, secure and reliable high-bandwidth fiber optic link from shore, companies can evacuate crews, control operations from the

beach, and maintain a wider operating window. Once the storm passes, the fiber optic link will allow a status assessment and a re-start in a more timely fashion. "Currently, it takes about five days to get a rig back up, the industry wants to get it down to three days," Cuccio said.

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Bourbon Orders 56 PSVs

Bourbon announced plans to expand its fleet with next-generation, innovative and high-productivity vessels to assist its oil and gas clients in the development of their deepwater and continental offshore operations.

On February 28, 2006, in the context of its Horizon 2010 plan, Bourbon announced investments of 1.45 billion euros, 85% (1.23 billion euros) of which will be devoted to the Offshore Division.

Since January 1, 2006, Bourbon has

placed the first series of orders for 56 modern offshore oil and gas supply vessels, which represents a total \$808 million (672 million euros). These 56 vessels are in addition to the 27 supply vessels already under construction at December 31, 2005.

New orders and current construction include:

- 18 OSVs for deepwater offshore operations, with deliveries and commissioning staggered from the final quarter of 2007 until the first half of 2009.
- Four PSV Ulstein P105. These four vessels are sisterships of the Bourbon Peridot, delivered in 2005. Ninety-one meters long with a deadweight of 4,900 tons, these Platform Supply Vessels (PSV) will be equipped with diesel-electric propulsion, will be classed DP2 and will be pre-equipped to receive a 100 ton deep sea crane.
- 8 GPA 670 PSVs. This order follows an initial order of 10 vessels of the same type, five of which are already in operation, giving full satisfaction to the chartering clients. With a length of 73 m and deadweight of 3,200 tons, the PSVs in this series will be equipped with diesel-electric propulsion and classed DP2.
- 5 AHTS. This series of Anchor Handling Tugs Supply vessels (AHTS), with 11,000 hp and a bollard pull of 125 tons, is identical to the series of five units, four of which were recently delivered by Keppel in Singapore (Bourbon Artemis, Bourbon Aladin, Bourbon Apsara, Bourbon Alexandre). Classed DP1 and equipped with a FiFi 1 anti-fire system, these AHTS offer optimum services for the towage, anchor handling operations of drilling rigs and tanker lifting at offshore terminals.
- One MPSV. This 85-m long Multi-Purpose Supply Vessel (MPSV) has quarters for 70 people. With diesel-electric propulsion, a DP2 system, and heave compensated 100-ton crane, this vessel is particularly adapted to sub-sea operations conducted in deepwater using robots (ROV).
- 38 modern OSVs.
- 2 MPSVs ordered from the Bharati yards in India. This order follows the order for 2 MPSVs currently under construction at the same shipyards. With a length of 60 m and accommodations for 44, these vessels are particularly adapted to maintenance work in producing oil and gas fields.
- 36 supply vessels ordered from the Dayang shipyards in China. This large order includes two series of vessels, the concepts for which come from a GPA design identical to the design for the 10 units already ordered in December 2005 by Rigdon Marine for the US Gulf of Mexico.

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All American Marine 56-ft. High Speed Patrol Cat

All American Marine (AAM) introduced a 56-ft. high-speed patrol catamaran with hydrofoil technology. The Teknicraft hull concept was designed by naval architect Nic de Waal, of New Zealand. The shape of the hull combined with the use of hydrofoils is designed to create lift and enhance the performance of the boat, while maintaining a smooth ride. The hulls are designed to be efficient and allow for high speed travel, reduced fuel consumption, and have been independently verified as creating one of the lowest levels of wake wash within their vessel class, according to the builder.

Teknicraft vessels, when equipped with water jet propulsion systems, have been recorded with a hydrophone as producing minimal underwater noise. Late last year AAM launched a 56 x 21-ft. catamaran built under contract for the National Oceanic and Atmospheric Administration (NOAA). The patrol vessel has been assigned to operate in the Florida Keys National Marine Sanctuary (FKNMS) and its Tortugas Ecological Reserve off the Southern coast of Florida. The vessel will serve as a long-range law enforcement



patrol boat in the lower Keys.

It is owned and maintained by NOAA's National Marine Sanctuary Program in the Florida Keys.

The patrol craft is powered by twin MTU 8V2000 M92 engines, each delivering 1085 hp at 2450 rpm. The propulsion package includes Hamilton Jet 403 water jets.

The vessel has a 42-knot cruise speed in mission condition and can perform at speeds in excess of 44 knots.

53-ft. Teknicraft Catamaran

Name	.....FKNMS Home Port Florida Keys
Customer	.....NOAA - FKNMS
Length, o.a.	.....56.8 ft.
Breadth, o.a.:	20.5 ft.
Draft	.....2.7 ft.
Designer	.....Teknicraft Design
Crew	.....4
Hull Plate Type	.....Aluminum 5383-H321
Hull Plate Thickness	......250" Below water line
Hull Plate Thickness	......160" Above water line
Fuel Capacity	.....1000 gallons
Number of Decks	.....2
Propulsion Type	.....Hamilton Water Jet
Main Engine	.....MTU
Generator	.....Kohler
Engine Room Ventilation	.....Delta T
Deck Paint	.....Awlgrip

Bollinger/Incat HSV-XI Joint Venture

Bollinger/Incat USA has been at the forefront of the US military's quest for transformation since July 2001 when the government awarded Bollinger/Incat USA, LLC a contract for a high speed craft for use in a multi-service program to be operated by various arms of the US Military. This vessel was named HSV-XI Joint Venture (JV). JV was operated by US Joint Forces Command and rapidly entered a test and evaluation program with an area of operation simply defined as "the world".

JV was built by Incat Australia as a commercial passenger vehicle ferry that was modified to meet the contract requirements. JV is a 96 m Wave Piercing Catamaran (WPC) capable of speeds in excess of 40 knots with a payload of approximately 700 metric tons. JV has recently undergone some additional modifications in support of Special Operations Command (SOCOM) who is now sub-leasing the vessel from the U.S. Army.

In September 2002 Bollinger/Incat USA leased a second vessel to the U.S. Army. The Theatre Support Vessel TSV-1X USAV Spearhead.

Spearhead was used as an ACTD (Advanced Concept Technology Demonstrator). Spearhead like JV was built at Incat Australia as a commercial passenger and vehicle ferry that was modified to meet US Army requirements. Spearhead was delivered in mid-November 2002 just 53 days after contract award. Spearhead is a 98 m WPC also capable of speeds in excess of 40 knots with a payload of approximately 700 metric tonnes.

Both Joint Venture and Spearhead have been deployed in support of Operation Enduring Freedom. In 2002 and 2003, JV excelled during her deployment in the Persian Gulf.

Just hours after Operation Iraqi Freedom began, JV sped into the shallow Persian Gulf waters near the southern Iraqi port of Umm Qasr, acting as an afloat forward staging base for Marine Fleet Anti-Terrorism Security Teams and Navy SEAL commandos.


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awarded Bollinger/Incat USA its third lease. This vessel was to be used as an interim Mine Countermeasure Ship and a replacement for the USS Inchon that was being retired later that year. Swift also serves as a platform for conducting a series of limited objective exercises (LOE), demonstrations and training events determined by US Navy Warfare

Development Command and the Marine Corps Combat Development Command. Many of SWIFTs LOEs are in support of the development of the US Navy's Littoral Combat Ship Program (LCS). Swift is capable of launching and recovery of small boats and unmanned vehicles while underway. Flight deck certification operations brought a world first

Joint High Speed Vessel under development.



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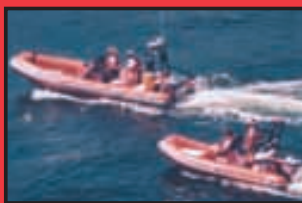
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when the US Navy conducted a SH60 landing and take off at 40 knots of ship's speed and 58 knots of wind speed. SWIFT was also deployed during the US Navies support of the Indonesia Tsunami Relief effort and the US Gulf Coast Hurricane Katrina Relief Effort. During both deployments SWIFT was capable of bringing in supplies and conducting helo operations in shallow waters where other large Navy ships could not navigate.

All three of the vessels are still under charter to Bollinger/Incat USA. All have participated in International War Games and have proven to be extremely successful. These exercises included RIMPAC (Rim of the Pacific), WATC (West African Training Cruise), JLOTS (Joint Logistics Over the Shore) and many others. Through the much was learned, perhaps most importantly they

have helping to shape the next generation WPC. Incat Australia has begun construction of the first 112 m WPC in Hobart, Tasmania. The 112 m WPC will be capable of carrying 1000 metric tons at speeds greater than 40 knots and 1500 metric tons at reduced speeds. The approach to the 112 m vessel has been a SEAFRAME approach that allows the user to configure the vessel as they see fit for their specific mission. This vessel is targeted towards a recent Navy/Army joint program titled 'Joint High Speed Vessel' or JHSV. Since this is a joint program we expect that the vessels will have different configurations hence the SEAFRAME approach. Some configurations can be a troop/equipment transport, capable of transporting 1200 troops. Another configuration could have two helo landing spots yet another can be as a Command and Control Ship.

BCGP

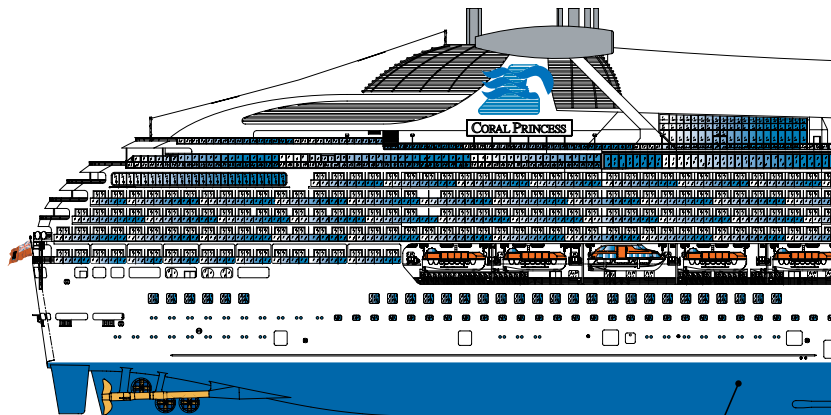
Nighthawk 38 High Speed Interceptor

The Nighthawk 38-ft. from Brunswick Commercial & Government Products (BCGP) is designed to combine the handling characteristics of a traditional fiberglass powerboat and the buoyancy and stability of an inflatable. The Nighthawk 38 is a high-speed craft designed and built for offshore use under high operational tempos and adverse conditions. The performance hull and patented STABR inflatable stabilizer tubes are designed to provide a smooth, stable, powerful ride minimizing crew fatigue during extended patrols on rough water. The customer can specify mission defined layouts and options for Special Operations/Combat or Law Enforcement/Security operations. The Nighthawk was developed by FB Design. The boat features a series of innovative solutions including the anti-dive bow and the patented STABR inflatable system.

Nighthawk 38 High Speed Interceptor



Confidence on board



As it cruises the Gulf of Alaska each summer, the Coral Princess spends only limited time in zones where bilge water can be discharged. For complete certainty, the ship uses EcoStream from Alfa Laval.

EcoStream is a high-speed centrifugal separation system for bilge water treatment. Without chemicals or absorption filters, it generally reduces oil content to less than 5 ppm – even when emulsions are present.

“My choice of Alfa Laval is clear,” says Paul Barrett, Fleet Technical Superintendent for Princess Cruises. “In my opinion, EcoStream is the most effective way of reaching 15 ppm.”

With EcoStream aboard the Coral Princess, the ship’s compliance with IMO regulations is certain. And so is the protection of Alaska’s sensitive waters.

For more on EcoStream or its performance aboard the Coral Princess, visit us at www.alfalaval.com/marine



EcoStream
The Coral Princess uses EcoStream, a centrifugal separation system for bilge water treatment. Designed for real-life operating conditions, EcoStream allows continuous operation – even on rough seas.



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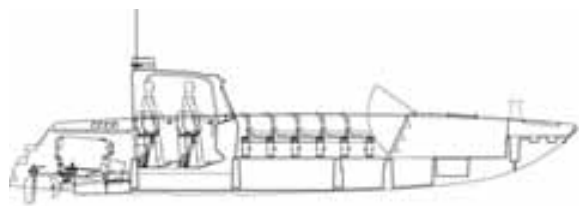
Marine Jet Power is a part of the Swedish industrial group Österbybruk Industrier including Österby Gjuteri and Alcopropeller. Österby Gjuteri is a well known foundry company specialised in castings for marine applications. Alcopropeller has eighty years of experience in manufacturing of propeller blades.



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Interceptor 38 Specifics

Length, o.a.	38 ft. (11.85 m)
Beam, max.	9 ft. (2.89 m)
Dry Weight	8377 lbs (3800 kg)
Fuel Capacity	
Single Tank	190 Gallons (720 L)
Dual Tanks	340 Gallons (1440 L)
Range at 35 knots	
Single Tank	Over 300 nm
Dual Tanks	Over 600 nm

The patented STABR system has been developed to combine all the advantages of RIBs with conventional hulls. Its main features are to provide an increased lifting surface at slow speeds, thus reducing planning

time and increasing stability. Two inflatable elements extend over about 50 percent of the hull length and help absorb the impact of waves ensuring a softer and more comfortable ride.

The STABR system uses two torpedo-shaped inflatable stabilizers that extend across 50 percent of the length of the boat. The inflatable elements are attached with patented rail guides that are molded right into the hull and are protected by rubber strakes. They can be easily removed in a few minutes, even when the boat is in the water. The boat can be used without the STABR elements installed.

Moose Boats

M2 Aluminum Patrol/Rescue Cat

Moose Boats is known for its aluminum boats built for government, commercial and leisure customers. The M2 has developed from Moose Boats' 340C patrol/security boat that was supplied to the U.S. Navy. The Moose 340C and M2 are to all intent and purposes identical. The only difference being some purely U.S. Navy equipment that is fitted the 340C. The boats are twin hulled with fine, high bows and substantial fendering all round. Decks are walk around, surrounding a central wheelhouse, cabin arrangement. Fitted with twin Cummins QSB 5.9 turbo diesels of 282kW, the M2 is propelled by a pair of Hamilton HJ292 waterjets driven through Twin Disc MG 5075 gearboxes, providing power for a top speed of more than 34 knots and a cruise speed of 28 knots. At cruise speed, fuel consumption is 155 l/hr for a range of about 200 nautical miles. Like the Hummer, the M2 can be

outfitted with a wide range of weaponry and equipment. Payload is over 2,000kg and bollard pull is 4.5 tons. The M2 is a rugged adaptable boat that is suited to a multitude of patrol, assault, rescue and workboat applications.

Moose Boats recently delivered a patrol boat to the Los Angeles County Sheriff's Department. The boat was designed to meet numerous mission specific needs to support the varied daily requirements within an around the Marina del Rey harbor- the largest man made harbor in the United States. The aluminum catamaran hull is 33.5 ft. long with a beam of 13.5 ft. She is powered by twin Cummins QSB5.9. 380 hp turbo diesels that are capable of propelling the vessel at over 35 knots via twin Hamilton 292 water jets.

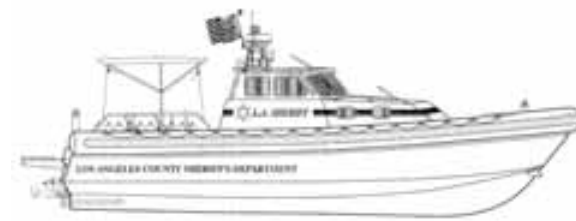
Her layout incorporates a full deck level walk-around cabin. Topside sheer is surrounded by a hybrid style foam/air composite collar that also wraps fully around her broad bow. A stern jet-guard working platform provides for dive and rescue operations which are major parts of the sheriff's responsibilities. Dive gear stowage and a 600 ft. surf reel and tow post are integrated into the walk through stern area.



Components and Specifications

Engine	Twin QSB5.9 Cummins Turbo Diesels	Beam	13.5 ft.
Horsepower	380hp@3000 rpm	Draft (Max)	21-in.
Aspiration	Turbocharged/Aftercooled	Dead Rise	(Aft) 15 degrees
Torque	875ft. lbs.	Dead Rise (Entry)	45 degrees
Injection Type	Electronic	Freeboard	45" at midship
Displacement	5.9L	Displacement	16,000 lbs (dry)
Marine Gear	Twin Disc MG 5075	Fuel Tankage	300 gal
Propulsion	Twin Hamilton HJ 292 Water Jets	Water Tankage	28 Gal
Steering and Controls	Teleflex Hydraulic	Holding Tank	18 Gal
Length, o.a.	37.5 ft.	Cabin	12 sq. ft.
Length, w.l.	29.2 ft.	Cockpit	90 sq ft.
		Max speed	+34 knots
		Cruise speed	28 knots
		Fuel consumption at cruise speed	27galp/h
		Range	+285 nautical miles

Willard Marine High Speed RIBs



Willard Marine, with manufacturing plants in Anaheim, California, was founded over 48 years ago, and is a leading supplier of RIB's and other military and commercial vessels in fiberglass and aluminum construction.

Willard Marine, Inc. under contract to and in conjunction with Lockheed Martin Overseas Corporation, has delivered five Sea Force 730 RIBs to the Egyptian Authority for Maritime Safety or EAFMS. These boats will be used as the Fast Rescue/Patrol Boats for the Egyptian Authority. The sale and delivery of these five boats to Lockheed Martin Overseas Corporation and EAFMS is just a small part of a turn key package which LMOC has sold to help develop an operational Maritime Safety Authority throughout the country of Egypt. Along with the sale and delivery of these boats, an in-country training package was provided to help familiarize the EAFMS in the operation and maintenance of the Willard RIBs. The Sea Force 730 RIBs were outfitted with the latest electronics as well as dual 225 HP Outboard Engines. At 45 Knots, fully loaded, these boats are an extremely stable platform for high speed RIB's of this size.

In addition to military applications, the Los Angeles Sheriff's Department (LASD) has contracted with Willard Marine Inc. for the design and construction of a 44-ft. Fast Response Boat capable of open ocean emergency responses in all weather conditions, including search and rescue, air-sea disasters, medical support and transportation, surface-to-air transfers, dive operations and homeland security. This vessel will be operated by the LASD and will have a coverage area of 80 miles of coastline including the LAX flight path and

Specifications

Length, o.a.	24 ft. (7.3 m)
Beam, o.a.	9 ft. (2.9 m)
Draft loaded	22-in. (0.6m)
Propulsion	Dual 225 Hp Outboards Engines
Electronics	Radar, GPS, EPIRB, VHF, AIS
Performance	45 kts +

MACC 2006 Set for Norfolk, Va.

The ninth annual Multi-Agency Craft Conference is set to take place on Tuesday, June 6, 2006 at the Naval Amphibious Base Little Creek, Norfolk, Virginia.

MACC 2006 is a conference for developers, operators and distributors of marine military products to view, display or demonstrate new or enhanced marine military technology. The presentations at MACC 2006 will address the theme "Operations: Tactics and Capabilities." MACC 2006 will close

on Thursday, June 8.

On-site preparation for the conference- which will include keynote address, technical programs, exhibitions, presentations, and in-water demonstrations- will start on Monday, June 5, when exhibitors are scheduled for set up from 9 a.m. to 6 p.m. Boats will be docked on the premise and boat operators will have a meeting with harbor security on the same day. Also, "A Toast to MACC," a Kick-Off social at the Snug Harbor Club, will be held that

evening. Presentations, demonstrations and exhibitions will begin on June 6 and end on June 8. All the events and in-water demonstrations will take place at the Naval Amphibious Base Little Creek.

Although the MACC exhibitions will be held in a separate room, it will still be within walking distance from the presentations.

All those attending MACC will have to register. The registration deadline is Monday, May 29, 2006 (May 22 for for-

eign nationals). There will be a registration fee of \$150, which will cover access to presentations, in-water demonstrations and exhibitions; three continental breakfasts; three lunch buffets; beverages and snacks; and one social event in the evening. Those planning to attend can register online at <http://www.boats.dt.mil/MACC>. Please note that on-site registration is only possible for those with a Department of Defense/military and/or retired military identification card.

open ocean out 50 miles to the islands of Catalina and San Clemente. Special capabilities of the Fast Response Boat will include dive operations support for up to 15 divers, transporting and deploying a SWAT team, an operating range of 400 miles, and accommodations for overnight operations. Power will be twin Cummins 540 HP diesel engines which are electronic controlled and rated EPA Tier 2 for the lowest possible emissions. Drives will be twin water jets for safety during dive operations.

The vessel will be constructed in low maintenance and corrosive resistant molded fiberglass with high strength military fire-retardant vinylester resin. Also included in the contract as an Assist Vessel is a Willard SEA FORCE 18' Rigid Inflatable Boat (RIB) with a 115 HP Honda outboard engine and trailer.

Zodiac's Long Range Interceptor

Zodiac's Long Range Interceptor (LRI) is a rugged rigid-hull inflatable boat (RIB) designed specifically to meet the needs of various military agencies. The 36' LRI has a total weight capacity - including fuel - of 6,300lbs and can hold 30 people. LRI power options range from 350h.p. - 700h.p. The LRI comes with a rear collar modification required by military specifications. The rear collar adaptation is designed to keep water from back washing into the cockpit and engine compartments when the vessel enters the water from a stern ramp. Soon, the LRI will be available with Zodiac's Armorplate System - the world's first bullet-proof system for RIBS and inflatables. The Armorplate design - now "AK-47 Proof" - incorporates tougher bullet-resistant soft armor ballistic material, high-pressure fabric panels and an ingenious built-in system of ceramic plates, which no longer require manual insertion. The Armorplate system folds and stores in minimal space and can be inflated rapidly to provide armor protection for those onboard.



SeaArk Marine 48 ft. Dauntless Class



Last year, SeaArk Marine, Inc. delivered a 48-ft. Dauntless Class patrol vessel named Accardo to the Port of South Louisiana. The boat is primarily for Port Security within the 54-mile jurisdiction of the Port of South Louisiana providing waterside protection and response capability. Additionally, the vessel was intended to support and supplement the missions of the Coast Guard and other federal, state and local agencies during heightened security levels. The vessel was constructed at a cost of \$850,000. The project was funded by a federal grant of \$600,000 and \$250,000 from the port. The SeaArk 48-ft. Dauntless is constructed of all-welded marine grade aluminum and features a deep-vee variable deadrise hull. The vessel is powered by twin Caterpillar 3406 (E) inboard diesel engines, each rated at 800 hp.

Additional outfitting includes a 16.0 kW Northern Lights generator, an ICOM VHF/FM radio, a Furuno radar, a 1,500 gpm fire pump and Automated Identification System (AIS). Currently, SeaArk is producing a large quantity of Dauntless Class vessels for the U.S. Navy for port security at naval installations worldwide, as well as numerous patrol boats for state and municipal law enforcement agencies.

A.F. Theriault & Son Mongoose

Canada's A.F. Theriault and Son Ltd. launched the Mongoose, a prototype fast patrol boat, after five years of research and development. The company touts the vessel as a viable, cost-effective, high-tech solution for coastal and inland waterway security. The Mongoose series of FPB vessels, ranging from 25-120 ft., have a

Need anchors and chains?



new element added to the formula: Ceramic Reinforced Plastics (CRP). The process and development protocol remains classified and is closely guarded.

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Mongoose MK-1 is a 27-ft. high-speed mono-hull vessel with a specially designed hull, designed to provide maximum control at both high and low speeds. Initial trials recorded a maximum speed in excess of 60 mph on two-ft. choppy seas. According to the trial, sharp turns at 45 mph were uncompromising and under full control.

The MK-1 proto-type is loaded with electronic navigation equipment supplied by CMC Electronics Inc. Research director, Dr. Russell Saunders, said that the hull composite structure includes divinycell core foams by DIAB Group Inc. and reinforcements by companies such as Johnson Industries, 3-M and Interplastic Corp. Other advancements include: a digitized camouflage that at high speeds virtually eliminates the vessel profile.



(Continued on page 54)

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Bilge Slops, Oil Pollution & Maritime Regs

By Charley Havnen

Some USCG, EPA enforcement personnel, and government prosecutors believe that many cargo vessels are routinely pumping oiled bilge slops over the side. The Government typically claims that the mandatory 15-ppm engineroom overboard Oil Content Monitor (OCM) required to be installed in conjunction with any Oil/Water Separator (OWS) was bypassed and that bilge slops (which by USCG definition in the regulations contain oil, whether they actually do or not) were pumped directly over the side without processing. If a problem with the OCM required its removal in order to pump these processed bilge slops overboard, this must be logged in the Oil Record Book (ORB) along with all extraordinary measures that were taken to insure no oil got into the water.

Even then, a violation has probably occurred, although criminal charges will possibly not be filed, but that is very hard to predict. Typically, the Government will claim that the failure to make proper log entries is a felonious falsification of a logbook. The USCG has now developed a boarding doctrine where they board a vessel and disassemble the overboard piping, looking for minute quantities of oil and use that as evidence that the vessel was in fact discharging oil and falsifying the ORB entries. It is possible to get into really serious problems with absolutely no oil getting into the water.

It appears at this time that the evidence of any pollution by oil from vessels is usually very weak and is strictly circumstantial. The Government estimates tend to grossly exaggerate oil pollution amounts.

Oil and Water Separation and Treatment

With the OWSs, the government has once again, mandated the use of equipment that has not developed commercial viability on its own merit, but only through government regulation. In the past, this was done to create a demand for something that wasn't on the market to force the invention or manufacture of equipment to meet specific regulatory criteria. Now, unfortunately, the mandate with shipboard OWS for cargo ship enginerooms is to use something that exists but does not work: A truly func-

tional shipboard OWS. Those marketed today work well under ideal conditions in the laboratory, and are somewhat less effective when installed on a ship and operating at the dock. They generally do not work at all when the vessel is underway in a seaway with significant pitch and roll. Not only is the use of the OWS mandated but also mandated are a myriad of confusing federal and international regulations. The result is a great deal of harm is happening to some well-intentioned and professional mariners.

The problems that have been experienced with the available shipboard OWS are so widely recognized and serious enough that a panel has been established at the Society of Naval Architects and Marine Engineers (SNAME) to analyze and help deal with the problems (Ad Hoc panel 14). A paper on the subject was presented March 16, 2005, at a SNAME meeting. To date, the consensus is that there is presently no OWS on the market that functions properly under typical shipboard conditions.

The problem of separating the entrained oil from bilge or ballast water aboard a ship is severe. The Oil Content Meter commonly in use is a photoelectric cell that measures the value of the light shining across the fluid discharge stream. Unfortunately, the OCMs in use today are unable to determine whether the light value is changing due to the presence of oil or to the turbidity of sediment roiled up by the motion of the water on the vessel. The overboard valve is caused to close and the bilge water recirculates. Overboard discharge is stopped.

In general terms, we have learned that most of the oil and water separators on board vessels stop functioning correctly once a heavy slug of oil hits the filters and they provide little or no actual separation of oil and water for a vessel rolling in a seaway.

Educating the Mariners

The Government has failed in its duty to inform the mariners of the implementation and the meaning of the oil pollution regulations other than through publication of the U.S. regulations themselves. Needless to say copies of Federal Registers are not normally seen onboard US flag vessels. The ORBs were first intended only for tank vessels even though every US vessel was

required to have ORBs aboard. Reasonable explanation of the regulations pertaining to the use of the OWS and the ORB didn't reach those who would be using them.

It is fairly clear that the Government intends to continue to squeeze and threaten the mariners themselves, getting them to plea bargain and to admit guilt even where none exists or honest errors were made. Mariners will continue to go jail. Innocent individuals are pressured to testify against shipmates or the operating company management personnel and who are also facing imprisonment. The company is already liable for any false ORB entries as civil penalties. We believe that the Government would really prefer to get a criminal case going against some/all of management, and perhaps put what they see as an offending company out of business.

The Oil Record Book

It is our understanding that the entries in the ORB are to be made by the vessel's engineer(s) and signed off on by the vessel's Master. The engineer makes a specific entry into the ORB. The Master reviews and countersigns each page. It is doubtful that either the engineer or the Master realizes that the entries in this book could cause heavy fines or even jail time, as well as the suspension or revocation of their USCG papers.

Oil pollution prevention regulations are cited in the front of the various ORBs.

These regulations are very difficult for any lawyer to read let alone merchant mariners, particularly ones who have had no formal training in their implementation. In fact, these rules are difficult for an experienced USCG Marine Inspector to read. There are apparent contradictions in the regulations. Only an expert can resolve the contentious issues to any reasonable extent. Expecting a civilian mariner to know the intent of the regulations and the resolution of the contradictions seems to be overreaching. There is no question that the USCG Marine Inspectors boarding the vessels are providing contradictory, uninformed and limited advice concerning execution of the ORB entries.

The USCG is not consistent in the instructions provided with the ORB that should be identical with those published

in MARPOL 73/78, the international pollution regulations. Supplemental instructions have sometimes been provided and sometimes not. There are versions of the ORB available commercially which are different from those ORBs provided by the USCG. Some of the ORB information is contradictory and all of it is confusing.

The ORB is a requirement of both MARPOL 73/78 and USCG regulations, although USCG regulations generally go beyond the contents of MARPOL 73/78. These two bodies of rules are each difficult to assimilate and fully comply with. Apparent contradictions abound in the USCG regulations.

To complicate the matter further, vessel personnel in international trade are required to be expert in compliance with both USCG regulations and MARPOL 73/78 simultaneously. Both are different. While it is presumed that the USCG regulations contain all that is included in MARPOL, that is at least partially untrue and both systems of regulation are substantially mutually exclusive. MARPOL 73/78 is written in six separate Annexes, each involving different categories of pollutants and each Annex containing unified interpretations of the Annex. Title and Subchapter divide the USCG regulations in a completely different system from that of MARPOL. Implementation guidelines are published in various Navigation and Vessel Inspection Circulars (NVICs) and they generally address only a specific topic.

It does not seem possible for the average mariner to be fully conversant with all of these requirements. The MARPOL volumes are prohibitively expensive and the NVICs are often difficult to interpret.

The Proof of Pollution

As we see it, the proof of any pollution by oil from cargo vessels in these cases is circumstantial at best. Some specifics include the evidence of a streak of oil on the side of a vessel found while the vessel was in the drydock (not afloat). This is no evidence at all of pollution. The vessel is not in navigation and no oil was put on the water.

A trace of oil in an bilge water overboard discharge line is likewise circumstantial.

How long had it been there?

Who put it there?

Not all traces of oil in the overboard pipe is the result of a conspiracy to pollute although the USCG and U.S. Attorneys seem to believe it is.

It is probable that some oil could enter the overboard line when the OCM senses oil in the discharge and before the overboard valve reacts to recirculate the bilge water. The USCG regulations governing the design of OWSs allow the testing of the effluent stream every 20 seconds. There is no question that oil can be pumped overboard between sample readings.

The Government, represented by the USCG or the EPA, does not have to prove that oil went into the water. It is enough to prove that the 15-ppm monitor was bypassed. This is taken as intent to pollute. It must be remembered that, by regulation, bilge slops contain oil (whether they do or not).

Maritime Reality

The principal regulator of the maritime in the US is the US Coast Guard. They know about the operation and viability of military vessels, but not commercial shipping. The USCG believes it is the duty of the mariners to pressure the owner/operator of the vessels to furnish the vessels with the proper equipment and to refuse to operate the vessels if equipment is not completely up to snuff. This only shows how far they are from the real world. Operating engineering personnel within the USCG routinely turn a blind eye to unreasonable administrative demands placed on them by Headquarters staff and do what they have to do to keep equipment and vessels operating.

Let's look at the reality of the situation in which a present day Engineer on a US flag vessel finds himself. He knows that there are some problems with his vessel, so what does he do? He obviously can't refuse to sail the vessel for he will lose his job. A practical, experienced Engineer will do what merchant mariners have done for years; he will grit his teeth and rely on his training and experience to sail the vessel, prioritizing the repairs as he sees necessary to run his vessel as efficiently and safely as he can, on schedule, if at all possible, and adhering to all regulations as he understands them to the best of his ability. He will invent alternative operating procedures to eliminate potential pollution. He will accept the situation as a challenge and make the best of it.

The present day USCG enforcement personnel are of another world than the civilian mariner, with no real blame to them. That is just the nature of the beast. They live in a military world of regulations and laws that have little to do with

the work-a-day world of the mariner, who is trying to survive in a dying U.S. flag industry. He sees the job for which he was trained and where he has striven to excel, collapsing under the weight of over-regulation and unfair foreign competition. USCG enforcement personnel do not talk to their own vessel operators about problems with OWS equipment.

The Coast Guard and Industry

South Louisiana and Mississippi citizens are particularly grateful to the USCG for the magnificent job that they have done following the two disastrous hurricanes that hit the Gulf of Mexico. New Orleans saw no light at the end the tunnel, until the highly respected and highly skilled USCG Vice-Admiral

Thad Allen was put in charge.

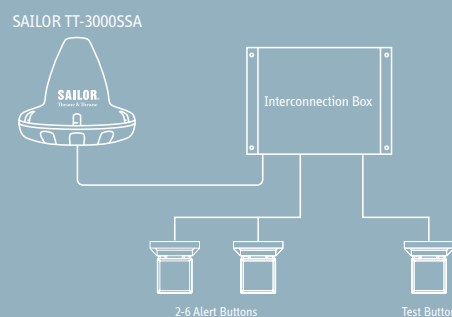
There was a strong movement in the early 1980's to turn the Marine Inspection function over to ABS. It had gone so far here in New Orleans that the ABS rented larger offices in preparation for the gradual takeover of USCG functions. In 1982, a good part of USCG

(Continued on page 43)



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ISU Salvors Recover Half a Million Tons of Oil

Members of the International Salvage Union (ISU) recovered over 875,000 tons of pollutants during salvage operations last year. During 2005, emergency assistance was provided worldwide for 247 vessels with cargoes and bunkers threatening pollution (a marginal fall of some 7.5 percent on the 266 casualties recorded in the survey for 2004).

The results of the ISU's latest annual Pollution Prevention Survey show that oils, chemicals, other pollutants and bunker fuel recovered last year totaled 875,331 tons, as against 734,582 tons in 2004. This amounts to an increase of just over 19 percent.

ISU President Hans van Rooij said: "Once again, our members have demonstrated their effectiveness in defending the marine environment. In 2005, the recoveries included over half a million tons of crude oil."

Forty-six of the ISU's 51 members contributed data for the latest annual survey. In 2005, ISU salvors responsible for the 247 salvage assistances recovered the following:

- 61 percent, crude oil (and diesel oil) — 533,281 tons (452,304 tons in 2004)
- 7 percent, chemicals — 60,147 tons (34,752 tons)
- 23 percent, other pollutants (e.g. gasoline, slops, dirty ballast, etc) — 201,960 tons (152,235 tons)
- 9 percent bunkers — 79,943 tons (95,291 tons)

"The volume of crude oil recovered saw an increase of just over 17 percent on the 2004 figure of 452,304 tons," said Hans van Rooij. "The recovery of chemicals, at 60,147 tons, was an increase of over 73 percent on the 2004 figure. The volume of bunkers recovered has in the past been remarkably consistent - in the range of 60,000-70,000 tons. In 2004, however, the figure increased to 95,291 tons. Last year it fell back to 79,943 tons, a decrease of over 16 percent on 2004."

The ISU's Pollution Prevention Survey began in 1994. In the 12 years to end-2005, ISU salvors recovered 12,617,837 tons of potential pollutants. This consists of 9,904,369 tons of crude oil (and diesel oil), 719,116 tons of chemicals, 821,778 tons of bunkers and 1,172,574 tons of "other pollutants" (recorded as a separate category for the first time in 1997).

During 2005 there was an increase in the number of tanker salvage operations: 34, as against 24 in 2004. The largest tanker service involved a crude carrier laden with 133,500 tons of Arabian Crude.

Last year saw a significant decrease in the number of casualties (tankers and other vessels) requiring the ship-to-ship transfer of cargoes and/or bunkers. The total fell from 36 cases in 2004 to 20 in 2005. None of these transfers involved a significant tonnage.

Last year the single most used form of contract was Lloyd's Form, which was used in 81 services (over 30 percent of the total number of assistances). There were also 44 cases using other forms of salvage agreement, such as the Japan Form. In addition, there were 11 wreck removal operations, 27 common law salvage claims and 84 services carried out on a lump sum or daily hire basis.



Pictured is Vermontborg, a newbuilding that was under tow for completion in a Dutch yard when she grounded off Guernsey in January 2003. (Source: International Salvage Union)

(Continued from page 41)

plan approval was entrusted to ABS as the first part of this transfer (NVIC 10-82).

There was an abrupt halt in this movement, the result of Congressional pressure following the tragic loss of the SS Poet and the SS Marine Electric.

It has been suggested by numerous and various interested parties that perhaps now is the time to remove the burden of marine inspection from the military and place it in the hands of mariners, perhaps with commercially experienced USCG officers, retired senior merchant marine officers, ABS surveyors, MarAd personnel, etc. The US Maritime Service (USMS) could be resurrected as the core to build this professional group around, in the mode of the old Bureau of Marine Inspection and Navigation (BMIN), under MarAd.

Under the old Marine Inspection system, a mariner knew when he was talking to an investigator or law enforcement type inspector. Today, any Coastie that a mariner speaks to may charge him with a violation against his or her license or a criminal statute. Should mariners stop talking with marine inspectors altogether, invoking their 5th Amendment rights? What would be the legal ramifications of such a response to the USCG? This seems extreme, but

Hoegh Installs MariNOx



The MariNOx direct onboard NOx and CO2 engine emission monitoring system has been chosen by Hoegh Fleet Services to be installed on MV Hual Tokyo. The 16,006-dwt, 6,500-unit vehicle carrier was built in 2004 at DSME Shipyard, Korea and is powered by a MAN B&W 7S60MC engine with a 12,879 kW output. "We undertook a thorough analysis of available technology in the market and concluded that MariNOx was the most suitable system for our purpose in order to comply with 'MARPOL Annex VI' Regulation 13, The NOx Technical Code & MEPC 103(49)," said Per Borstad, Superintendent for Hoegh Fleet Services.

"We believe that by monitoring both NOx & CO2 MariNOx uniquely enables optimization of our engines to deliver potentially major fuel savings, whilst freeing us from the parameter check method."

Circle 2 on Reader Service Card

may be necessary for survival of the individual mariner.

The USCG has general superintendence over the merchant marine personnel (46 USC 2103) and yet the USCG no longer facilitates commerce or acts in any way supportive of seamen's welfare but only engages in enforcement activities. If the means cannot be found to

change the current situation, U.S. flag operators and mariners will be completely replaced by foreigners. Of that, there is little doubt.

Charley Havnen is a Commander USCG Ret. His organization can help you with your vessel regulatory or engineering issues, vessel manning, procedure man-

uals, accident analysis or serve as an expert witness. His organization can do what you can't or don't want to do, and are online at www.havnengroup.com. He can also be reached by contacting the Havnen Group in New Orleans: (800) 493-3883 or (504) 394-8933, fax: (504) 394-8869 or info@havnengroup.com.

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MIROS Ship-based Radar Helps Manage Spills

MIROS will supply five marine x-band radar-based oil spill detection systems to the common oil spill response organization for oil producers on the Norwegian continental shelf, called NOFO. With these systems, NOFO will be able to track and manage oil spills independent of sea, weather and light conditions.

"This is the first product to combine radar tracking of oil spills with complete sea status data such as wave and current information, which will give oil companies, coastal authorities and oil spill response teams the ability to detect more rapidly and respond more effectively to a spill. Once a spill reaches the coastline, its costs increase exponentially. This product can significantly speed clean-up before that happens," said managing director Erik Sandsdalen of MIROS.

NOFO is owned by all of the companies operating on the Norwegian Continental Shelf, including BP, Shell, Total E&P, ExxonMobil, ChevronTexaco and Statoil, among others. According to NOFO's director of

operations Jon Rødal, "Our owners have shown great interest in the ability to operate in conditions of darkness or low visibility."

MIROS is a producer of sensors and systems that monitor sea states, waves and sea current using Doppler radar and microwave technology. The oil spill detection system has been under development since 2000, and builds on the company's Wavex Marine Radar technology.

The oil spill detection system uses advanced image-processing algorithms and standard ship-based navigational radar to locate oil spills at a distance of up to 4 km, and track their movement at frequent intervals.

"We have noted excitement for a product like ours from oil companies, owners of offshore supply vessels, coastal authorities, politicians and spill response-oriented companies," said Sandsdalen. "Preventing spills from hitting coastlines is a matter of great economic and political importance, and the oil community itself is leading the way on this issue." He refers to Norway's



Pollution Control Authority, which has already stipulated ship-based radar tracking as part of spill response, and expects many other countries to follow suit. The oil spill detection systems will be installed during 2006 on five of the

14 vessels NOFO uses in oil spill response. Rødal confirms that NOFO will consider equipping all of its spill response vessels with similar equipment.

Circle 3 on Reader Service Card

OSG Installs Bilge Water Polisher

Wave International said that Overseas Shipholding Group, Inc. (OSG) fitted its fleet with a filter system that polishes the bilge water prior to discharge. OSG owns and operates 89 vessels totaling 11,438,837 dwt.

The Wavestream system is an IMO-approved bilge water system that acts as a final polisher, designed to effectively remove any final traces of oil residue that are left after bilge water has passed through the vessel's oily water separator equipment. The



Wavestream oily water separator polishing system is a bilge water filter system designed to remove any final oils and emulsions from bilge water prior to discharge. With the new generation of MEPC.107(49) oil in water monitors now capable of recognizing oil emulsions as well as dispersed oil, the latest Wavestream technology compliments them by reducing the number of interruptions during bilge water discharge operations.

"OSG sets very high environmental

standards during all bilge pumping operations and Wave International's new series of Wavestream polishing systems enable the company to exceed the IMO standards," said Paul Gullett, Wave International's Managing Director.

Circle 4 on Reader Service Card

Automated Control Saves Money

Nalfleet released data from an onboard trial of the NalTrak 3200 automated dosing and control for engine cooling and boiler systems. The results are from the MV Susana of Reederei Blue Star GmbH, which sails now as Maersk Nolanville. A NalTrak system was

installed in this 2,550-TEU container-ship in 2005.

Harald Krull, Reederei Blue Star's Hamburg-based Technical Manager, wanted to reduce some of the heavy demands on crew time, but ensure the correctly prescribed amount of treatment chemicals were used. "I felt that automated dosing, rather than manual dosing, would protect the boiler and engine right from the start, and avoid downtime and serious problems in the future."

The typical cost for renewing furnace tubes in a container vessel boiler is approximately \$36,000, not counting time out of service and lost revenue.

Susana's dynamic steam boiler appli-

cation showed consistent control of dissolved oxygen in feedwater, return condensate pH, and boiler and engine cooling system conductivity - all critical to the protection and overall operation of the boiler and engine.

All the key streams were monitored and recorded in real time. Data was analyzed using Nalco Vantage software, and the system is operated by using a touch screen that navigates a series of pages representing the boiler system. Susana's feedwater plot showed consistently low levels of dissolved oxygen. It achieved 98 percent within the target range, demonstrating a high degree of protection against the damaging and the effects of corrosion.

M/V Susana



Maritime Reporter & Engineering News



Pride of Kent

Any 'out of specification' levels were detected by the NalTrak 3200, which is illustrated by a dramatic spiking on the trend graph.

The unit responded rapidly with an automated application of Nalfleet oxygen scavenger. The return condensate pH trend graph showed that the controlled application of Nalfleet corrosion inhibitor maintained the condensate pH within the target ranges of 8.5 to 9.5.

Circle 5 on Reader Service Card

Sea Water Scrubber Installed on Ferry

Krystallon - a joint venture between BP Marine and Kittiwake - together with P&O Ferries, recently announced the development and installation of the first Krystallon sea water scrubber on board a commercial vessel, P&O's Pride of Kent passenger ferry, which sails on the Dover to Calais route.

Initial results indicate no measurable SO₂ emissions after the scrubber despite using a 2.0%S fuel.

The Krystallon sea water scrubber test results are not only below the level required by the IMO's SECAs (Sulfur Emissions Control Areas), which allows emissions of 6g/kW/hr. of SO₂, but they may even comply with the more stringent in port requirements of the European Union, which will come into force in January 2010.

"P&O Ferries has led the field in supporting this pioneering work and has underlined its commitment to environmental policy in reducing emissions of SO₂ both at sea and in the ferry ports they use," said Don Gregory, Director, Environment and Sustainability at BP Marine.

"With SECAs requiring sulfur emissions of maximum 1.5 percent, sea water scrubbers may be the cheapest long term solution for vessels spending a significant portion of their time in the SECA.

Sea water scrubbing from Krystallon enables vessels to reduce sulfur emissions without requiring changes of fuel or modification to engine design. The results of our first shipboard installation have been dramatic and even more successful than we had anticipated.

Although the Pride of Kent was using a two per cent sulphur fuel the initial

analysis could not detect any sulfur oxide emissions after the sea water scrubber was installed.

We can therefore conclude that the sea water scrubber will be able to easily meet its design performance criteria of 95 percent scrubbing efficiency."

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EC Announces Plan for Clean Seas by 2021

The European Commission recently proposed an ambitious strategy to protect Europe's marine environment. The Thematic Strategy on the Protection and Conservation of the Marine Environment aims to ensure that all EU marine waters are environmentally healthy by 2021. This is the second Thematic Strategy that the Commission adopts following the provisions of the 6th Environmental Action program. It will be a key component of the future Maritime Policy that will be proposed by the Commission in 2006.

"Europe's seas and oceans make a huge contribution to our quality of life and our economic prosperity, but they are deteriorating because of over-

exploitation, pollution, climate change and a range of other factors," said Stavros Dimas, Environment Commissioner.

There is currently a considerable loss of marine biodiversity due to contamination by dangerous substances, excess nutrients, the impact of commercial fishing or effects of climate change - to name just a few threats. The evidence of the deterioration of the marine environment continues to accumulate, pointing to potentially irreversible changes - as illustrated by the poor state of certain fish stocks in Europe or the effects of eutrophication on the marine ecology of the Baltic Sea.

EU Member States share responsibili-

ty for a number of different marine areas, each of which has its own distinctive environmental characteristics (the Baltic Sea, the North-East Atlantic, the Mediterranean). To take account of regional differences the Commission proposal sets out common objectives and methods - but these are to be implemented at the level of marine regions. This means that the Member States sharing a marine area will be responsible to develop plans designed to ensure good environmental status in their respective marine waters. No specific management measures will be set down at EU level, but plans must be checked and approved by the Commission.

Each Member State will draw up a

programme of cost-effective measures aimed at delivering good environmental status of the marine environment. Impact assessments, including detailed cost-benefit analyses of the measures proposed, will be required prior to the introduction of any new measure. The national programs will need approval by the Commission.

The marine strategy is one of seven Thematic Strategies the Commission is required to propose under the EU's Sixth Environmental Action Programme (6EAP).

The other Strategies will cover air pollution, waste prevention and recycling, sustainable use of resources, soils, pesticides and the urban environment.

Alfa Laval P-Separator to Debut at Posidonia

The new Alfa Laval P-separator, for cleaning lubricating and marine diesel oils, will make its debut in Greece at Posidonia 2006. According to the manufacturer, the P-separator brings traditional purifying technology to a new level.

The P-separator is suitable to handle lubricating oil and marine diesel oils with generally lower, well-defined densities and fewer process issues. Its sibling, the Alfa Laval S-separator, is designed specifically to handle heavy fuel oil and tough separation issues. Based on the same platform as the S-separator, the P-separator shares many of the same technical features as well as the same benefits and advantages, including less oil loss, reduced sludge volumes and lower lifecycle costs.

"Many shipowners here see the relationship between good separation performance and less engine wear," said Alfa Laval's Takis Kalokerinos, who is based in the Athens office, regularly giving seminars on the CWA 15375. "The industry in general and shipowners in particular have shown a keen interest in the standard as a way to protect engine investments."

Circle 7 on Reader Service Card



S-separator - Fuel and lube oil cleaning system



Aker Yards Delivers Arctic Container Vessel

MS Norilskiy Nickel, a \$84.4m arctic container vessel built under NB 505 at Aker Yards in Helsinki, was delivered to the Russian MMC Norilsk Nickel, one of the world's leading metallurgical companies. The vessel is intended for traffic on the Northern Sea Route.

The vessel left Helsinki on March 3, 2006 for ice trials in real arctic conditions in Northern Russia. After successful trials it was handed over to the owners in Murmansk on April 11, 2006. MS Norilskiy Nickel is a prototype based on the double-acting ship concept developed by Aker Yards. To find out the best economical and technological solutions for the vessel, several feasibility studies and ice model tests have been conducted in Aker Yards Arctic ice technology laboratory. "We are pleased to see Norilsk Nickel's belief in our design concept and in the improved transport economy it provides", says

Yrjö Julin, President of Aker Yards, Finland. "We believe the Arctic Market is a growing business where Aker Yards keenly participate; and this vessel is a good example."

"Aker Yards in Finland is extremely good in the development and design of arctic vessels as once again proved during the ice trials of this Norilskiy Nickel vessel" Dmitry Cheskis, the Deputy General Director and member of the board of MMC Norilsk Nickel said. The company has reported that according to their transportation strategy they intend to have a total of five such vessels built.

The 14,500-dwt Arctic Container Vessel is 169 x 23 m with a 9 m draft and capable of breaking 1.5 m ice. It will transport metallurgical products from Dudinka on the river of Yenisey to Murmansk. The vessel can navigate the ice-bound Arctic Ocean all year round, without the assistance of ice breakers.

Circle 8 on Reader Service Card

The Shipping Link in the LNG Chain

By Michael Anthony Nunes
and Jeremy R. Kennedy

LNG is a favorite topic at energy gatherings today. In terms of LNG growth in the Americas, U.S. natural gas demand is expected to rise faster than pipeline supply and increased use of imported LNG is viewed as an integral piece of the total supply equation for the nation.

While many signs point to a burgeoning market for LNG in the Americas, there are some potential obstacles to LNG growth in the region. One obstacle may be sustained high natural gas pricing levels. Another might be a stalling of receiving terminal expansion and development in the U.S. in response to the public's environmental, health and safety concerns. However, the clear expectation is that future LNG trade in the Atlantic Basin (involving trade in Europe, northern and western Africa, the Caribbean and the US Eastern and Gulf coasts) will be brisk.

Today, the appetite for all aspects of LNG financing, including ship financing, is strong, reflecting widespread confidence in optimistic LNG growth scenarios. Global tanker capacity is growing faster than liquefaction or terminal capacity; however, with many terminal projects scheduled to come online in 2008-09, a potential shipping surplus may yet become a deficit.

The LNG Chain & Emerging Risks

The process of producing, capturing, liquefying, storing, shipping and regasifying natural gas in energy-hungry, end-user markets has become known as the LNG chain. A successful LNG project and its financing require an understanding of all facets of the LNG chain and their relationships to each other.

Historically, the LNG market has been a reasonably small regional market with LNG supplies being sold on long-term supply agreements to four or five major markets (Japan, Korea, U.S., Spain or France). For example, in 2002, Japan imported 50 percent of the world's LNG supply.

Since 2000 there has been an explosion of new or expansion projects announced both at the liquefaction end and the regasification end. Many upstream projects are in areas of the world with a short (or in some cases no) track record in LNG. Current debate focuses on how many of those announced projects will come to

fruition. Traditionally, the large capital outlay for the exploration, production, liquefaction, storage, shipping and regasification phases of the LNG Chain has been supported by long-term (20 to 25 years) take-or-pay gas sales and purchase contracts, with the buyer being required to take 100 percent of the Annual Contract Quantity (ACQ) stated in the contract. The goal of this structure was to ensure reliability of market.

More recently, purchase and sales contracts have been characterized by some flexibility with less emphasis on security of supply and take requirements. As these older supply contracts are renewed, buyers are able to lower their ACQ requirements due to a more diverse buyer market.

Recent contracts have been of shorter duration with market triggers for price and delivery locations. In lending to future LNG projects, lenders will need to pay careful attention to whether the LNG Supply Contract is 100 percent of the ACQ and whether the LNG buyer's commitment is supported by a similar take-or-pay percentage in the buyer's long-term sales and purchase agreement with its customer.

In this changing environment, as we

move from a small number of LNG suppliers in a dedicated market toward a global spot market (although a truly global LNG spot market is still a long time away), lenders may start grading the projects with a harsher pen. But, notwithstanding the trend toward more market-focused contracts and the potential for greater lender scrutiny, the LNG chain and the ability to finance the activities along the LNG chain are dependent upon volume and price certainty and creditworthy counter parties.

The Shipping Phase

The shipping phase of the LNG chain provides the link between LNG sellers and LNG buyers. Whether it is the sellers' LNG ships delivering LNG to the buyer's receiving terminals in an ex-ship sale or the buyers' ships arriving to lift cargoes at the sellers' liquefaction plants in a free on board (FOB) sale, shipping is the single point where the upstream and downstream facilities come together.

The global LNG tanker fleet today is comprised mostly of vessels built for specific LNG projects and, as LNG supplies continue to expand, additional tankers will be added. It is estimated

that the world's LNG fleet may almost double in the next ten years. For example, in 2004 BG Group announced that it planned to take delivery of seven new LNG tankers (three in 2006 and four in 2007). This acquisition will nearly double its existing fleet size of eight. Each ship will have a capacity of 145,000 cu. m. The total cost of the four ships to be delivered in 2007 is approximately \$620 million.

Over the past two decades LNG tankers have experienced a dramatic reduction in per unit cost due to increased competition in the shipbuilding industry and improved technologies. The industry has also been able to achieve additional cost reductions through economies of scale by constructing larger ships with increased capacity. The cargo capacity of future ships is expected to be between 200,000 and 250,000 cu. m. and this has affected LNG terminal agreements as sellers of LNG, desiring to maintain flexibility and optionality into the future, have begun to push for terminal designs which can accommodate these larger vessels.

Recently, Qatar Petroleum and ExxonMobil announced that they had entered into time charters for twelve

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LNG tankers with cargo capacities ranging from 210,000 to 217,000 cu. m.. These tankers will be used in conjunction with the Rasgas 3 project, a joint venture between Qatar Petroleum and ExxonMobil, which will supply gas from Qatar to the U.S. by the spring/fall

of 2008. These state-of-the art vessels will have at least 50 percent more cargo carrying capacity than conventional ships, providing additional project economies for Rasgas 3.

Distances traveled account for some of the variability in determining the cost

of shipping. Generally speaking, however, the average cost of a new 145,000 cu. m. capacity LNG tanker typically runs around \$170 million to \$190 million, or \$0.40-\$1.0/MMBtu of the LNG transported.

To take advantage of a forecasted

deficit in global tanker supply, some LNG carriers will certainly be financed without ties to a specific project. This break in the chain should help to drive down shipping costs in the short-term and may help to have a dampening effect on any increases in costs in the long-term.

However, it remains to be seen how lenders will view such new build acquisitions.

In addition, as shippers react to a potential deficit of tonnage, slot availability at the major shipyards is likely to become more competitive and we may see a reversal in the trend that has seen newbuild costs falling.

Finally, purpose-built vessels tied to projects in relatively unproven areas (such as Angola, Iran and Russia) may cause lenders concern and these projects will certainly be closely reviewed by potential financiers before such vessel financing is given the green light.

Typical LNG Vessel Financing Structure

The sources of funds for LNG vessel financing (obtained by the project company if it will own the vessels, or more likely a shipping company in a time charter scenario) are the same sources as other large, capital-intensive projects. The usual suspects include commercial banks, life insurance companies, pension funds, and trust funds of one form or another. In addition, depending on the structure of the project, export credit agencies such as U.S. Ex-Im Bank, the United Kingdom's Export Credits Guarantee Department and multilateral agencies, such as the International Finance Corporation of the World Bank and International Bank for Reconstruction and Development are important lending sources.

Example:

The project development company (ProjectCo) for a new LNG liquefaction company in West Africa wishes to control the LNG shipping from its plant. Therefore, it decides to take a time charter of two LNG carriers from a European ship owning company (LNG ShipCo).

ProjectCo requires no financing for ship acquisitions. LNG ShipCo, however, is able to obtain financing from the Korea Exim Bank (Kexim) because the ships will be built in a Korean ship yard.

Kexim's financings of the two LNG ships are structured as lease financing transactions. Under this structure Kexim's wholly-owned financing subsidiary (KexFinCo) takes legal title to the two ships.

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Since Kexim can only finance 80 percent of the construction costs of the ships, KexFinCo borrows the remaining 20 percent from a Korean commercial bank. KexFinCo then enters into a 20-year bareboat charter of each ship to LNG ShipCo, with LNG ShipCo having the option to purchase each ship at any time prior to the end of the term for a fair market value calculated, under a pre-determined formula, as of the time of purchase. By this means LNG ShipCo is able to obtain 100% financing for the ships. Since KexFinCo owns the ships, no ship mortgages are necessary. KexFinCo's upfront capital costs for the ships (i.e., its own 80 percent plus the Korean commercial bank's 20 percent loan for the construction costs of the ships) are amortized and repaid (principal, interest and costs) by LNG ShipCo in the form of monthly bareboat charter payments.

To support LNG ShipCo's obligations under its bareboat charter, LNG ShipCo is required to provide KexFinCo with a three-year renewable letter of credit from a multi-national bank (representing 20% of the cost of the LNG ships).

To complete the loop, LNG ShipCo then let the ships under a time charter arrangement to ProjectCo for a period of 20 years, minus one-day, and operates the ships for ProjectCo.

Lease financing transactions are also popular means to finance LNG vessels. These vehicles generally offer certain tax benefits to ship owners that enable them to lower the charter rates of their ships. For example, in January 2006, Teekay Shipping entered into U.K. tax lease financing transactions on three new-build LNG vessels to be chartered to Qatar Petroleum and ExxonMobil in connection with the Rasgas II project. However, on July 21, 2005 HM Revenue & Customs published a technical note summarizing the proposed

changes to the capital allowances regime for finance lease transactions. These changes will be introduced in the Finance Act 2006 and are expected to take effect on April 1, 2006. The broad effect of the proposed changes is that, subject to certain very narrow exceptions, after April 1, 2006, the benefits of the U.K. tax lease financing structure will no longer be available to ship owners.

It is worth noting, however, that the German KG financing (designed to take advantage of certain benefits under the German Tonnage Tax) and the French tax lease financing remain viable options for future LNG ship owners.

U.S. demand for LNG is expected to drive growth in LNG trade in the Atlantic Basin to at least 2020. There are, however, risks associated with this growth scenario, including much softer demand for LNG in the U.S., planned future upstream supply projects in areas that are neophytes in the LNG industry, as well as political and regulatory uncertainty that sufficient LNG receiving terminals to meet much higher demand will be approved and successfully developed in the Americas.

The world of LNG shipping may be nearing a crossroads. Today we find ourselves with a surplus of available tonnage and low shipping costs which will lead to increased project returns. Tomorrow the outlook may not be as sunny as surplus potentially turns to deficit and shipping rates increase.

However, ship owners are already planning ahead and ship orders have increased dramatically. As a result, the demand for financing for LNG ships will continue to rise.

About the Authors

Michael Anthony Nunes is a partner and Jeremy R. Kennedy is an associate in the Energy practice at law firm Akin Gump Strauss Hauer & Feld LLP.

McDermott Joins Firm

Ocean and Coastal Consultants, Inc. hired Kevin M. McDermott, P.E., as Project Manager/Professional Engineer-Diver in its Gibbsboro, NJ office.

MacGregor RoRo Packages For Color Line

A new RoRo cargo access/transfer systems from MacGregor is designed to enhance the turnaround efficiency of two fast RoPax ferries ordered by Color Line from Aker Finnyards

To be built by Aker Finnyards' Rauma facility for delivery in 2007 and 2008, each 211 m-long vessel is designed to carry 1,800 passengers and 2 km of trailers at a service speed of 27 knots. The

first delivery will be deployed on the Kristiansand-Hirtshals route and the sistership on the Larvik-Hirtshals route.

Bailey Appoints Booth

Bailey Refrigeration appointed Donald Booth to the position of Branch Manager, Virginia Beach, Va. Don and his wife Karen decided not to return to the New Orleans area after their home was destroyed by hurricane Katrina, but instead to relocate to the Virginia area. Don and Karen have been a husband/wife team in marine refrigeration and air conditioning for more than 20 years and will substantially increase Bailey's experience and knowledge in the Norfolk area.

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Toisa Orders Dive Support/Offshore Construction Vessel

Merwede Shipyard received a contract for the design and construction of a new Diving Support/Offshore Construction

vessel for Bermuda-based Toisa Limited. The vessel will be built under yard No 712 and will be delivery will take place in the first quarter of 2008.

The vessel will be built in accordance with the Rules and Regulations of Det Norske Veritas, to obtain the following notation: DNV X 1A1, EO, SF, Dynpos,



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Main Particulars

Length, o.a.	131.7 m
Length, pp, on design drafty	117.7 m
Breadth, molded	22 m
Depth, main deck molded	9.5 m
Draft, design	6.25 m
Draft, scantling	6.75 m
Ship's complement	100

AUTRO, HELDK, DSV-SAT.

The ship has been designed by Merwede Shipyard in concert with Toisa. It will be a fully Dynamic Positioned Diving Support/Offshore Construction Vessel, suitable for worldwide operation.

As an enhanced sister vessel to the Toisa Proteus, but with a fully inbuilt saturation Diving System, this vessel can, and will, support a wide variety of subsea operations. Within the saturation diving market, the existing world fleet of such vessels averages more than 20 years old. This order will provide the market with a DP3 vessel capable of meeting the higher and more demanding standards in safety, dynamic positioning operations, saturation diving and the use of environmentally sensitive vessels.

It will be built with a 12 man single bell saturation system. Its under-deck configuration allows for a range of equipment, while her large, clear deck area provides scope for a range of other applications.

The increasing need for subsea construction vessels to accommodate large numbers of contractor's personnel has also been addressed in designing the ship to accommodate up to 199 persons (excluding any divers in saturation).

Circle 9 on Reader Service Card

Shin Yang Builds Tanker/Landing Craft to Own Account

At the end of March, Shin Yang Shipping took delivery of an interesting new combination tanker and landing barge, built at the company's own yard to a design by Singapore's Conan Wu and Associates. The 78 x 16-m vessel



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has a molded depth of 4.8 m. Forward of the four-level deckhouse and beneath the RoRo cargo deck, 10 cargo tanks are arranged fore and aft in five port and starboard pairs.

The tanks have a total volume of 1994 cu. m.

Named Danum 23, the vessel's primary role will be to transport methanol for use in making glue by the parent company, Shin Yang Sdn Bhd., who are among the world's largest plywood manufacturers. Main propulsion for the landing craft/tanker is a pair of Cummins KTA19 M3 engines each developing 640 hp at 1,800 rpm. The engines turn 1.8-m propellers through Twin Disc MG5222 marine gears with 5.04:1 ratios to give the light boat a 10.3-knot speed on sea trials. Two Cummins 6CTA8.3(D)M powered 150 kW generators provide electrical power for the vessel and for the cargo pumps. For safety in the BV-classed vessel, the electric motors are located in the engine room with shafts passing through a forward bulkhead to segregated pump room. The pumps can be controlled from a cargo control room forward in the main deck house. The landing craft is also equipped with a Cummins 855-powered bow thruster.

Circle 10 on Reader Service Card

Aker Yards Delivers Cruise Ferry for Tallink



On April 18, 2006, the cruise ferry Galaxy was delivered for Tallink from Aker Yards shipyard in Rauma. The vessel — the result of a \$204m contract was signed in October 2004 will start cruises from Helsinki to Tallinn. With a capacity for 2,800 passengers, Galaxy is one of the biggest cruise ferries in the Baltic Sea. The guiding principle in designing the vessel is paying attention to the comfort and luxury of present-day passengers, hence the use of high-tech solutions onboard is maximized.

There are 927 cabins, several restaurants and places to entertain of various style and class as well as a conference center with more than 450 seats to make the new ship a multi functional sea-based hotel.

MS Galaxy is designed to carry passengers, private cars and freight units, and has 1,130 lane meters. The vessel measures 212 m long, with a beam of 29 m and a gross tonnage of 48,300. Propulsion by four diesel engines totaling 26,240 kW will provide a service

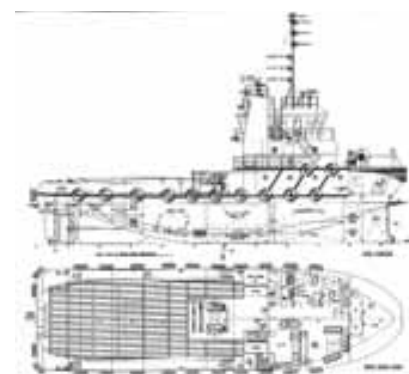
speed of 22 knots. Classification of the vessel is to the highest ice-class - 1 A Super. The catalytic reduction units to be installed for better control of exhaust emissions is designed to make the vessel most environmentally friendly.

Circle 11 on Reader Service Card

Tug/Supply Vessel from Tuong Aik

Swissco International Ltd. of Singapore is a well-established maritime organization with branches providing ship repair services to smaller vessels as well as out-port-limit services catering to shipping needs in the Port of Singapore. In addition, the company offers offshore support services to oil exploration firms.

In the Offshore Division the firm recently took delivery of a capable new tug/supply vessel, the 2,400-hp, Swissco Swift, from Tuong Aik Shipyard Sdn. Bhd. in Sibul Sarawak. The 32 x 9-m vessel was built to a design by United Ship Design of Sibul. With a large open aft deck, a 2.5-m stern roller, a 25-ton towing winch and firefighting monitors this versatile craft can provide a range of services to charterers. The main engines, a pair of Cummins KTA38 M2s, each turns



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1,200 hp at 1,800 rpm into Reintjes WAF562 gears with 5.947:1 ratios. With kort nozzles, this power provides a 28-ton bollard pull and an 11-knot free running speed. Hefty electrical power for the vessel is provided by a pair of Cummins 6CTA8.3 (D)M-powered 156 kW generator sets. The vessel is also fit-

ted with an electrically driven HRP bow thruster for added maneuverability.

Accommodation is provided for up to 18 crew in one- and two-bunk cabins. The BV-classed vessel has tankage for 200 cu. m. of fuel and 45 cu. m. of fresh water.

Circle 12 on Reader Service Card

M/V Stikine Delivered for Alaska

The \$17 million M/V Stikine is a 197-ft. passenger-vehicle ferry that was delivered to Inter-Island Ferry Authority (IFA) for its new northern route between Prince of Wales Island's Coffman Cove, Wrangell, and Petersburg terminals in

Southeast Alaska.

"GPA provided the construction engineering for the first IFA ferry, M/V Prince of Wales in 2001, and, ultimately, was hired as the owners' naval architect for the design development for the similar M/V Stikine," said Guido Perla, Chairman of Guido Perla and Associates. "GPA continued to act as the owner's representative throughout vessel construction at Dakota Creek Industries in Anacortes, Wash. The GPA team enhanced the ferry's design by upgrading the passenger deck layout, and by adding a more powerful bow thruster and a third generator.

M/V Stikine is licensed for 195 passengers and accommodates 33 standard sized vehicles. The vessel is 53 ft. wide, with a service speed of 15 knots. Its modern wheelhouse has enclosed bridge wings for improved operational conditions during docking and undocking. The vessel also includes a forward observation lounge with recliner chairs, reading room, a passenger quiet room, a full-service galley and restaurant, a children's playroom, and a solarium.

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Ocean Tug For Swiber Offshore



Senior Operations Manager Capt. Geow Teck Chye is a busy man keeping up with all that is happening in the growth oriented Swiber Offshore Pte. Ltd. The Singapore-based company, a component of the larger Swiber Group, has operations throughout much of the Far East working with a long list of petro-companies. The marine division currently has several new tugs and barges under construction.

In late March, Capt. Geow was in Sibu, Sarawak, East Malaysia overseeing the sea trials and delivery of the company's latest tug, the Swiber Eagle from Sapor Shipyard. Typical of the firm's operations and vessels this is a fully classed IMO compliant ocean-towing tug. From the fully redundant GMDSS communications system on the bridge to the pair of Cummins KTA50 M2 main engines all components are

IMO compliant. The bridge equipment includes Furuno radar, AIS and GPS systems. A PC computer with printer also serves as a combined fax, telex, GSM and e-mail messaging system utilizing the AmosConnect service.

The 105 x 32-ft. (32 x 9.76-m) boat has a 14.1 ft. (4.3-m) molded depth and a 3.5-m design draft. Accommodation is provided for 13 men. On her maiden voyage the 10-man crew, including Capt. Abdul Raof Masse, were all Indonesian nationals. Tankage is provided for 278 cu. m. of fuel, 50 cu. m. of water and 43 cu. m. of fresh water ballast. The 16-cylinder Cummins KTA50 M2 main engines each produce 1,600 hp turning at 1,800 rpm into Reintjes WAF 663 vertical offset marine gears with 5.95:1 ratios. This gives the 3,600 hp boat a bollard pull of about 42 tons and a 12-knot free running speed. A pair of 70 kW gensets meets the vessel's electrical needs. On deck, the tug is fitted with an 80-ton brake single-drum towing winch loaded with 600-m of 42 mm wire. A 35-ton towing hook is mounted aft of the winch.

Swiber Eagle sailed on a maiden voyage on March 25 bound for Shanghai, where it picked up a new 250 x 90-m barge. She would then proceed south to carry pipe for phase II of a pipeline laying project at Huizhou Island under contract to Global Marine.

Circle 14 on Reader Service Card

Hatlapa Winches for Maria S. Merian

One of the world's most modern research vessels - named Maria S. Merian after the scientist born in 1647 - was delivered for scientific exploration on February 9, 2006. Maria S. Merian is to support the Polarstern as a floating laboratory during work in Arctic circles. Polarstern was also equipped with Hatlapa products. Seven special winches were supplied to the shipyard in December 2003 already, which are also used for moving the underwater equipment. Hatlapa has escorted this project for five years, during which time the design of the winches was formed in close cooperation with the order principal BAW (Bundesanstalt für Wasserbau)



and the shipyard Krögerwerft in Rendsburg. One speciality is the combination of friction and storage winch for handling the very long and relatively thin measuring cables. The advantage is that the sensitive and expensive research ropes can be spooled on the storage winch free from load. The pull is created in the friction part and exerted via several grooved drums to protect the

rope. A spooling device that has been developed and patented by Hatlapa also is designed so that the rope is wound onto the storage winch in a clean and gentle manner. Thereby the crossing of rope layers resulting in rope breakages are avoided. The storage winches have a very large drum diameter for realizing low bending radii of rope when wound on for protecting the sensitive measur-

ing wires in the ropes. By using frequency inverter controlled motors the speed can be infinitely variably controlled and the winches operated synchronously. The electric driving capacity of each winch is up to 352 kW, which is produced by four 88 kW motors kW. To dissipate the heat arising in the electric motors water cooling is provided.

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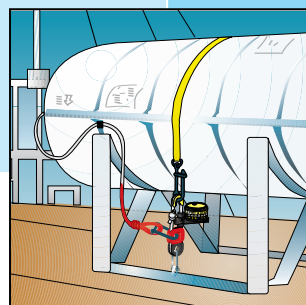
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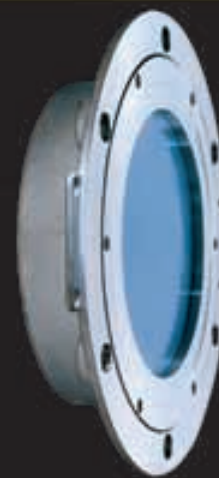
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(Continued from page 39)

Mission Marine Mission 452

The Mission 452 (34 x 13 ft.) Pilot House and was recently delivered by Mission Marine, Ltd. to the Department of Planning and Natural Resources located in Frederiksted on the island of St. Croix, USVI.

Custom made to accommodate the DPNR's special and varied usage requirements, it was chosen because of its multi-mission platform, stability, extraordinarily smooth ride, offshore capabilities, and ability to take rough seas. Given the climate of the islands, it has a



fully enclosed pilothouse with air conditioning and state-of-the-art electronics to assist the officers. It joins its sister vessel, also a custom-made Mission Marine aluminum catamaran, delivered last year in St. Thomas, USVI. Both vessels are powered by Mercury Verado Outboards.

Damen Receives Contract for 13 Patrol Boats

Following a European tender procedure, Damen Shipyards Gorinchem was awarded a contract for the construction and delivery of 13 patrol boats, 10 of which are designated for Korps Landelijke Politie Diensten (KLPD- a branch of the Dutch Ministry of the Interior and Kingdom Relations. The remaining



three boats will be deployed by the Koninklijke Marechaussee (KMar), which comes under the Dutch Ministry of Defense. Delivery will take place in 2007 and 2008. The 10 vessels for the KLPD will be used for inland surveillance duties.

Twin Ultrajets for Forth Ports Survey Cat

A new UltraJet-powered 14.5-m Survey Catamaran designed by Global Marine Design Pty Ltd., Australia, has been delivered to its new owners Forth Ports Plc. The Twin UltraJet 340 jets controlled by an UltraJet Joystick control system and driven by Cummins diesel engines are designed to provide Calatria with exceptional maneuverability and ease of operation.



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Q&A:

Upi Kamal, CEO, Fincantieri Marine Systems North America



MR: Fincantieri Marine Systems, North America has been recently introduced. Please provide details on how the new company differs from FDGM.

Kamal: All current activities of FDGM will be continued and subsumed by Fincantieri Marine Systems and we expect that this transition will be transparent to our current customers. Our new company, FMS, is part of the vision of Giuseppe Bono, Fincantieri's Chief

Executive Officer, to expand our presence and business base in the global maritime market. Drawing on the vast resources of our parent company, and forming strategic partnerships with other U.S. companies, Fincantieri Marine Systems, North America Inc. is uniquely qualified to provide fully engineered and integrated propulsion system and machinery plant solutions to industry. Further, services to existing customers will be enhanced as the additional resources of our parent company are brought to bear.

MR: Specifically, why was it decided to launch the new venture at this time?

Kamal: Mr. Bono believes that the time is right, in view of constrained defense budgets and the desire to get extremely cost effective supply and service in the future further improving on the already excellent standards we had achieved in the past at FDGM. He further believes, as I do, that we offer a unique combination of products, systems and services required by the marketplace.

MR: What do you believe differentiates your company from the competition?

Kamal: As I said, I believe that we bring a unique combination of goods and services to the marketplace. As a world-class shipyard, building the full gamut of merchant ships and naval vessels, we have proven that we can engineer, integrate, purchase, deliver, install, test and deliver to satisfied customers around the globe. As we are not a large hardware producer, we can make individually tailored choices that are far above standard solutions for our customers. And based on the lessons learned by Fincantieri while building hundreds of ships, we can both integrate machinery plant components as well as optimizing the machinery plants fit to the hull.

MR: There were reportedly some problems associated with the developmental, non-magnetic Isotta Fraschini engines installed in the U.S. Navy's Mine Force ships — what is the current status?

Kamal: The problems to which you refer were simple teething issues stemming from the Navy's traditional quest for upgrades that could be dealt with and quick-

ly resolved thanks to our attention to the Navy's needs and continuous drive for improvements. To help gain some momentum, we funded some necessary improvements to two ships that participated in Operation Iraqi Freedom.

We also provided an onboard technician who sailed with the Navy's personnel throughout the mission. These improvements proved more successful than either we or the Navy anticipated - with nearly 100 percent reliability. As a result, we are currently teamed with the Navy to institutionalize these improvements on all of the Mine Countermeasure ships. We are very pleased with the results and believe that any minor issues related to the Isotta Fraschini engines have been successfully identified, solved and are now behind us.

MR: Fincantieri Marine Systems has a significant presence in Ingleside Texas, which was on the recent Base Closure list — what are your plans?

Kamal: We understand from the Navy that the Mine Force ships currently stationed in Ingleside will be transferred to San Diego, Calif. Accordingly, we are already looking for office and maintenance space there so that we can continue to provide the same outstanding level of maintenance and training that the Navy enjoys in Ingleside.

MR: What other initiatives have you taken to expand Fincantieri Marine Systems' business base?

Kamal: We have aggressively marketed the entire line of Fincantieri products and services and this has led to some initial successes. We:

- will provide the Ship Service Diesel Generator and Ride Control System to the Lockheed Martin Flight Zero LCS;
- are currently re-engining one of the U. S. Coast Guard's Inland Construction Tenders, (WLIC) with an option for up to 10;
- recently concluded an agreement with Harvard University to provide a steam turbine for electrical generation.

As you can see, this new business spans a wide range of engineering products and services, and I believe only scratches the surface of our potential future work.

MR: Briefly describe your outlook for the business in 2006 and beyond?

Kamal: I am very optimistic, because I believe that our unique combination of products and services will be well received by the marketplace. I will shy away from specific numbers, but will be pleased to come back and talk with you in 2007 about our success.

MR: What do you consider the top priorities project wise for your company in the upcoming 12 to 24 months?

Kamal: First off, we must expand our team, with more first-rate professionals. Secondly, we must continue our aggressive marketing campaign to highlight the wide range of solu-

tions and services we can offer to the marketplace. And lastly, we must continue to honor our commitment and provide the same level of outstanding service that we currently offer to our customers.

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Circle 221 on Reader Service Card

Argonaut Laptop Receives Certification

Argonaut Computer announced what it calls the world's first marine laptop computer certified by the American Bureau of Shipping and compliant with International Marine Organization standards. The new Ranger model 1500T/TXL is a rugged, sunlight readable, high performance PentiumM laptop computer certified for use aboard naval and commercial vessels



worldwide.

"The 1500 performed flawlessly in all stress tests," said George Kioutas, President of Argonaut Computer. "We have devoted a decade of marine laptop experience to producing the ideal lightweight, powerful and high performance system for both professional and recreational marine use."

The Ranger was specifically engineered to reduce harmful emissions and passed the IEC/EN60945 standard without malfunction. Magnetic interference is also a concern, addressed by the 60945 test procedures to establish that the device is immune from ship borne magnetic energy. The Ranger was determined to be immune and performed without malfunction when exposed to high levels of magnetism.

Circle 17 on Reader Service Card

Impact-Resistant Hazardous-Rated Fluorescent

Phoenix Products Company released the LFSD Series Hazardous Location Snaplight fluorescent light fixture. The LFSD Series is a marine-rated fixture specifically designed to withstand harsh environments. With its hazardous classification and corrosion-resistant design, the LFSD is designed for use in cargo hold



areas, car ferries, offshore oil production rigs and vessels, wastewater treatment areas, or almost any environment requiring a Class I Division 2 hazardous location fixture.

The LFSD Series Snaplight is built with a corrosion-free, high-impact fiberglass-reinforced, UV-stabilized nylon housing and a high-impact polycarbonate diffuser. A watertight gasket provides a positive seal against moisture and dirt. To simplify relamping and maintenance, the diffuser is tethered to the housing, captive quarter-turn fasteners enable "tool-less" entry even into the ballast compartment, and all external hardware is captive and non-magnetic stainless steel. With springloaded lamp holders and heavy-duty shock-resistant stainless steel mounting feet, the LFSD is suitable for use in high-vibration environments. The standard ballast is 120V, 60HZ high power factor. Alternative voltages are available.

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Circle 245 on Reader Service Card

Radio Holland to Market VDR

Radio Holland Netherlands has formalized a co-operation with Netwave, manufacturer of a new generation of ultra compact Voyage Data Recorders, by signing an official distribution agreement.



Radio Holland Netherlands has been appointed as Netwave's agent for Sales and Service activities. Netwave's scalable VDR and (S)VDR architecture encompasses a minimal number of compact units, of which the interconnection is limited to a mere, single "WaveNet" cable. This feature enables 'fast-track' installation. Adding the auto-configuring remote-diagnostics capabilities of the system, this offers fleet owners a cost-effective roll-out solution and reliability at all times.

Circle 19 on Reader Service Card

Ultrasonic Testing in Tight Spaces

Probes that permit ultrasonic inspection to be performed in difficult-to-access areas are now offered as options to UE Systems' line of ultrasonic detectors. These sensors plug into the company's pistol-shaped instruments, allowing accurate readings of pressurized gas leaks such as compressed air and steam or vacuum leaks in tight places.



Models include "U-Bend," a bendable probe that fits Ultraprobe digital models 10,000 and 9000, and analog models 2000 and 100. "Tele-Bend" is a telescoping version available for Ultraprobe 10,000, 9000 and 2000, which extends up to 56" to reach overhead or hard to reach targets.

Circle 20 on Reader Service Card

New Hand-Held VHF

Simrad has introduced a rugged, professional-grade handheld VHF radio that combines full portability with the ability to communicate clearly and effectively using a handheld microphone, headset or lapel microphone. The new HT53 is based on Simrad's HT51 handheld. The new HT53 was designed through consultation with a major rescue organization. The addition of a chrome-plated brass accessories connector makes the HT53 ideal for use with a helmet communications set-up or connection to an external speaker.



Circle 21 on Reader Service Card

sAccelerometer Calibrator

Two new accelerometer calibration systems from Kistler Instrument provide on site calibration convenience for testing facilities and small laboratories. The

8002A Laboratory Calibration Reference Standard System consists of the new 5022 frequency compensated charge amplifier and 8002K reference quartz accelerometer and is chiefly used as a primary lab standard to maintain traceability of a working calibration standard, such as our 8804A Vibration Calibration System. The 8804A Laboratory Vibration Calibration System consists of the new 5022 frequency compensated charge amplifier and 8076K reference quartz accelerometer and is used as a working standard for back-to-back calibration of accelerometers.

Circle 22 on Reader Service Card

New Hawser Winch Design

Markey Machinery recently worked with G & H Towing to develop a new hawser winch design for replacement of the existing winch on the recently acquired tractor-tug, renamed William M., purchased from Edison Chouest Offshore. The new type DEPCF-42 Electric Ship-Assist & Escort Winch installed on the bow features a 40 hp electric-motor drive, a drum sized for over 500 ft. of 8-in. soft-line, and a



level-wind fairleader to help prevent the soft-line from pulling down through lower layers. The high-capacity automatic drum brake will hold more than 300,000 lbs. Markey also outfitted this winch-system with its Line-Tension Display System, which shows the operator the tension in the line while the drum brake is set.

Circle 23 on Reader Service Card

Stainless Steel Fully Coated Self-Locking Ties

Panduit introduces Pan-Steel Stainless Steel Fully Coated Self-Locking Ties with the strength of 316 stainless steel and the protection of a coated polyester body. These standard (.18" width), heavy (.31" width), extra-heavy (.50" width) and super-heavy (.625" width) cross-section ties provide a durable method of bundling and fastening for harsh offshore and shipbuilding environments where strength, vibration, salt spray, UV radiation, weathering, corrosion and temperature extremes are a concern.

Circle 24 on Reader Service Card

Type Approval for SVDR

Northrop Grumman received type approval from the German certification authority Bundesamt für Seeschifffahrt & Hydrographie (BSH) for the Sperry Marine VoyageMaster II Simplified Voyage Data Recorder (S-VDR).

"The VoyageMaster S-VDR has been designed to provide a cost-effective and space-saving solution to fulfill the carriage require-

ments for retrofit on existing cargo ships, while reducing the time required for installation, configuration and certification of the equipment," said J. Nolasco DaCunha, vice president and general manager of Northrop Grumman's Sperry Marine commercial marine group.

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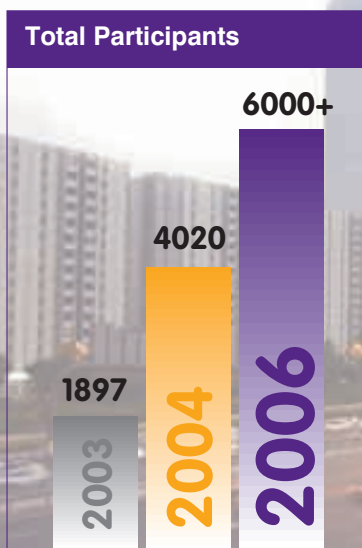
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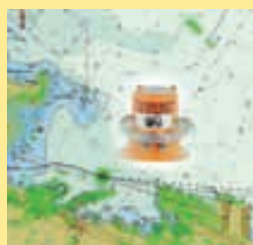
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Products: gyrocompasses, inertial navigation systems, motion sensor, detection systems

LR to Class World's Largest LNG Ships

Lloyd's Register is to class all six of the next series of large liquefied natural gas (LNG) ships ordered by Qatar Gas Transport Co Ltd (NALIKAT) for the fifth train of the Qatargas II project. These 'Qmax' ships will be the world's largest LNG ships. They will be twin-skeg, driven by two diesel engines and fitted with re-liquefaction plant. They will transport gas from Qatar to the US. Three of the ships will be built at Samsung Heavy Industries (SHI), with a cargo capacity of 266,000 cu. m., and the other three at Daewoo Shipbuilding and Marine Engineering (DSME) with a cargo capacity of 263,000 cu. m.. Both yards have recently re-organized their production plants to accommodate the construction of these giant ships.

MAN B&W Capitalizes Offshore

MAN B&W Diesel has positioned itself on the offshore market, having sold more than 80 engines to the sector so far this year. The supplier of large-bore diesel engines has been receiving a particularly high number of orders from Norway and Singapore. The engines ordered are destined for use in nearly all areas of offshore oil and gas extraction, including FPSO, research vessels, platform supply vessels (PSV), anchor handling tug supply vessels (AHTS), pipelay vessels, remote operated vehicle vessels (ROV) and drilling vessels. Some of the engines are from the 27/38 and the 21/31 series, which are produced in Frederikshavn, Denmark, while others are from the

32/40 series, which are manufactured by MAN B&W's Augsburg plant and also by its Korean licensee STX Engines.

Hyde Marine to Distribute for Sherwin-Williams

Hyde Marine has been appointed exclusive distributor to the cruise industry for The Sherwin-Williams Company's (S-W) new Security Coating Systems business unit. The S-W Security Coating Systems business unit offers coating technologies that provide blast protection to individuals and ship-board infrastructure that could result from accidental or intentional explosions. The new business unit has a strategic relationship with Life Shield Engineered Systems, LLC (Life Shield) of Salisbury, MD.

Transas to Supply SVDR's for Odfjell

Transas Scandinavia's Norwegian office based in Horten has confirmed that it has secured the contract to fit 24 Transas Simplified Voyage Data Recorders (S-VDR) and 19 Dual Electronic Chart Display and Information Systems (ECDIS) to ships in the Odfjell fleet, starting with immediate effect.



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Omegadyne

The PX2471 Series Pressure Transducers are designed and tested to meet the new Marine Pressure Standards MIL-T-24742(SH) and ASTM F2070 when invoked. Applications include naval ship-board use, both on surface and sub-surface vessels, as well as general marine uses on new construction and ship overhauls.

Circle 101



Autoship

System's CAD/CAM suite includes programs used for vessel surface modeling, hydrostatic/ strength analyses, powering, structural modeling, plate expansion and nesting. They are fully integrated - the model transfer from one program to the next is easy and error free. Standard file exchanges are supported allowing data exchange with third party programs.

Circle 102



CCWS

Designed by Coffin World Water Systems (CWWS), ULTRA-SEP Bilge Water Separators were the first systems in the world certified by the USCG to the standard of the IMO's new resolution MEPC.107.(49). USCG certificates of approval issued to all eight available ULTRA-SEP models.

Circle 103



ASA/Jensen

ASA/Jensen Marine's Voyager Observation System can be utilized as a way to keep watch over the engine room or sleeping quarters. Using the system to for potential fire hazards is becoming is a way to stay informed of the boat's inner workings. As another option, the observation system can also be used as a security system.

Circle 104



Altair

The Altair Single-Gas Detector from MSA Instrument Division features three sensor options: carbon monoxide, hydrogen sulfide and oxygen. Carbon monoxide and hydrogen sulfide versions can operate for over two years. Advanced design offers superior dust and water protection and high resistance to RFI.

Circle 105



Metals USA

Metals USA is a provider of large sheets of steel for shipbuilding with facilities. The facilities use a Wheelabrator Blast and Paint Line System. Designed to blast 12-ft. wide raw steel plates and small structural shapes, the machine is primarily used to blast plates for shipbuilding. With the new machine, only one operator is required.

Circle 106



Elmridge

All-ReadyComplete First Aid System, developed in partnership with the National Safety Council, contains essential supplies & easy instructions with illustrations. Eleven different care packs. Easily integrates into existing first aid training programs and allows companies to meet OSHA standards. Re-supply is as easy as ordering a new pack.

Circle 107



Miller

Miller Electric's new Dynasty 700 AC/DC TIG/Stick inverter features Independent AC amperage control and four AC waveshaping options. It can dramatically increase travel speeds while decreasing cycle times and the need for rework.

Circle 108



Thermo Electron

Thermo Electron Corporation announced its new carbon dioxide, the AutoCO2. The AutoCO2 measures carbon dioxide concentrations in natural gas to maintain gas quality control at delivery points. It detects CO2 in natural gas using non-dispersive infrared technology (NDIR).

Circle 109



Reid Supply

Reid Supply Company released a new 88-page catalog consisting of stainless steel parts and devices. The new catalog contains over 6,000 stainless items in categories including clamps, quick release pins, thread inserts, latches, ball plungers and springs. The catalog is a subset of the Reid Supply catalog containing industrial components.

Circle 110



Parker

Parker Engineered Polymer Systems (EPS) Division has published a 434-page comprehensive Rotary Seal Design Guide (Catalog EPS 5350/USA) which is poised to become the sealing industry's premier engineering guide for rotary sealing applications. A variety of features include: overview of rotary seal product lines: Clipper Oil Seal, Parker Oil Seal, ProTech.

Circle 111



Marine Safe Electronics

Marine Safe Electronics of Canada Ltd. incorporated in 1972 and operating as MSE of Canada Ltd., manufactures and distributes insulation fault detectors for electrical motors, generators, transformers, power and control systems. Recently specified by Alstom and ABB for LNG owners/operators.

Circle 112



Western Fire & Safety

The AFFF 2.5 Gallon is a USCG approved foam fire extinguisher. It is designed to prevent re-ignition of fires. It features a stainless steel cylinder with brass valve body to prevent corrosion and rusting. The Schraeder valve design allows for easy, self, field recharging. It boasts penetrating ability for class A Fires.

Circle 113



Marine Gangways

Marine Gangways maintains an inventory of common component parts allowing for quick response to critical near-term requirements of clients. The company not only provides new products, but can repair and update existing gangway. The products are assembled from component parts by a G-3 certified welder.

Circle 114



ESL Power Systems, Inc.

Plug into Shipyard Safety with ESL's industrial electrical power systems. Built for Shipyard applications, the safety-interlocked power distribution solutions are marine grade, custom-engineered and provide improved power delivery, flexibility and superior safety protection.

Circle 115



Cat Pumps

Cat Pumps introduces the new Mag-Jet Valve for jetting. The Mag-Jet uses a special SS magnetic valve and a super strong corrosion resistant magnet to hold one inlet valve open, creating a strong pulse-jetting action to power nozzles through the toughest clogs.

Circle 116



Railko

Railko offer complete bearing assemblies for both oil and water lubricated stern tube and bracket installations. These assemblies offer installation accuracy and are cost effective. Railko bearings are fitted to both merchant and naval vessels. Each bearing is designed to specific vessel requirement.

Circle 117



Mustang

The Mustang Survival Coverall MS2075 is designed for a range of industrial uses, the Classic suit is durable, safe and mobile. Also delivering warmth and comfort in cold weather environments, the suit's closed-cell foam provides flotation and in-water insulation to delay the onset of hypothermia.

Circle 118



Comnav

Designed to work with the ComNav ComPilot Advanced Autopilot System, the 203 has a backlit graphical display so system information is easy to read. The watertight case has sealed openings and is made from high-impact material that is resistant to most chemicals so the unit can withstand the harsh marine environment.

Circle 119



MAN B&W

MAN B&W secured a contract for the supply of four GenSets for a diesel-electric natural gas hydrate integrate research vessel newbuilding in China. It will be built by Wuchang Shipyard, is to be powered by three MAN B&W main Holeby GenSets, type 6L27/38, together with a harbor/auxiliary GenSet, type 9L16/24.

Circle 120



Bernard

Bernard will provide a Q-Gun and samples of Centerfire consumables with the purchase of most industrial wire feeder products and bundled MIG welding systems from Miller Electric Mfg. Co. Bernard has also implemented 'Choose Your Weapon' Gun Exchange program, allowing end-users to get the right gun for their application.

Circle 121



Viking

The Viking PS2004 insulated immersion suit is SOLAS 96/98- and EC-approved to provide crew and passengers aboard vessels a first defense against cold water exposure. It is known as a 6-hour suit, for meeting the SOLAS 96/98 requirement of maintaining a person's core body temperature above 95° when immersed in 35° water for 6 hours.

Circle 122



Fixturlaser

The Fixturlaser Cardan Fixture is a set of fixtures to be used together with the laserbased shaft alignment systems, Fixturlaser Shaft200 eller Fixturlaser Shaft300. The new cardan fixture is rigid and can be mounted anywhere on the machine's flange. Its features result in high measurement accuracy and repeatability.

Circle 123



Feteris

Feteris supplies the latest joysticks and potentiometers for DP and Thruster applications. Configure your joystick from a list of standard models and options, or custom design a handle to meet your specific needs. Feteris joysticks and potentiometers are suitable for all types of marine applications and conditions.

Circle 124



Stinger

Stinger units are self-activating fire suppression systems designed to protect compartments from 25 to 175 cu. ft. in volume. Available in six models, they are ideal for engine compartments and ancillary protection in sections of vessels, such as bow thruster compartments, wiring harness consoles and flammable liquid storage cabinets.

Circle 125

BUYER'S DIRECTORY

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

ACCOMMODATION LADDERS & GANGWAYS

Generon IGS, 11985 FM 529, Houston, TX 77041

AIR CONDITIONING & REFRIGERATION

Cospolch Refrigeration, 14695 Highway 61, Norco, LA 70079
RW Fernstrum, 1716 11th Avenue, Menominee, MI 49858, 9068635553, 9068635634, seanf@fernstrum.com, Contact: Sean Fernstrum, www.fernstrum.com

ANCHORS & CHAINS

Anchor Marine, PO BOX 58645, Houston, TX 77258
GJ Wortelboer Jr. B.V., P.O. Box 5003, 3008 AA Rotterdam, Netherlands

AUCTIONEERS

International Boat & Marine Auction, 7 W. Cheryl Drive, Phoenix, AZ 85021

AUTOPILOT SYSTEMS

AG Marine Inc., 5711 34th Avenue, Gig Harbor, WA 98335-8548
ComNav Marine Ltd., 13511 Crestwood Pl., Ste 15 15, Richmond, BC V6V 2G1, Canada

BALLAST

Ballast Technologies, 4620 S. Coach Dr., Tuscan, AZ 85714

BEARING- RUBBER, METALLIC, NON-METALLIC

Craft Bearing, 5000 Chestnut Ave., Newport News, VA 23605
Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler
Thordon Bearings, 3225 Mainway, Burlington Ontario L7M 1A6, Canada

BILGE SYSTEMS

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

BOATBUILDER

AF Theriault & Son, P.O. Box 10, Meteghan River, NS B0W 2L0, Canada
AMERICAN MARINE HOLDINGS GOVERNMENT SERVICES, 1838 Turnbull Lakes Drive, New Smyrna Beach, FL 32168
Blount Marine, 461 Water St., Warren, RI 02885
Gladding Hearn, 1 Riverside Ave., Somerset, MA 02725
Willard Marine Inc., 1250 N. Grove St., Anaheim, CA 92806

BOLLARDS

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

BULKHEAD SEALS/PANELS

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

CAD/CAM SYSTEMS

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

CAPSTANS

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

CARGO MANAGEMENT

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

CARGO MONITORING & CONTROL SYSTEM

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

CAST IRON REPAIR

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

CFD SOFTWARE

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

CHAINS

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

CLOSED CIRCUIT TELEVISION

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

COATINGS/ CORROSION CONTROL/PAINT

Ameron International Performance, 13010 Morris Road, Ste 400, Alpharetta, GA 30004
Chugoku Marine Paints, P.O. Box 73, 4793, Netherlands
Ferro Corp., 1301 North Flora St., Plymouth, IN 46563
Flow International Corp., 23500 64th Ave., South Kent, WA 98059
International Paint Co., Stonegate Lane, Felling, Gateshead, Tyne and Wear NE10 OJY, UK
Mascoat Products, 4310 Campbell Rd, Houston, TX 77041
NAPASCO, INC., 213 Main Project Road, Shriever, LA 70395, 985-449-0730, 985-449-0740, napasco@napasco.com, Contact: Pam Bartell, www.napasco.com
Sea Coat Technology, 11215 H Jones Road West, Houston, TX 77065

COMMUNICATIONS

David Clark, PO Box 15054, Worcester, MA 01615
L-3 Communications, 6000 Fruitville Road, Sarasota, FL 34232
Pipeline Communications and Technology, Inc., 2800 Woodlawn Dr. Ste. 264, Honolulu, HI 96822
Xantic, PO Box 30012, 2500 GA The Hague, Netherlands

COMPOSITE SHAFTS

Centa Corp., 815 Black Hawk Drive, Westmont, IL 60559, 630-734-9600, 630-734-9669, bobl@centacorp.com

COMPUTER/ COMPUTER SOFTWARE

Creative Systems Inc., P.O. Box 1910, Port Townsend, WA 98368
Omega Engineering, One Omega Dr., Stamford, CT 06907

CONSULTANTS

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

CONTROL SYSTEM-MONITORING/STEERING

Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065
Electrowave U.S.A., 6125 W. Sam Houston Pkwy., Ste 406, Houston, TX 77041
G.R. Bowler, 2261 Lake Rd., Ontario, NY 14519
Kobelt Manufacturing Co., Ltd., 8238-129 Street, Surrey, BC V3W0A6, Canada
L-3/TANO-EDI, 759 Hill Street, New Orleans, LA 70121, 504-831-9800, 504-833-4119, guy.hardwick@l-3com.com
Omega Engineering, One Omega Dr., Stamford, CT 06907

CORROSION CONTROL

Furuno USA Inc., 4400 NW Pacific Rim Blvd, Camas, WA 98607

COUPLINGS

American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884, 863 324 2424, 863 324 4008, vulkanusa@vulkanusa.com, www.vulkanusa.com
Centa Corp., 815 Black Hawk Drive, Westmont, IL 60559, 630-734-9600, 630-734-9669, bobl@centacorp.com
Mapeco Products, 91 Willenbrock Rd., Unit B, Oxford, CT 06478

CRANE - HOIST - DERRICK - WHIRLEYS

David Sales, PO Box 232, Jefferson Valley, NY 10536
DMW Marine, LLC, 1123 Street Matthews Road, Chester Springs, PA 19425, 610-827-2032, 610-827-1199, dw@dmwmarine.com, Contact: Douglas M. Weidner, www.dmwmarine.com/
E. Crane, 241 Executive Dr., #3, Marion, OH 43302

CRANKSHAFT REPAIR

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

CUTTING & WELDING MACHINES

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

DECK MACHINERY- CARGO HANDLING EQUIPMENT

Burrard Iron Works Ltd., 220 Alexander Street, Vancouver, BC V6A 1C1, Canada, 604-684-2491, 604-684-0458, sales@burrardironworks.com
Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, 228-832-7655, 228-832-7675, sales@coastalmarineequipment.com, Contact: Ralph Waguespack, www.coastalmarineequipment.com
David Sales, PO Box 232, Jefferson Valley, NY 10536
DMW Marine, LLC, 1123 Street Matthews Road, Chester Springs, PA 19425, 610-827-2032, 610-827-1199, dw@dmwmarine.com, Contact: Douglas M. Weidner, www.dmwmarine.com/
Global Incorporated, P.O. Box 24, 160 Cannery Road, Somerset, PA, PA 15501
Hyde Marine Inc, 28045 Ranney Parkway G, Cleveland, OH 44145-1144
Nabrco Marine Products, 1050 Trinity Road, Ashland City, TN 37016
Norwegian Maritime Equipment AS, BOX 244, NO-5480 HUSNES, Norway

DIESEL ENGINE OVERHAUL

Detroit Diesel Corporation, 13400 Outer Drive West, Detroit, MI 48329-4001
Fincantieri Marine Systems, 800 Principal Court, Suite C, Chesapeake, VA 23320

DIESEL ENGINE- SPARE PARTS & REPAIR

Chris Marine AB, Box 9025, 200 39 Malmo, Sweden
Mariso USA, Inc., 12783 Capricorn Dr., Stafford, TX 77477

DIESEL FUEL INJECTORS

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

DISPLAY TECHNOLOGY

Barco Simulation, 600 Bellbrook Avenue, Xenia, OH 45385

DOOR LOCKS

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

DOORS- MARINE & INDUSTRIAL

Diamond/Sea Glaze, 19372-94th Ave, Surrey, BC V4N 4E4, Canada
Joiner Systems, 1925 52nd Avenue, Lacine, Quebec H8T 3C3, Canada
Seaclear Industries, 220 Maltby Rd., Suite 131, Bothell, WA 98012
USA Sliding Doors, Inc., 801 Hosmer Road, Churchville, NY 14428, 585-538-4160, 585-538-2806, info@usaslidingdoors.com, Contact: Mr. Robert Weiland, www.usaslidingdoors.com

DRILLS

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

EDUCATION

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

ELECTRICAL SERVICES

QCI Marine Offshore, 6754 Willowbrook Park Dr, Houston, TX 77066

EMPLOYMENT

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

ENGINE ROOM LIGHTING/ MONITORING & CONTROL

GMT Electronics, 171 Main St., South River, NJ 08882

ENGINES

Fairbanks Morse, 701 White Avenue, Beloit, WI 53111
Fincantieri Marine Systems, 800 Principal Court, Suite C, Chesapeake, VA 23320

ENVIRONMENTAL SOLUTIONS

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

EQUIPMENT FINANCING

AlG Commercial Equipment Finance, Inc., 5700 Granite Parkway, Suite 850, Plano, TX 75024, 972-987-3708, 972-987-3700, kirk.phillips@aig.com

EXHIBITIONS/TRADE SHOWS

CMA Shipping, 62 Southfield Ave, Stamford, CT

EXTRUDED RUBBER PRODUCTS

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

FENDERING SYSTEMS/ BUOYS - DOCK & VESSEL

Anchor Marine & Industrial Supply, PO BOX 58645, Houston, TX 77258
Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler

FILTERS/FILTER SYSTEMS

Hellan Strainer, 3249 Pike Road, Missouri City, TX 77489

FIRE & SAFETY PRODUCTS

IFSTA/Fire Services Program, 9030 N. Willis, Stillwater, OK 74078-8045
IMSSCO Corporation, 2040 Harbor Island Drive, Ste. 201 A, San Diego, CA 92101
Western Fire & Safety, 2446 NW Market Street, Seattle, WA 98107

FLOW CONTROLS

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

GALLEY EQUIPMENT

Cospolch Refrigeration, 14695 Highway 61, Norco, LA 70079
Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431

GANGING & SAMPLING

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

GENERATOR CONTROLS

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

GLASS

Garibaldi Glass, 7344 Winston Street, Burnaby, British Columbia V5A 2G9, Canada
ProCurve Glass Technology, LLC, 3535 Davisville Rd., Hatboro, PA 19040

HEAT EXCHANGERS

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

HIGH SPEED FERRY BUILDERS

Incat Australia Pty. Ltd, 18 Bender Marine, Hobart 7009, Australia

HOISTS

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

HVAC

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

QCI Marine, 6754 Willowbrook Park Drive, Houston, TX 77066, 281-885-1300, 281-885-1349, Lbobbitt@qcinmarine.com

HYDRAULIC SYSTEMS

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

IMAGING EQUIPMENT

EMX, Inc., 4200 Dow Road, Suite C, Melbourne, FL 32934

INFRARED IMAGING EQUIPMENT

Fliir Systems, 16505 SW 72ND AVE, Portland, OR 97224

INSULATION

Superior Energies, 3115 Main Ave., Groves, TX 77619
Superior Energies Inc., 3115 Main Ave., Groves, TX 77619

INTERIOR MATERIALS

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

INTERIORS

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

QCI Marine Offshore, 6754 Willowbrook Park Dr, Houston, TX 77066, 281 885 1300, 281 885 1349, Lbobbitt@qcinmarine.com, Contact: Larry Bobbit, www.qcinmarine.com

JOINER, WALL SYSTEMS, CEILING SYSTEMS, DOORS

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

JOINER- WATERTIGHT DOOR-PANELING- CEILING SYSTEM

Joiner Systems, 1925 52nd Avenue, Lacine, Quebec H8T 3C3, Canada

JOYSTICKS & POTENTIOMETERS

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

KEEL COOLERS

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

RW Fernstrum, 1716 11th Avenue, Menominee, MI 49858, 9068635553, 9068635634, seanf@fernstrum.com, Contact: Sean Fernstrum, www.fernstrum.com

LIFEBOATS/RAFTS

DBC Marine Safety Systems, 101-3760 Jacombs Rd., Richmond, BC V6V 6T3, Canada
Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169

LIFESAVER EQUIPMENT

C.M. Hammar AB, August Barks Gatán 15, 421 32 Vastrå Frolunda, Sweden
Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169

LOAD CELLS

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

MARINE ELECTRONICS

GMT Electronics, 171 Main St., South River, NJ 08882
Hatteland Display, Bogstadvæien, 19, N-0355 Oslo, Norway
Saab Marine Electronics, Box 13045, 402 5Goteborg, Sweden

MARINE ENGINE EMISSIONS MONITORING

Martek Marine Ltd., Century Business Park Manvers Way, Rotherham, South Yorkshire S60 5DA, UK

MARINE ENGINEERING

Delta Marin, Kurokatsu 1, Raisio FIN-2100, Finland
Elliot Bay Design Group, 5301 Shishole Ave. NW, Ste. 200, Seattle, WA 98107
Hike Metal, PO BOX 698, Wheatley, ON NOP 2PO, Canada

MARINE EQUIPMENT

Tidewater Skanska Inc., PO Box 57, Norfolk, VA 23501, 757-547-2153, 757-547-4806, sbj@tidewaterskanska.com
Waterman Supply, P.O. Box 596, Wilmington, CA 90748

MARINE HARDWARE

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

MARINE HAZARD RESPONSE

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

MARINE MANAGEMENT

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

MARINE PRESSURE TRANSDUCERS

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

MARINE TRANSPORTATION

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

MARITIME TRAINING & SCHOOLS

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

MONITORING SYSTEMS

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

MOTOR PROTECTION

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

NAV/COMM EQUIPMENT

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

NAVAL ARCHITECTS, MARINE ENGINEERS

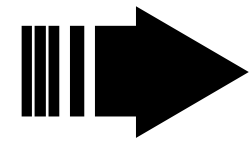
Band, Lavis, & Associates, Inc., 900 Ritchie Hwy, Suite 203, Severna park, MD 21146
Bay Engineering, 253 N. First Ave., Sturgeon Bay, WI 54235

INFORMATION

SHOWCASE

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SNAME, 601 Pavonia Ave, Jersey City, NJ 07306

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Job Location: USA, Houston, TX
Req.# (32585)

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Preferred candidate must have good resume of customer contacts within the industry and Knowledge/familiarity with the classification rules such as ABS, USCG, Lloyd's, etc.

Knowledge of Siemens systems and products, international business experience and results in developing business partners, internal and external, would be a plus.

Education:

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GA Alpharetta USA

Phone: 770-754-6799

Email: erin.lechleitner@siemens.com

SeaStar Sales Representative

Job Location: USA, Dulles

JOB SUMMARY

Manage the sales process by locating, pursuing, developing and closing new business in assigned territory. Work with current accounts and subscribers for additional business, follow up on new sales leads, provide product and sales demonstrations to prospective customers and formulate appropriate business relationships with accounts and SeaStar Agents. Analyze sales territory information, generate sales forecasts and work with existing SeaStar Agents. Assist in

the implementation of sales and promotional programs, train SeaStar Agents and business partners on how to sell products and services. Domestic and international travel from 30 - 50% is required. Work closely with other Geoeye team members to insure coordination and successful achievement of objectives. A Bachelors Degree (BA/BS) or equivalent experience is required. 2 - 4 years of related experience is required. One year supervisory experience preferred.

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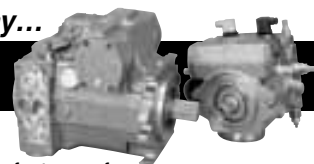
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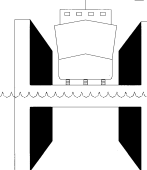
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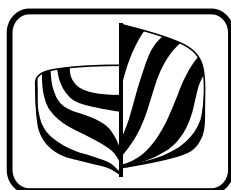
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