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MARITIME REPORTER AND ENGINEERING NEWS

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September 2010

Marine Coatings

Protecting Maritime Assets

Rear Admiral Mark Buzby & Military Sealift Command

Keeping the Navy Armed, Fed & Fuelled

Marine Propulsion

The Cost of Future Air Emission Regs

Government Update

Overlapping Offshore Investigations

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ON THE COVER

ROUNDTABLE

20 # Marine Coatings

This month *MR* taps the minds of some of the world's leading coatings and corrosion control companies to discover tips and techniques to keep a vessel's coating system in shape to withstand the rigors of the marine environment.

BOAT REPORTS

38 # RIBS & Patrol Craft

MR provides details and specs on some of the latest RIBS and patrol craft on the world's waterways.

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Richard DeSimone is President, Travelers Ocean Marine.

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Henrik Segercrantz is a Finnish Naval Architect with 30 years experience from the shipbuilding industry.

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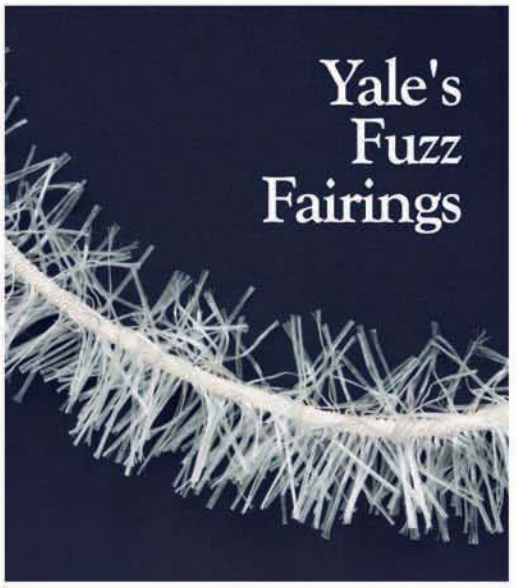
"...and you thought we just made rope..."



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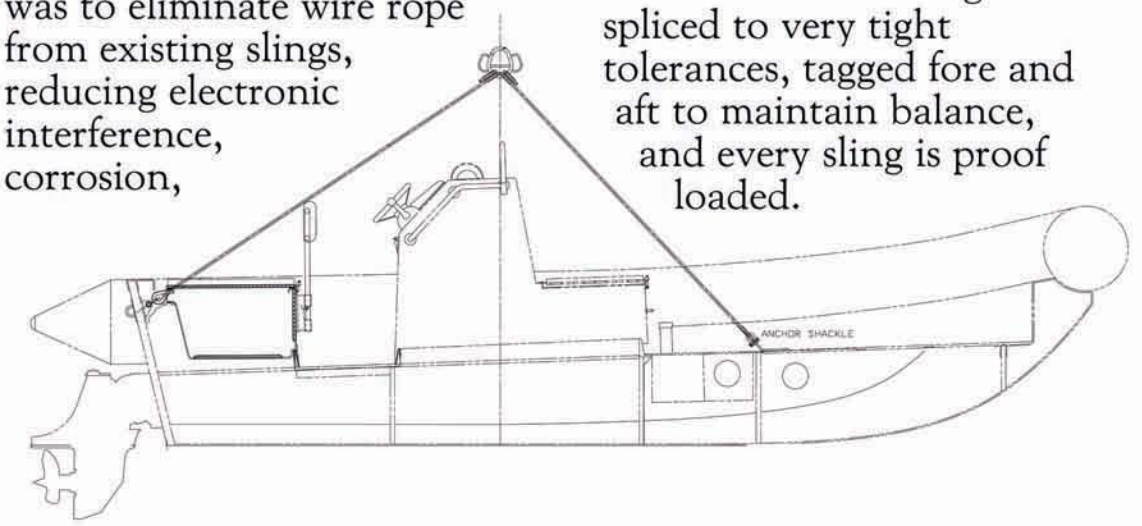

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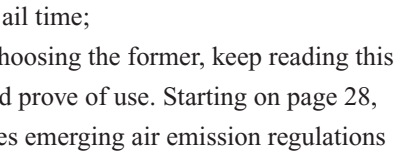
It was not so many years ago that claims of "being green" was more marketing slogan than corporate strategy. Today, this is not the case. Environmental regulations that impact every facet of maritime operations will continue to grow stonger and more stringent, from the engine room through the living quarters to the coating system. Operators in the maritme niche have just a few options, which include: Planning in advance to pay the price of compliance while building the additional costs into your business plan; skirting the law and facing the possibility of getting caught, paying a hefty fine and possibly jail time; or getting out of the business. For those of you choosing the former, keep reading this edition as it is packed with information that could prove of use. Starting on page 28, contributing editor **Henrik Segercrantz** examines emerging air emission regulations and their impact the way in which you power and repower your vessels, today and in the future. Engine makers around the world are working feverishly to reduce emissions while maintaining performance, durability and fuel efficiency. A particularly important date shipowners should set an alarm for now is January 1, 2016, as ships that start construction after this date must comply with stricter Tier III engine requirements, resulting in higher equipment costs in addition to extra fuel and energy consumption costs. With that date in mind, it will be interesting to watch the flurry of orders and new project starts before New Year's Eve 2015.

Marine Coatings is another area of obvious interest when discussing environmental impact. Coatings, of course, are charged primarily with ensuring the life-long strength and integrity of the marine structure to which they are applied, but modern marine coating systems are increasingly used to help vessel owners increase fuel efficiency and extend maintenance periods. This month we tapped the minds of several leading coatings manufacturers in our annual "Coatings Roundtable" to present new developments in this regard.



Correction

In July 2010 we published our Annual Diesel Engine directory. EMD was erroneously omitted, and some details on the Isuzu line were incorrect. The correct line-up for both engine makers is printed here.

Electro-Motive Diesel, Inc.

9301 W. 55th Street, La Grange, IL 60525
Contact: Brian Grinter
Tel: 708-387-6081
Email: brian.r.grinter@emdiesels.com
www.emdpowerproducts.com

Model	No.Cyl Cyl (L)	Displ. (cu in)	Weight (lb) (lb)	High Output (bhp@rpm)	Continuous Duty (bhp@rpm)	Dimensions LWH (in)	Bore x Stroke (in)
8-710 G7C-T2	8	710 in3/cyl	26000	2200@900	2000@900	145 X 69.5 X 110	9-1/16 X 11
12-711 G7C-T2	12	711 in3/cyl	33000	3300@900	3000@900	184 X 69.5 X 118	9-1/16 X 11
16-712 G7C-T2	16	712 in3/cyl	40500	4400@900	4000@900	232 X 69.5 X 118	9-1/16 X 11
20-713 G7C-T2	20	713 in3/cyl	46700	5500@900	5000@900	265 X 69.5 X 124	9-1/16 X 11

Isuzu Motors America Inc.

46401 Commerce Center Dr., Plymouth, MI 48170
Tel: 248-497-3902
Contact: Bob Links
E-mail: bob.links@isza.com
Web:www.isuzuengines.com

Model	Cyl.	Displacement (cu. in.)	Bore x Stroke	LxWxH (in.)	Weight (lbs.)	Commercial Ratings 3-4000 hr. Duty	4-5000 hr. Duty	+ 5000 hr. Duty
UM6HK1WMAB2H	6	7.8 L (476)	4.52 x 4.92	56.89 x 38.93 x 23.25	1676	—	300 @ 2400	—
UM6HK1WMAB3H	6	7.8L (476)	4.52 x 4.92	56.89 x 38.93 x 23.25	1676	350 @ 2500	—	—
UM6WG1TCAA1K	6	15.7L (958)	5.79 x 6.06	74.68 x 35.5 x 52.91	3219	—	—	505 @ 1800
UM6WG1TCAA2K	6	15.7L (958)	5.79 x 6.06	74.68 x 35.5 x 52.91	3220	650 @2100	—	
UM6WG1WMAB1K	6	15.7L (958)	5.79 x 6.06	74.68 x 35.5 x 52.91	3220	—	—	505 @ 1800
UM6WG1WMAB2K	6	15.7L (958)	5.79 x 6.06	74.68 x 35.5 x 52.91	3220	—	600 @ 2000	
UM6WG1WMAB3K	6	15.7L (958)	5.79 x 6.06	74.68 x 35.5 x 52.91	3220	670 @ 2100	—	—
Export Models								
UM4JB1TCX	4	2.8L (169)	3.66 x 4.02	44.60 x 24.92 x 31.57	650	114 @ 3200	—	—
UM4JG1TCX	4	2.8 L (169)	3.66 x 4.02	47.24 x 26.42 X 34.13	738	135 @ 3200	—	—
UM4BG1TCX	4	4.3 L (262)	3.94 x 4.13	50.51 x 23.85 x 37.04	1160	200 @ 2800	—	—
UM6BG1TCX	6	5.8L (305)	4.13 x 4.92	52.87 x 24.78 x 38.11	1521	282 @ 2700	—	—
UM6HE1TCX	6	7.2L (439)	4.33 x 4.92	56.89 x 26.9 x 41.10	1598	344 @ 2800	—	—
UM6SD1TCX	6	9.5L (579)	4.63 x 5.71	59.75 x 30.31 x 46.81	2283	374 @ 2300	—	—

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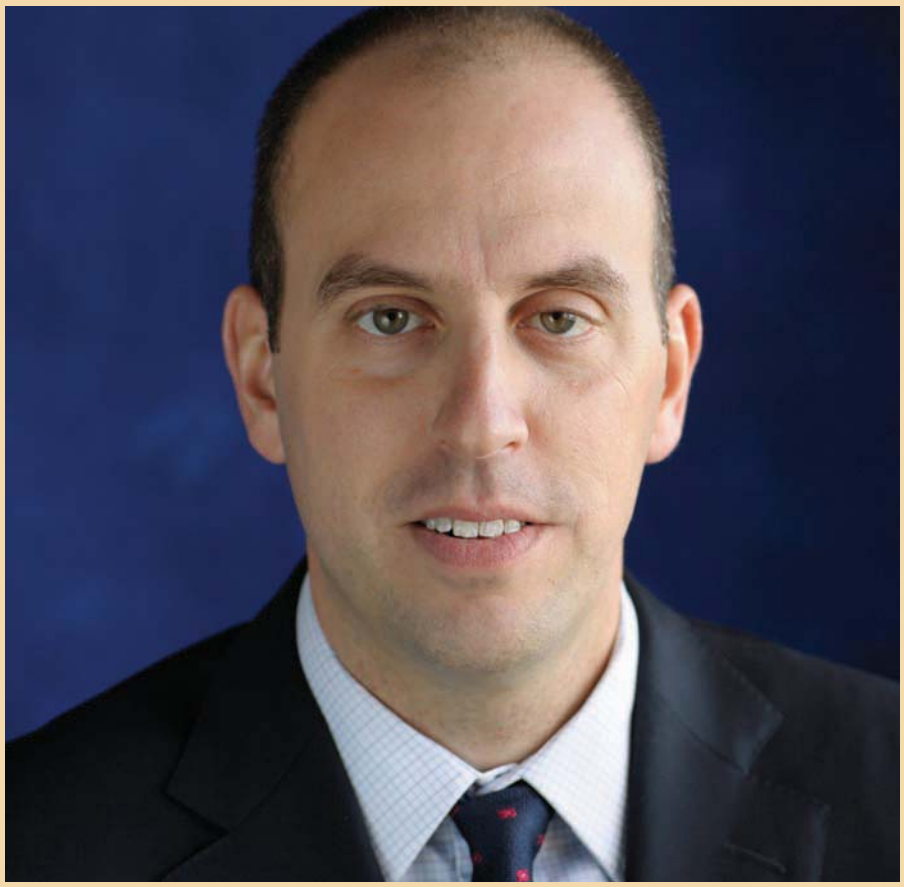


Technology is driving ships to be more and more complicated, which is a big challenge for ship repairers. Some of the repairs require product specific knowledge on specific systems. As things get more complicated and technical expertise gets scarcer, there is a heavier reliance on the OEM's.

Joe Corvelli

Maritime Reporter & Engineering News recently spent time with Joe Corvelli, CEO of Gibdock, the Gibraltar-based ship repair and conversion company. Corvelli, a Long Island, NY-native and Webb Institute graduate, has in three short years helped to foster a safety and quality management culture at this fast-growing company.

*By **Greg Trauthwein**, Editor*

An aerial view of Gibdock.

Can you tell us a bit about yourself?

JC: I grew up in Smithtown (Long Island) New York, where I can blame the love of the sea on my father. I grew up sailing and boating, and attended Webb Institute, graduating with a Naval Architecture and Marine Engineering degree.

How did come to be CEO of a Gibraltar-based ship repair company?

JC: After graduating from Webb, I started a job as a port engineer, and evolved to building custom commercial and pleasure yachts in south Florida. The maritime world, as you know, is a small one, and a classmate of mine knew the owners of the yard (Gibdock), and that they were searching for a new CEO. I moved out to Gibraltar, which is a great location with an incredible maritime community and history, in October 2007.

What do you consider the most significant changes that have occurred within the maritime industry in the last five years?

JC: There a number of them, but the biggest two, in my opinion, center on human resources and the environment. In ship repair, most of the 'run of the mill' work hasn't changed much, but what has changed is the manner in which we go about our business. In terms of human resources, we have and continue to instill a culture promoting health and safety. We view ourselves very much as a service provider … we differentiate ourselves with outstanding customer service. But our policy is one that we don't just want certificates on the walls and books on the shelves; we want, as management, for it to have a practical effect on the ground. On the environment, there has (and continues to be) a tremendous growth in

awareness of health and safety and environmental issues and practices, and investment by shipyards and supporting companies. I am most proud of two certificates from Lloyd's Register: our ISO18001 which certifies the proficiency of our Occupational Health and Safety Management Systems; and our ISO14001which certifies our Environmental Management System.

In terms of practical application of safety standards, or 'where the rubber meets the road,' we have 13 "Golden Rules" for safe systems of work. I believe in keeping it simple and easy, offering achievable targets. Each rule is simply one sheet of paper and four bullet point of what you do, and what you don't do.

If you were forced to choose just one, what would you name as the most significant technical advance during your career that has had the biggest impact to improve efficiency in ship repair and conversion?

JC: Without a doubt the most drastic change has been in regards to information technology and communications; communications between repair agents, the yard, those on board the ship, and those at the shore office. The advancement in communications has driven repair process and efficiency, driven us to maximize our efficiency, as all information on the ship and the problem is available before the ship arrives, so that, for example, parts and prefabricated assemblies can be prepared and ready for specific areas when the ship arrives.

How has the global economic slowdown affecting your business?

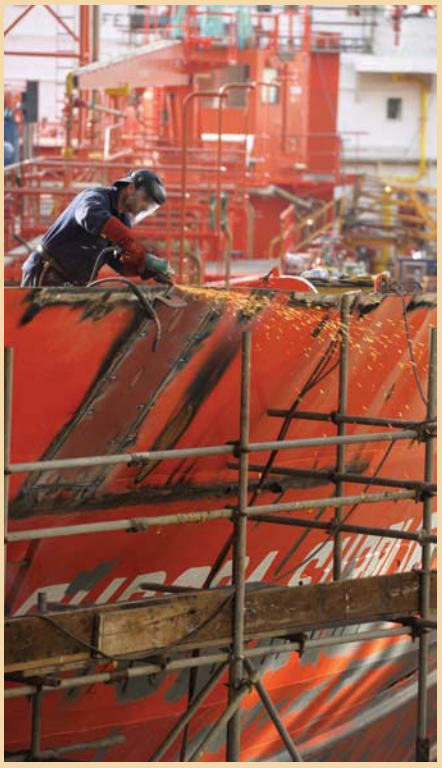
JC: Global slowdown certainly affected our clients, and in fact our business, particularly as owners in certain segments laid-up and scrapped vessels. But through it all, we have done quite well. Our growth rate has slowed, but we are still growing.

Before the recession we saw investment in efficiency gains and life extension products; today, you see owners with a more conservative approach.

How do you define growth?

JC: Top line sales, but I'm not going to share those numbers with you. From an occupancy perspective, we are keeping our (three) docks full. Another positive: the jobs are growing, for example we are getting more conversion jobs rather than repairs.

Also, we have seen a shift in our business concurrent with the market; a few years ago, containership business dominated, but today, we are seeing a lot of offshore work from North Africa.



What do you count as your company's competitive advantage?

JC: Superior customer service, a straight-talking approach and attention to timeline. Getting ships out early or on-time is the focus.

What investments is your company making today that are intended for the long-term health of the company?

JC: Human resources, from internal training to the focus on growing the health and safety culture.

What do you consider the most important trends in your business to be?

JC: The growth in the local market, particularly the offshore market coming from West Africa. It is a big and growing area, and we are talking more and more about projects regarding offshore rigs, subsea vessels and supply vessels.

What do you consider to be the biggest challenges to your company's continued success in terms of Technical matters?

JC: Technology is driving ships to be more and more complicated, which is a big challenge for ship repairers. Some of the repairs require product specific knowledge on specific systems. As things get more complicated and technical expertise gets scarcer, there is a heavier reliance on the OEM's to supply technical talent. We also provide a number of significantly challenging services, and we must keep up our base of talented and qualified welders and steelworkers, for example. Today, as you are finding in many industries, we have an aging workforce, and fewer people who are willing and able to work in this environment.

To ensure that we have the people we need, we have a 4-year apprenticeship program, which today has 30 members. It is a fantastic program to achieve NVQ certifications, and it feeds our talent pool. In addition, we go to other areas in the EU where there are skilled laborers and tradesmen, and we bring them in when they are needed.

We have workers coming in regularly from Romania, Bulgaria and Poland, to name a few.

The Big Impact of Vyborg

After nearly two years of engineering, procurement, and project preparations, Dockwise recently completed the first of two float-overs for the Vyborg Project in Korea. The Vyborg Project is big in scope and size: It involves moving two 15,000 metric ton semi-submersible hulls and two topsides that weigh approximately 19,000 metric tons each. These pieces were constructed in locations more than 27,000 km apart and the Dockwise vessel the Black Marlin was used to successfully load the first of two topsides for transport to the float-over location in Korea, to be joined with a hull that was transported from Vyborg, Russia by the Talisman. Dockwise's scope also included designing and installing the pre-laid anchor spread, hooking the hull to the spread and ballasting the hull to its mating draft. This part involved the use of five tugs, two anchor handlers, one workboat, two anchor barges, one test barge, a crane barge, three launch boats and guard boats. An especially innovative feature is the "floating float-over" aspect of this project: This float-over was completed without a fixed structure. Instead, a floating structure was anchored and ballasted down to keep it in place while Dockwise performed the float-over operation. After the Black Marlin docked into the hull, which was ballasted down to 27 meters draft, ballast operations were initiated, in order to lock the Leg Mating Units and align the hull columns and the topside. Next steps included welding the columns to the topside under a partial load transfer, after which they released the load from the Leg Mating Units and began ballast operations to transfer the full load of the topside onto the hull columns. Finally, on July 10, the Black Marlin was retracted from the completed rig and the de-ballasting operations were completed.The second topside and hull float-over will be completed using the same process later this fall.

For more information visit www.dockwise.com

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Costa Favolosa

114,500-gt - 3,780 guests • 4th in series of 5 new ships

Costa Favolosa, the new Italian-made flagship of Costa Cruises, recently took to the seas at a traditional ceremony held at Fincantieri's Marghera at the new ship's technical launch. The 114,500-gt Costa accommodates 3,780 guests, and will set sail on its first cruise in July 2011. This is the fourth of five new ships due for delivery between 2009 and 2012, for a total investment worth $3b. The addition in spring 2012 of the Costa Favolosa's sister ship Costa Fascinosa, also being built in Marghera, will complete Costa's fleet expansion program.

"Despite the ongoing effects of the economic downturn in 2010 and the uncertain outlook for global tourism, our fleet expansion program has continued uninterrupted," said Costa Crociere S.p.A. President Gianni Onorato.

"The strength of our brand, which comes with a guarantee of over 60 years of experience, and the quality of our product have proved to be winning assets, highly appreciated by our customers. That is confirmed also by the positive results in terms of bookings achieved this summer and forecasts suggest we will end 2010 with 2.1 million total guests for the Group as a whole, which works out to an increase of around 17% compared to last year."

Beatrice Siri

At the launch, the director of the shipyard invited the Godmother, Beatrice Siri, to cut the ribbon and the bottle of champagne duly broke against the bows of the ship. **Betarice Siri, Newbuilding and Special Projects Deputy of Costa Cruises (pictured)** has been directly involved in the construction of the fleet's last six ships, including the Costa Favolosa, and on March 8, 2010 she received the Order of Merit of the Italian Republic from the President of the Republic, Giorgio Napolitano. After the opening of the valves and the gradual flooding of the slipway where the ship has taken shape over the last few months, the hull of the Costa Favolosa was transferred for the first time to its natural element – the sea.

Favola is Italian for "fairy tale."

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Classification .....Lloyd's Register
...Maltese Cross 100A1SSC yacht (P) mono G6
Construction .....Steel Hull,
.....Aluminum Superstructure
Builder.....Derecktor

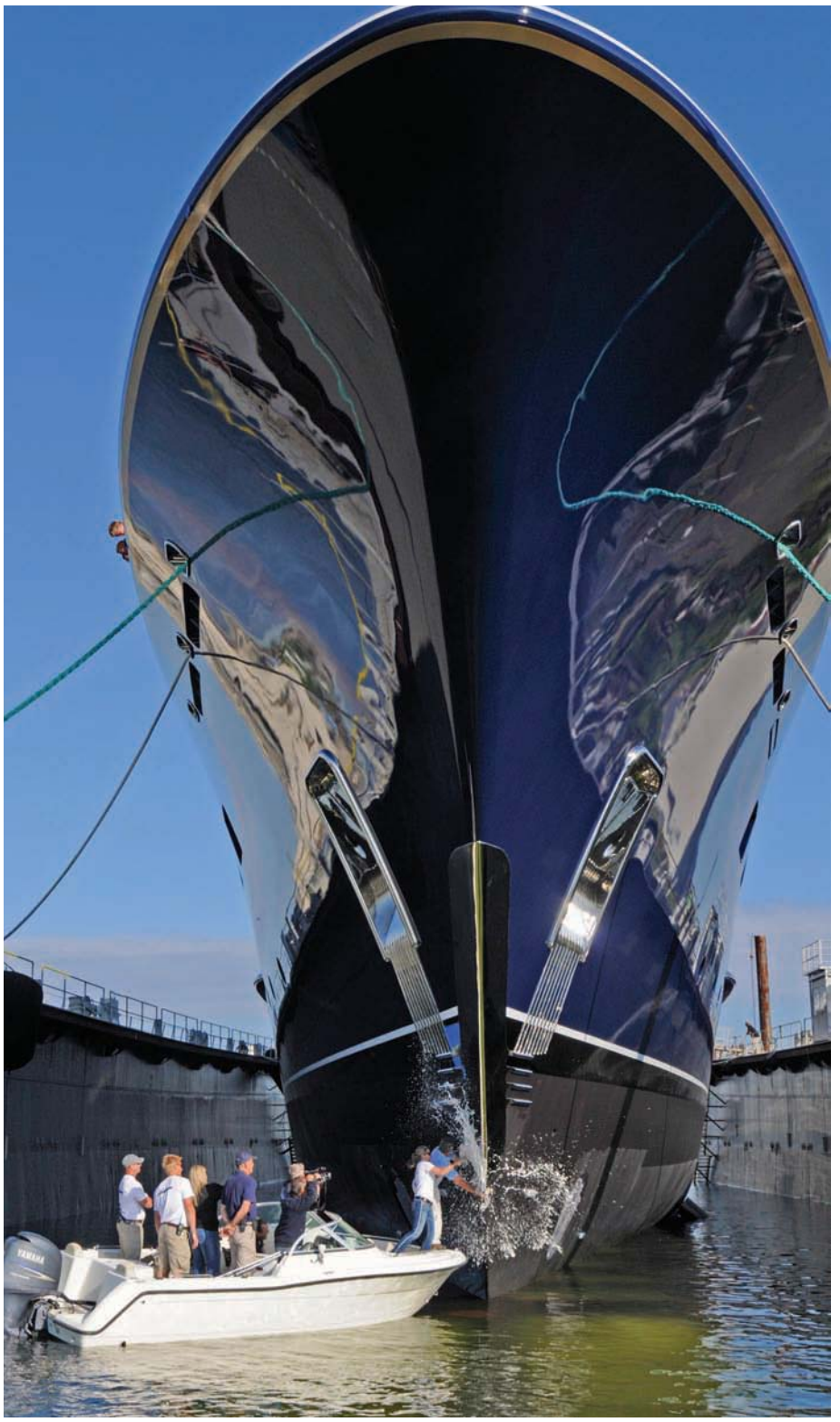
Cakewalk Engineered with ShipConstructor

ShipConstructor CAD/CAM software was used for the production engineering and detail design of the megayacht Cakewalk. Cakewalk, built by Derecktor Shipyards, was launched August 8 in Bridgeport, Conn. The marine design consultancy firm BMT Nigel Gee of Southampton, UK used ShipConstructor's AutoCAD based shipbuilding CAD/CAM software for the detail design of the hull as well as for the distributed systems within the main steel structure, e.g. the engine room.

Gibbs & Cox, a Virginia-based marine engineering firm, also used ShipConstructor software for modeling the systems within the yacht's superstructure.

August 8, 2010 marked the launch of the motor yacht Cakewalk at Derecktor Shipyards, a 6-deck, 85.6m (281 ft), 2,998-gt vessel which is the largest yacht (by volume) ever built in the U.S., according to the builder. "Needless to say, as with any project of this scale and sophistication, there were some growing pains along the way, but we think the result speaks for herself" said Paul Derecktor, President of the Derecktor group of shipyards. "My brother Tom and I, along with everyone at Derecktor are very proud and we thank all the people who made this possible, in particular of course, the Owner and his team."

Cakewalk was designed by Tim Heywood Designs with Naval Architecture by Azure Naval Architecture. Interior design was by Dalton Designs, Inc. Dozens of subcontractors from engineering firms to security specialists participated in the project. "We certainly could not have done it without them" said Gavin Higgins, VP of Business Development at Derecktor. "Some of the world's most experienced and skilled specialists put their expertise into this job." "She is superb" said Designer Tim Heywood. "The workmanship throughout is absolutely first-class, as good as you will find on any yacht in the world. I could not be more pleased for the owner and all involved." Bill Zinser, Build Captain on Cakewalk and leader of the owners' team, said, "She is what we knew she could be all along. It makes all the hard work, all the long days, worth it. We have great owners and we worked with a great group at Derecktor. We can't wait to show her off to the world." Notably, Cakewalk was christened for the owners by Carmen Golinski, the Interior Manager on board, indicative of the closeness of the owners and crew. At press time the yacht was still at Derecktor undergoing final outfitting and sea trials. It is scheduled to make its debut at the Ft. Lauderdale International Boat Show in October.

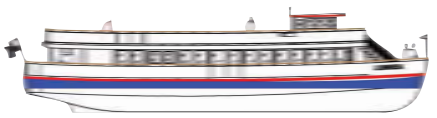


MV Freewinds Celebrates Milestone

Fireworks light the St. Lucia sky over the Motor Vessel Freewinds as part of a grand sendoff for the 22nd Anniversary of the ship's Maiden Voyage cruise which included carnival dancers and music from the city's Royal Police Band. The 440-ft. ship is the Scientology religious retreat that ministers the religion's most advanced spiritual counseling. The Freewinds also hosts conventions and seminars for Scientologists during the year and is known throughout the Caribbean for its support of secular community betterment programs. Its home port is Curaçao. (Source: Freewinds Photographer)

Wendella's Blount Boat

Linnea, the 89-ft. steel excursion boat built by Blount Boats for Wendella Sightseeing Company, was completed and accepted on July 20, 2010. The boat was delivered to Chicago via Erie Canal and began service on July 30. The delivery for the Linnea is timely on account of the fact that Wendella Sightseeing, Chicago's original tour boat company is celebrating its 75th season. The new LINNEA was designed by Timothy Graul Marine Design of Sturgeon Bay, Wis., and is a sister vessel to the Wendella built by the Blount shipyard in 2007. It is powered by twin screw Caterpillar engines and will accommodate up to 340 passengers for architectural tours on the Chicago River. The two deck vessel was designed with climate controlled main cabin, granite bar top and is equipped with an entertainment and security system. The new vessel is certified by the U.S. Coast Guard under Subchapter "K" for lakes, bays and sounds less than one mile from shore. The M/V Linnea marks the 330th vessel to be built by the Blount shipyard, which has been in operation since 1949.



Floating Power Barge Pair for Venezuela

Waller Marine of Houston will launch and christen what will become the world's largest floating power generation facility when installed at a designated site in Venezuela. The two power barges, which Waller has under construction at the Signal International Shipyard in Orange, Texas, will be transferred from their land based construction locations to the water during the next few days and christened by Venezuelan dignitaries at a ceremony at the shipyard on August 21. The generation facility, initially comprising two Floating Power Plants each installed with a single GE 7FA gas turbine generator, will be made ready for ocean transport to Tacoa, Venezuela for installation in a prepared basin that will be protected from the sea. The completed plant will generate much needed power to Caracas and surrounding areas. This culminates a Fast Track engineering, procurement and construction program undertaken by Waller to design, construct and deliver the two power barges, each having an output of 171 MW (ISO), within 180 days. Constructed to the approval and survey of ABS, each barge will represent the largest of its kind in the world, according to the company. This first phase of the facility will surpass the capacity of the Waller designed, 220 MW combined cycle floating power plant installed in India in 2001; currently the world's largest. Waller is now in the early stages of engineering the second phase of the construction program, a 260 MW steam cycle barge that will be fitted with heat recovery steam generators and a 260 MW steam turbine generator that will increase the total floating generating facility capacity to 600 MW.

www.wallermarine.com

Overlapping
Oil Spill Investigations

About the Author

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The tragic Deepwater Horizon-Macondo explosion/fire/sinking/oil spill is destined to become the most investigated maritime casualty in history. Eleven men died when an explosion occurred on the Mobile Offshore Drilling Unit (MODU) on the night of April 20, 2010. The MODU was rapidly engulfed in flames. Amazingly, 115 other persons on the vessel survived, in large part due to the heroic efforts of the crew of the Damon B. Bankston, an offshore supply vessel (OSV) that was tending the MODU when the casualty occurred. The MODU continued burning until it sank on April 22.

Somewhere in the events between the explosion and the sinking, the pipeline connecting the Macondo wellhead on the seabed about a mile below the surface and the MODU was severed. Crude oil and natural gas began spewing from the pipeline breaks, but the extent of the discharge was not immediately realized. The drill site was some forty miles off the coast of Louisiana and almost a hundred miles from Port Fourchon, the nearest significant shoreside staging area.

After it was determined that oil and natural gas were flowing from the wellhead, remotely operated vehicles (ROV) were dispatched to the seafloor. They captured images of the situation, allowing experts to determine that the blowout preventer (BOP), located where the drill pipe emerged from the seabed, had failed to operate. The BOP was designed as a fail-safe device to stop the flow of oil from a well when other control measures did not succeed.

The incident was declared a spill of national significance and Admiral Thad Allen, Commandant, US Coast Guard, was named by President Obama as the National Incident Commander (NIC) with full authority to oversee and direct efforts to stop the discharge and respond to the oil spill. Initial efforts to stop the discharge were unsuccessful and oil started coming ashore in Louisiana. Eventually, oil from the Macondo wellhead also came ashore in Mississippi, Alabama, and the Panhandle of Florida. Admiral Allen retired from active duty in late May, as previously scheduled, but stayed on the National Incident Commander. The flow of oil and natural gas was stopped on July 15, but not before an estimated 4.9 million barrels of oil escaped into the Gulf of Mexico during the 87 days that the well was uncontrolled. As of this writing, efforts continue to drill relief wells so that the drill pipe may be sealed and cemented permanently from the bottom.

Meanwhile, a series of investigations are underway, some public, some not.

One of the first public investigations was convened jointly by the US Department of Homeland Security and the Department of the Interior. They directed the US Coast Guard and the Minerals Management Service (MMS) to examine the circumstances surrounding the casualty and submit a report of their findings, conclusions, and recommendations. This investigation is clearly the most focused and the closest to completion. It has conducted three of its planned four public sessions, with the final session scheduled for late August (after submittal of this article for publication). To date, this investigation has revealed the division in command of the MODU between the master and the offshore installation manager, the failed attempt to activate the BOP before the MODU was abandoned, and the intentional "inhibition" of the alarm system, among other things. Witnesses testify under oath. One person who was called as a witness has refused to testify, citing his right against self-incrimination under the Fifth Amendment.

President Obama issued an Executive Order establishing the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. The co-chairs of this National Commission are former Senator Bob Graham and former Administrator of the Environmental Protection Agency William Reilly. Their mission is three-fold:

(1) examine the facts and circumstances to determine the cause of the Deepwater Horizon oil disaster;
(2) develop options for guarding against future oil spills associated with offshore drilling; and
(3) submit a final report to the President within six months of the Commission's first meeting.

Its first meeting was held on July 12-13 in New Orleans. The second meeting was scheduled for August 25 in Washington, DC. The Bureau of Ocean Energy Management, Regulation, and Enforcement, which grew out of the now-dismantled Minerals Management Service (MMS), is conducting a separate investigation into the preparedness of the offshore oil and gas industry as a whole to prevent and respond to future oil spills. This investigation is one of the bases for the Administration's six-month moratorium on deepwater drilling.

The US Chemical Safety and Hazard Investigation Board (generally called the Chemical Safety Board or CSB) has opened an "investigation of the root causes of the accidental chemical release that that destroyed the Deepwater Horizon rig and took the lives of 11 workers."

The CSB is similar to the better-known National Transportation Safety Board (NTSB), focusing on safety issues arising out of significant industrial incidents.

Relief well riser pipe in the "moonpool" of the Transocean Development Driller III (DD III), while on standby from relief well drilling operations at the MC-252 incident site in the Gulf of Mexico, on Tuesday, August 17, 2010.

(Photo: © BP p.l.c.)

In addition, various agencies are undertaking health studies.

It seems that virtually every committee in Congress that could possibly have oversight authority has conducted hearings on relative to the Deepwater Horizon-Macondo incident. Hearings have been held by the following Senate committees: Commerce, Science & Transportation; Energy and Natural Resources; Homeland Security and Governmental Affairs; and Judiciary. Hearings have also been held by the following committees of the House of Representatives: Education and Labor; Energy and Commerce; Judiciary; Natural Resources; Science and Technology; Small Business; and Transportation and Infrastructure. The most extensive work seems to have been done by the House Committee on Natural Resources, which launched its own investigation and (together with its subcommittees) conducted at least seven separate hearings.

Members of Congress submitted numerous bills, addressing everything from tax relief for individuals impacted by the spill to use of dispersants. One bill even proposes establishment of a Congressional Commission to investigate the oil spill incident, separate and apart from the Administration's National Commission. Several of the bills have been adopted by the House of Representatives. None have been adopted by the Senate. It is unclear whether any of these bills will be enacted by this Congress. If not, the legislative process must start afresh in January 2011.

The US Department of Justice (DOJ) has opened civil and criminal investigations into the circumstances surrounding the incident. It is not disclosing much regarding its efforts, only saying that there are multiple targets. It is probable that various individual Gulf coast states are opening similar investigations.

The National Research Council (NRC) has begun a research project related to the spill, as have the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA). Trustees (federal, state, and tribal) of the various natural resources possibly impacted by the oil spill have commenced Natural Resource Damage Assessment (NRDA) investigations. These will examine impacts on everything from endangered species, such as whales and sea turtles, to coral, sea grass, shrimp, crabs, and sand fleas.

Numerous academic institutions, particularly those located in the Gulf coast states, have commenced research projects examining different aspects of the spill. While most are focused on environmental issues, others are looking at economic and sociological impacts. Parties directly involved in the incident, including BP, Transocean (owner of the MODU), Halliburton (the well cementing company), and Cameron International (the company that manufactured the BOP), have commenced their own internal investigations. It is unclear how much, if any, of the results of these investigations will ever be available outside those particular companies. News reports, for example, indicate that BP has retained a number of outside experts and research institutions to assist on its investigation, but requires each to sign a stringent non-disclosure contract.

Private litigants and potential litigants have also begun investigations in preparation for the inevitable lawsuits against BP, Transocean, and others. It is virtually certain that the volume and extent of litigation arising out of this oil spill will far exceed that following the 1989 Exxon Valdez spill. I support the concept of investigating incidents for the purpose of reducing the risk of their recurrence. I question, though, whether we are well-served by the number of overlapping investigations on-going in this case.

Selling Promises

... and Keeping Them

About the Author
By Richard DeSimone is President, Travelers Ocean Marine.

At its core, the insurance business is about selling promises. The customer pays a premium, and an insurer makes a commitment to cover losses under certain conditions. Documents are exchanged and filed away.

The whole process may feel quite abstract – until a claim is made.

That's when the relationship between the insured and the insurer becomes concrete. And all too often that's when a customer first learns how his perception of what has been promised plays out in the real world. Depending on the circumstances, the reaction can range from pleasant surprise to extreme disappointment.

It doesn't have to be that way. Smart business owners work with their agents and their insurers in advance to understand how their insurance will work when they need it. They meet not only with underwriters but also with claims professionals to understand how their coverage will protect them in the event that things go wrong.

The goal is to have a clear understanding of the promises made and the processes in place to keep those promises. By making the relationship a partnership rather than an arms-length business transaction, business owners can be sure they are getting the best value out of their insurance purchase.

When Disaster Strikes

Business owners in the marine industry know how quickly things can go from normal to disaster. A ship runs aground in bad weather. A cargo container is dropped during unloading. Sparks start a fire that creates havoc in a shipyard.

The last scenario became an East Coast shipyard's worst nightmare two years ago. The fire damaged three vessels under construction and destroyed the main building where employees had been hard at work on a full schedule of contracts. The owners knew that not only their own business, but also the livelihoods of the small town's residents were all dependent on how quickly they could get back to work.

The owners feared that the arguments about coverage and reimbursements could be as brutal as the fire. The problems looked insurmountable. Who would pay for debris to be hauled away? What if the insurer planned to scrap boats damaged beyond their value, but the shipyard wanted to repair them? How would the business interruption coverage work? Most important, when would the cash start flowing? If their insurance carrier required weeks of investigation, endless piles of paperwork, a lengthy payment approval process, and supporting documentation that was no longer available because it had gone up in smoke, a return to normalcy for the shipyard could be delayed for months, even years.

The future looked bleak to the ship builders. Contracts would disappear; work that was underway but not completed would never be paid for.

Instead, the promises made were kept – and quickly. In fact, the shipbuilders put their insurers near the top of the list for a public "thank you" when they dedicated their new facility. Instead of red tape, delays and foot-dragging, they experienced:

- A claims adjuster from the insurance company, along with their independent engineering expert, both arriving on the scene before the embers had cooled. These professionals understood the operational challenges ahead and had the authority to make fast decisions, face-to-face with the shipyard owners.
- Clear explanations about what was covered, as well as advice on how to maximize their loss recovery under the policy by addressing monthly caps and aggregate limits in a strategic way.
- Insurance company claims professionals who, together with the on-site adjuster, kept the process moving along so that checks could be delivered when they were needed.

What kept this claim process from becoming adversarial? In a word: partnership.

Finding the Right Partnership

In an "us vs. them" view of insurance, the business owner tries to minimize premiums and the insurer is intent on cutting corners when it comes to claims payments. No one works together to improve loss records, anticipate new risks or adjust coverage as operations change.

A much more productive way of dealing with insurance, however, is to understand the value of the insured-insurer relationship. The insured wants rock-solid coverage, access to risk control expertise, and fast and easy claims processing if the need arises. The insurer wants to provide those services at a fair price based on an accurate assessment of risk. A long-term partnership benefits both, as they work together to minimize losses and limit risk.

How can marine businesses find the right partnership? It begins with the agent or broker who uses his insight about both the insured and the insurer to find the right match.

A business owner will know he is on the right track if the insurance carrier is interested in meeting with him, long before a claim is ever filed. The meeting should include the underwriter for the account, as well as risk control advisers and claims professionals, all of whom should be focused on helping the business owner understand how his insurance will work to his benefit. During the meeting, the insurer will learn about the company's operations and any issues that are of particular concern, and will also set expectations for how the claims process will work.

Another positive sign is if the insurer has claims professionals that are dedicated to marine losses. Since laws and issues surrounding marine operations are complex, this specialization allows them to build the expertise necessary to handle a claim quickly and fairly.

The insured should also note if the insurer's claims adjusters are on staff vs. outside contractors. The insurer's own claims adjusters are more likely to have the authority to make quick decisions, without the necessity of reporting back to a centralized bureaucracy and waiting for an answer.

Finally, an insurer should be able to demonstrate the ability to field claims adjusters and other experts across a broad geography where the business owner may be operating. The insured should be provided with local or regional contact information for resources the insurer provides.

Buying insurance should bring a company's owner peace of mind – protection against the unexpected that can destroy a business overnight. The best peace of mind comes from knowing that an insurance policy is backed by a carrier who sees the insured as a partner – and who knows how to keep its promises.

From keeping corrosion controlled to improving fuel economy and environmental signature, marine coatings are critical to maritime operations.

Coatings Solutions

Marine coatings are arguably one of the most important systems found on marine vessels, as modern coatings not only protect the entire structure from the corrosives inherent in the marine environment, they are also central to running more efficient and cost-effective operations. Maritime Reporter last month took some time to round up insights from some of the industries leaders in this niche, including: ***Torben Rasmussen****, HEMPEL;* ***Jim Brown****, International Paint;* ***Stephen Dickey****, Sherwin-Williams Protective and Marine Coatings; and* ***John R. Bowlin****, Seacoat Technology.*

How has the recent world economy affected your business this year?

Rasmussen, Hempel: The first six months of 2010 we have actually seen an increased activity within the dry-docking segment and we have delivered more marine coatings than the corresponding period last year. Also within the newbuilding segment our volume is higher than expected, though slightly lower than last year.

Brown, International Paint: International Paint Ltd. is part of AkzoNobel, the world's largest paints and coatings company. AkzoNobel's revenue in the first half of 2010 increased by 10% from $8.2 to $9 billion. International Paint's Marine and Protective Coatings business saw stronger activity levels with volume up in the second quarter of 2010 compared with 2009. Revenue increased eight percent, including a 10 percent favorable currency translation impact. The new construction market in Marine exceeded the expected volume levels with China proving especially strong. The deep sea maintenance business continued to be slow.

Dickey, Sherwin Williams While marine coatings demand has not been immune to the economic downturn, at Sherwin-Williams we were well positioned with innovative new products such as Euronavy ES301 epoxy coatings for highly compromised and damp substrates, Fast Clad ER, the low VOC / fast-curing solution to a wide range of tank lining requirements, and SeaGuard HMF, the copper free antifoulant of the future. We have been growing sales as demand slipped.

Bowlin, Seacoat Technology 2009 was a terrible year. Nothing else needs to be said. 2010 has seen a resurgence in business particularly in the Marine segment. Other areas in power and wastewater have held steady, primarily outside the USA.

What needs are today driving your business and product development?

Brown, International Paint Affected by the global economic slowdown, seaborne trade experienced a first time decline in a decade in 2009. For ship operators and shipyards, increased fuel costs, reduced demand for tonnage, lower freight rates, ships in lay up and few new orders being taken has meant that suppliers, more than ever before, must now deliver products and services which have a positive impact on their customers business while also representing value for money. Modern shipyards need enhanced process efficiency and improved productivity, quality and working environment. Today's operators need asset protection, increased efficiency, better environmental performance and reduced maintenance costs. Product development for shipyards for example has focussed on developing new high solids universal primers with reduced complexity and faster drying and for the ship operator, patented, biocide free fouling control systems for reduced fuel consumption, reduced fuel cost and reduced CO2 emissions.

Bowlin, Seacoat Technology We specialize in niche applications involving Siloxane technology. Marine foul release technology has been our primary focus over the last 10 years. The needs of vessel owners and operators has not changed much in regards to underwater hull coatings in the last ten years. First and foremost is the Environmental issue and worldwide legislation further restricting toxins in antifouling paints. Everybody wants products that are environmentally safe as it reduces their long term compliance costs and it is good for public relations. Fuel costs; as fuel costs continue to rise everyone wants to maximize fuel economy by using low drag/high slip coatings on their hulls. As dry docking intervals are extended by the use of new types of interim inspection technology customer need coating systems that are increasingly durable.

HEMPEL a/s

Torben Rasmussen

During 2010 we launched two new tie coats.

Sherwin-Williams

StephenDickey

We believe that global regulation of antifouling coatings will become much more aggressive.

Rasmussen, Hempel We experience clearly that our customers focus more on operational cost and reduction of emissions. Coatings which offer easy maintenance, reduction of time in dock (fast pit stops similar to Formula 1 race!) and fouling control coatings which can secure reduction in fuel consumption (and consequently reduce CO2 emissions) are examples of products developed as a result of a market need.

What has been your company's most significant product launch in the last 12 months?

Bowlin, Seacoat Technology We just launched our latest version of SEA-SPEED. Our latest product uses valence modification technology (VMT) which simply stated is the ability of the coating to change from a positive (cationic) to a negative (anionic) charge in the presence of water movement over the surface. This technology is radically different than existing products in the field and has shown to be highly effective in controlling marine fouling.

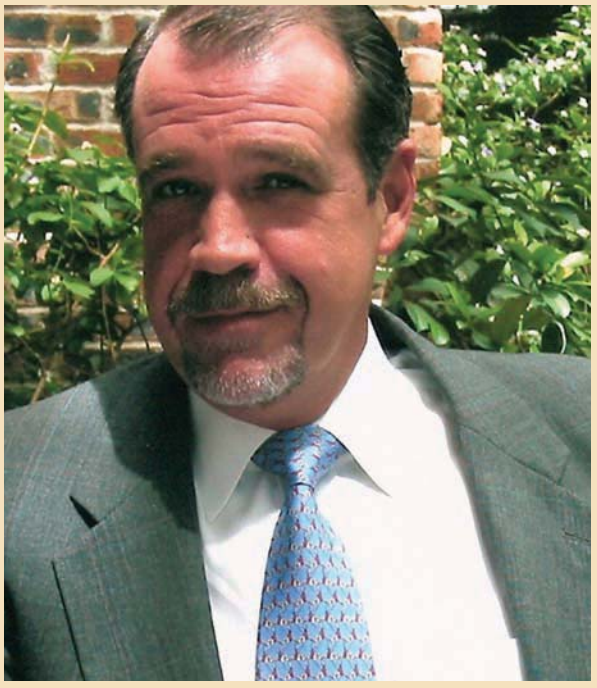
Rasmussen, Hempel HEMPEL'S 3rd generation hydrogel silicone fouling release HEMPASIL X3 was launched end of 2008. During 2010 we launched two new tie coats which make the X3 a complete solution. The NEXUS-X Seal tiecoat is used to upgrade from a conventional antifouling to a fuel saving fouling release solution with HEMPASIL X3 as topcoat. The NEXUS-X Tend tiecoat is used for repair and maintenance of existing fouling release systems and reduces the time in drydocking by half to one day.

International Paint

Jim Brown

The new construction market in Marine exceeded the expected volume levels with China proving especially strong.

Brown, International Paint We've had two significant product launches already in 2010:
In January 2010 we introduced a new range of universal primers for the newbuilding market to address the productivity, regulatory, performance and commercial needs of shipyards and ship owners alike. Ship builders and owners can now better choose how they meet productivity and performance targets and comply with the International Maritime Organization's Performance Standard for Protective Coatings and new regional regulations limiting Volatile Organic Compound (VOC) emissions, such as the EU's Solvents Emissions Directive. For the newbuilding shipyard the product range offers universal application, high volume solids with low VOC, year round workability with fast drying, low temperature cure and long overcoating intervals.
For the ship owner the range provides long term asset protection with controlled through life maintenance costs, high performance corrosion and abrasion resistance and PSPC compliance.
The range includes new Intershield 300HS, a high solids version of the market leading technology which offers



78% volume solids, new Intergard 7600, a light coloured, pure epoxy universal primer providing good abrasion resistance and new Intergard 5600 and Intergard 5620, light colored, epoxy universal primers with excellent sprayability all year round and proven long term anticorrosive performance.

In May 2010 we introduced Intershield 803Plus, a new cargo hold coating specifically designed to address the key issue of impact damage from the loading of dry bulk cargoes. Cargo holds, as well as being the revenue earning spaces of bulk carriers, are also the areas subject to the severest of operating environments. Without excellent coating protection, the structural integrity of holds can be compromised, jeopardising continuing vessel profitability and safe operation. Intershield 803Plus has

Seacoat Technology

John Bowlin

his - D technolog is radicall different than e isting roducts in the field and has shown to be highl effective in controlling marine fouling.

excellent impact resistance, offering the very best in protection against 'shooting' damage. It also provides superb general abrasion resistance, good corrosion protection, VOC compliance with 75% volume solids, fast drying times and all year round workability. The product has a smooth surface for easy cleaning, is certified for the carriage of grain and is FDA compliant.

How is your company investing to improve your position in the marine coatings market tomorrow?

Brown, International Paint A recent example of our ongoing program of investment continued in May 2010 with the opening of a new, worldwide product development laboratory in Singapore. This new laboratory will focus on the development of tomorrow's next generation of antifouling and foul release technology.

This laboratory is the latest in a 20m R&D investment program that has seen us build a global network of Marine R&D centres across Asia, Europe and America. Singapore offers unparalleled opportunities for our R&D team to get close to the shipping industry and really understand the issues and challenges. We believe this will give us a major advantage in developing value added technologies and products for the marine market and significantly speed up our product development, something that we believe is key in being first to market with new technologies.

Dickey, Sherwin Williams We are investing in two ways, first by expanding our marine support and supply chain infrastructure to allow us to service our customers globally with the same type of product availability and support they have come to expect in the Americas. Secondly, we are investing in technology with a new dedicated Marine laboratory in Warrensville Heights, Ohio, and increased staffing doing both marine product development and strategic innovation looking at what products the marine market will need over the decade.

Bowlin, Seacoat Technology Our focus has always been in developing new technology. Partnerships in R&D and on the flip side with distribution globally.

What issues are on the horizon that will most significantly impact your business in years to come?

Dickey, Sherwin Williams At Sherwin-Williams we believe that global regulation of antifouling coatings will become much more aggressive over the next few years, and that demand for copper free, low biocide and foul release coatings will increase. The challenges presented

Marine Coating *Applications*

JHSV **Seacoat** recently was chosen by Austal USA and the Navy for the JHSV (Joint High Speed Vessel). In addition to its inherent FRC capability it saves weight and is extremely durable.

Sevilla Knutsen: **173,400cu.m. LNG Carrier** →

The application of **International Paint's** foul release coating, Intersleek 900, to the hull of the 173,400 cu. m. Sevilla Knutsen, a new LNG carrier built at DSME in South Korea for Norwegian owner Knutsen OAS Shipping, was an important milestone for several reasons. One, it is International Paint Korea's hundredth application of Intersleek, our leading range of silicone and fluoropolymer based foul release coatings which typically cut fuel consumption and reduce emissions by between 6% and 9%. Two, it is yet another application of Intersleek to the hull of a new LNG carrier, this time for Norway's Knutsen. This application means that over 1 million square metres of Intersleek has now been applied at newbuilding in Korea. And three, it demonstrates how one of the world's largest shipbuilders has easily adopted the relatively new coatings technology at the ship construction stage.

Hempasil X3 Nexus X-Tend and HEMPASIL X3 from **Hempel** has been applied a number of Mærsk Line vessels and over the recent months also six container vessels from Yang Ming Line, Taiwan. The Yang Ming applications took place on two different Chinese yards Xinya Shipyard in Zhoushan & Wen Chong Shipyard – Guangzhou Long Shue Dao. For Yang Ming it was crucial to have the vessels rapidly back in service and by using NEXUS X-Tend to repair the existing fouling release coating system it was possible to finish the job in some case in less than 5 days. The specification was: 2 x Touch up Epoxy; 1 x Touch up NEXUS X –Tend; and 1 x Full coat HEMPASIL X3.

by these changes are substantial and will require both new technologies beyond where we are today, and customer acceptance that costs will increase. The good news is that recent and future developments in this area are resulting in fuel saving, and ultimately reducing the emissions footprint of the vessels utilizing them.

Brown, International Paint While all of these are significant, what's very important to us is sustainability, we're committed now to delivering products, services and solutions with reduced environmental impact. Sustainability is a significant driver in all our product development programmes and is considered right at the beginning of the product design phase. We take a life-cycle evaluation approach and continue to work with experts in this area to ensure our products are optimised to have low environmental impact whilst protecting and improving the assets of our customers. Sustainability will continue to improve our business, our customers business and the environment, now, and in the years to come.

Bowlin, Seacoat Technology Continuing environmental legislation limiting the use of and in water cleaning of toxic systems will be a boost to our business. For all coatings companies a major hurdle will be keeping up with market /customer requirements for more technically advanced products that can meet longer term operational needs, at a fair price.

Vessel after application of Hempel's X3

Rear Admiral Mark Buzby, U.S. Navy Commander, Military Sealift Command

Views from the Helm

Military Sealift Command keeps fighting forces armed, fed and fueled

by Edward Lundquist

Military Sealift Command (MSC) is a very busy place these days, according to its commander, Rear Adm. Mark "Buz" Buzby. "The wide range of our day-to-day operations is pretty impressive."

When most Navy people think of MSC, they think of an underway replenishment (UNREP) ship pumping fuel and passing groceries and replenishing ammunition to a carrier or a combatant. But there's more than meets the seaman's eye.

"On any given day there are about 110 ships that are out there supporting the fleet and doing all the very necessary work that is required to keep fighting forces armed, fed and fueled, and out there doing their mission," says Buzby. "We run both hospital ships (USNS Mercy and USNS Comfort), which carry out a very visible mission. We have the entire afloat prepositioning mission, with all three prepositioning squadrons that are arrayed around the world to provide a level of combat power should it be called upon to be pushed forward. We have a whole sealift fleet carrying DoD dry cargo and bulk fuel around the world on a daily basis to keep our forces ready to go. We operate one of the two of the Navy's command ships, USS Mount Whitney, as well as both of the sub tenders, USS Emory S. Land and USS Frank Cable. That's a relatively new mission for us, with hybrid crews of MSC mariners and Navy crews to man the ships. Four Navy salvage ships and four fleet tugs do all of the Navy's towing and salvage and recovery missions around the world. Increasingly, these ships are being used for humanitarian assistance and disaster relief missions, and work with foreign navy diving and salvage forces. We do the Navy's ocean surveillance mission, towing our underwater towed arrays around the world. All of the Navy's oceanographic survey work is performed under the MSC house flag. There are also a number of other missions, including missile tracking" he says. Operationally, Buzby reports to Admiral John Harvey, Jr., at Fleet Forces Command for the Navy missions; and to General Duncan McNabb at U.S. Transportation Command for the strategic sealift missions. Additionally, he reports to Assistant Secretary of the Navy for Research, Development and Acquisition Sean Stackley, because of the contracting authority for chartering vessels and for the manning and operating of many of the civilian vessels.

MSC has a workforce of more than 9,000 people worldwide, about 80 percent of whom are serving at sea. Better than half them are civil service mariners, with the rest being commercial mariners, civil service personnel ashore and active-duty and Reserve military members.

Buzby says they all get along well. "Our CIVMARs are very well respected for their professionalism and the knowledge that they bring to the waterfront. About half of them have prior service, having served in the U.S. military Coast Guard. I have a very experienced group of people out there. The average age of my seagoing workforce is 47 years old. These are mariners who have been going to sea for quite a long time, who have a very mature understanding of what they do and how they do it. Since most benefit from military experience, they tend to understand the sailor very well. In the three hybrid-crewed ships, they get along extremely well, and we work through the boundaries of who does what. I visit the ships, and all three are very happy ships, executing their missions very well to the satisfaction of their fleet commanders. I talked to Vice Adm. Harry Harris, the 6th Fleet commander, not too long ago, and he is absolutely thrilled with Mount Whitney's performance – how good she looks, how well she operates. He said he would not want it any different."

MSC Enables Forward Presence

In the Navy's logistics supply chain system, MSC delivers the last tactical mile. Replenishment at sea allows the Navy to stay forward, and provide "persistent presence."

"MSC is the enabler. It's the thing that allows our Navy to operate, to continue to operate forward, untethered and unconstrained by touching shore. Our combat logistics force is extremely flexible and extremely responsive," Buzby says. "There are no ships that I know of that go wanting for fuel, ammunition or any expendables."

That role in that last tactical mile is absolutely critical, he says. "Our mariners understand that, and they are always looking for ways to say 'yes' when a customer is looking for either fuel or other supplies. Our mariners will go out of their way to steam those extra miles to be there to provide it.

The Navy has elevated Humanitarian Assistance/Disaster Relief, or HA/DR, to being a core priority, and MSC has stepped up to meet that challenge. "It's kind of a matter-of-fact kind of a thing these days. It's not a matter of if, but when, you're going to be called for an HA/DR situation. This is a mission area that I think you're going to see MSC play an increasing role in, because a lot of our assets are well-adapted to doing or supporting that kind of a mission. Our dry cargo/ammunition ships, or T-AKEs, are especially well-adapted to that because they have such a voluminous cargo-carrying capacity and can carry a pretty good chunk of humanitarian supplies and materials on board. Haiti was a real showcase for a lot of the capability that we can bring to one place fairly quickly. Theater security cooperation, or TSC, is something that our Navy has done for years, principally through port visits by combatants to various areas of the world. Now, increasingly, our combatants are being tasked with more warfighting roles, ballistic missile defense roles and other things that only they can do. Increasingly, some of those TSC missions are being passed off to MSC to do. Our rescue and salvage ships have been doing a lot of TSC lately because they are small; they can get in some of these smaller ports that are operated by smaller navies and coast guards; and the level of interaction is a smaller level. Their divers are like our divers, and I have my commercial mariners who are running my ships and can talk easily with the local commercial mariners there, the fishermen. The level of interface is a little less intimidating, easy for the host nation to accept and to feel comfortable about. I see that role becoming increasingly an MSC role."

Buzby is a graduate of the U.S. Merchant Marine Academy and a licensed U.S. merchant mariner, which he says has prepared him well for this job. "I came straight on active duty after the Merchant Marine Academy, but I spent a lot of my training out at sea with mariners, so I understand the ships, and I understand where the mariners are coming from. In the years since, I've always stayed very close to the industry, reading to keep abreast of what's going on. A lot of my ship classmates are still sailing in the industry, and I've stayed in touch with many of them. So now, 30 years later, as I come back as commander of Military Sealift Command, or 'the Gray Funnel Line,' as I like to call it, I find myself with an instant network of contacts of people that I trust in very key places both in this command, in this headquarters, in the field, crewing my ships, and in the industry that supports our command. So, it's a very comfortable place. It was a very easy transition for me to come in. I can 'talk the talk,' I know the lingo and I know what they're going through. It's a good match."

Last of the 'Rough and Tumble'

Buzby said he took the job with no preconceived notions. "From all the reports

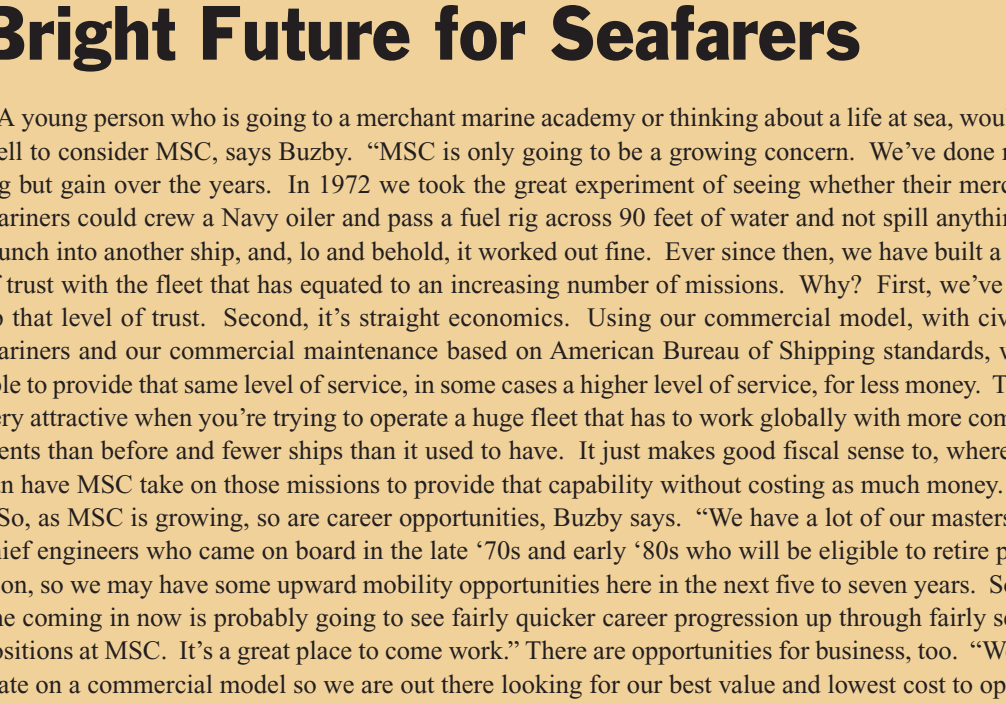

UADALUP

Military Sealift Command

Bright Future for Seafarers

A young person who is going to a merchant marine academy or thinking about a life at sea, would do well to consider MSC, says Buzby. "MSC is only going to be a growing concern. We've done nothing but gain over the years. In 1972 we took the great experiment of seeing whether their merchant mariners could crew a Navy oiler and pass a fuel rig across 90 feet of water and not spill anything or crunch into another ship, and, lo and behold, it worked out fine. Ever since then, we have built a level of trust with the fleet that has equated to an increasing number of missions. Why? First, we've built up that level of trust. Second, it's straight economics. Using our commercial model, with civilian mariners and our commercial maintenance based on American Bureau of Shipping standards, we're able to provide that same level of service, in some cases a higher level of service, for less money. That's very attractive when you're trying to operate a huge fleet that has to work globally with more commitments than before and fewer ships than it used to have. It just makes good fiscal sense to, where you can have MSC take on those missions to provide that capability without costing as much money.

So, as MSC is growing, so are career opportunities, Buzby says. "We have a lot of our masters and chief engineers who came on board in the late '70s and early '80s who will be eligible to retire pretty soon, so we may have some upward mobility opportunities here in the next five to seven years. Someone coming in now is probably going to see fairly quicker career progression up through fairly senior positions at MSC. It's a great place to come work." There are opportunities for business, too. "We operate on a commercial model so we are out there looking for our best value and lowest cost to operate our fleet. For those maritime industries that provide services, we are always looking for folks who can give us the greatest value to keep our ships operating at a very high level. We maintain our ships at a very high level and that requires regular maintenance, repair, and resupply. We're in very close partnership with the rest of the maritime industry to keep our assets operating efficiently. A lot of our contractors are also doing the same thing, as well, because they're running to the high standard that we establish.While much is happening with MSC, Buzby admits that there are many things about MSC that the Navy and the nation don't see. That, he says, is both good and bad. "We do it so well that it is almost seamless and invisible to the end user and that's a good thing. The problem is that not many people know that we're doing it. I tell my folks, 'You are probably the greatest unappreciated group in the Fleet. You're doing your job so well people don't see it unless there is a problem—and there rarely is.'" That's why one of Buzby's goals is to get out there and recognize his people? "I feel guilty because I take thanks and words of appreciation on a constant basis on how well MSC is functioning. It's not me that's doing it, it's them. I want the MSC workforce to hear that they're appreciated and people are thankful for the great jobs they're doing on a daily basis."



(Photo by Adrian Schulte, MSC Public Affairs)

Brandon Varner, 2nd mate navigator aboard MSC cargo/ammunition ship USNS Wally Schirra, plots a course for Schirra as the ship leave the port of Norfolk May 17. Schirra was heading out to sea to participate in ship qualification trials with MSC fleet replenishment oiler USNS John Lenthall.

that I had been getting, and from my own personal observations, MSC was a good-running outfit. They lived up to their motto 'MSC Delivers' pretty much every day. If they said they were going to do it, it got done. I really didn't want to come in here and change that. So, I gave myself a few months to go around and talk to people throughout the command and get their ideas on what was going well, what was not going so well or what could be done better. I concluded that the area that I needed to focus on most was how to better take care of our mariners, both afloat and ashore. And by that I mean to improve the way that we professionally develop our people, to improve their quality of life and working conditions, and provide better recognition of what they do every day. I want to plan for the future a little bit more on how we should shape our force for potential changes in technology, the way we will be operating and the types of vessels we will be operating."

Buzby has commissioned a human capital task force, working with the MSC leadership, the mariners, unions and industry. "We have developed a list of about 100 initiatives that we think make sense. And of that 100, we are focusing in on an initial 50 initiatives. We'll figure out what we need to do to institute them and then go after doing it. The idea is not that there are edicts coming from my office, but that there are things that we all agree need to be done. We're looking at near-term and long-term issues; what's feasible and what's affordable. Some of these are going to cost money that we're going to have to program for. Getting everything together and focused on this area is my key task right now – and communicating it so everybody understands where we're going."

"We also have to keep in mind that we have maritime unions that are our partners in crewing MSC ships. Many of our mariners can be members of these unions, which have a say in the 'care and feeding," if you will, of the mariner. So we work in close coordination with those folks and the shipping industry to do this. The shipping industry is what I would call one of the last of the 'rough and tumble' industries out there. In many cases, it is very traditional in its mindset. So there's that tradition that I believe still needs to be there, but perhaps with

Rear Adm. Mark H. Buzby, commander, Military Sealift Command, visits with Capt. Allie Milligan, commanding officer, MSC Office Kuwait, and the MSCO Kuwait staff in April 2010. MSCO Kuwait is staffed by MSC Navy reservists and plays a critical strategic role in ongoing U.S. and coalition operations in the Middle East, managing more than 90 percent of all military cargo headed to and from Iraq and Afghanistan.

(Source: U.S. Navy photo)

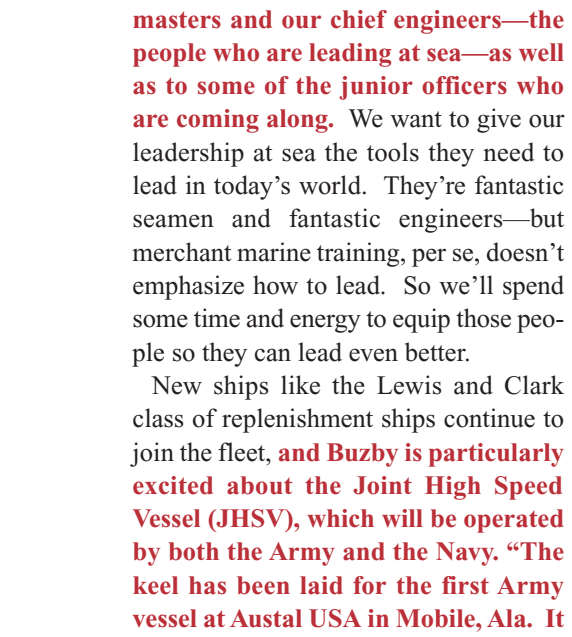
more focus toward better preparing our seagoing leadership to lead today's seafarer," he says.

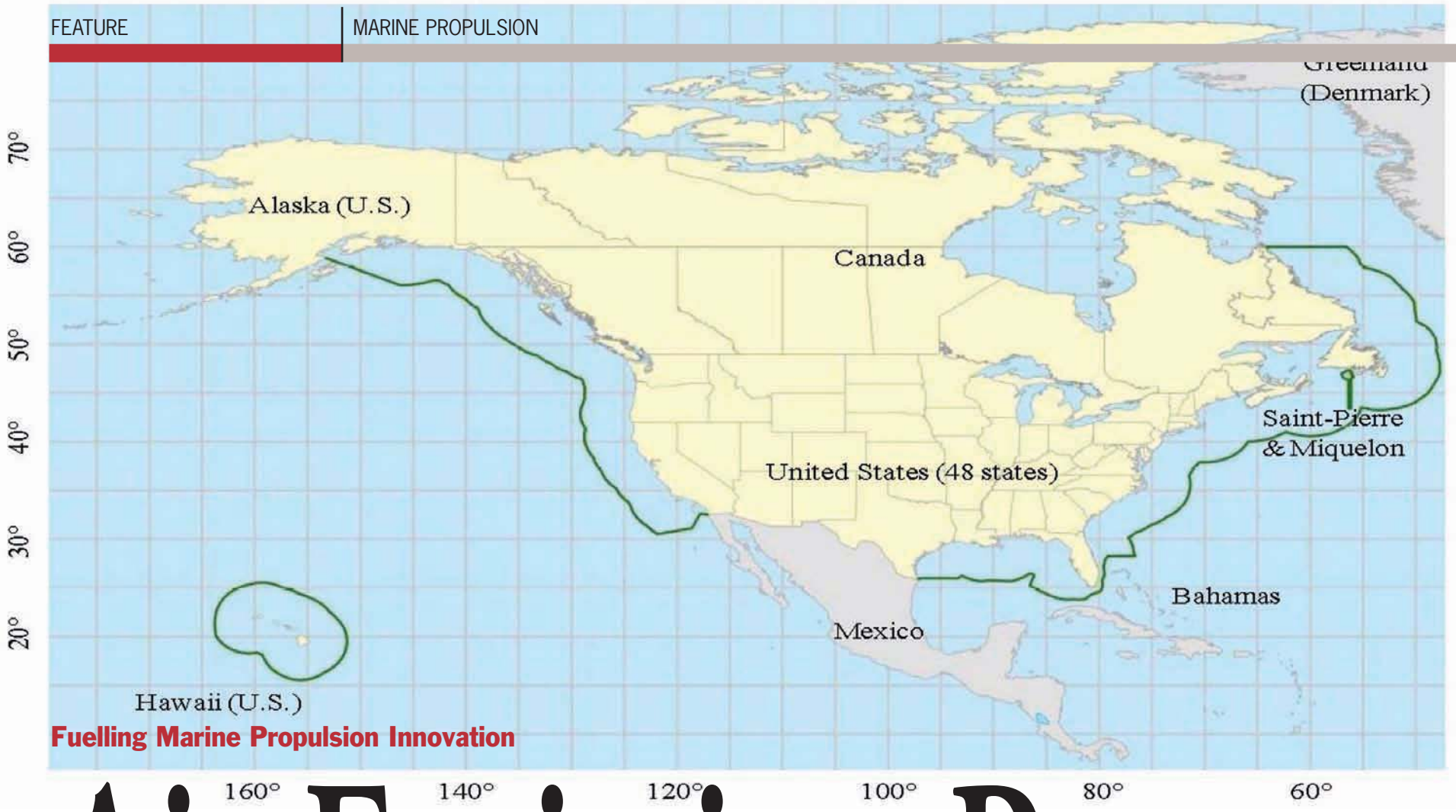
Buzby believes an investment in professional development will pay big dividends. "We want to provide leadership training and support to our masters and our chief engineers—the people who are leading at sea—as well as to some of the junior officers who are coming along. We want to give our leadership at sea the tools they need to lead in today's world. They're fantastic seamen and fantastic engineers—but merchant marine training, per se, doesn't emphasize how to lead. So we'll spend some time and energy to equip those people so they can lead even better.

New ships like the Lewis and Clark class of replenishment ships continue to join the fleet, **and Buzby is particularly excited about the Joint High Speed Vessel (JHSV), which will be operated by both the Army and the Navy. "The keel has been laid for the first Army vessel at Austal USA in Mobile, Ala. It looks like five were contracted to be built for the Navy and about five for the Army.** Military Sealift Command is going to crew the Navy ships—the first two with our civil service mariners, and the next three with contract mariners under competitive bid. We'll compare the crewing head-to-head to see how the costs and efficiencies work out. The missions for these ships are still evolving, and we want to leave our options open so we can make a good crewing decision that will ultimately play out amongst the rest of those ships. So we're excited about JHSV. It's a whole new concept for MSC."

Rear Adm. Mark H. Buzby, commander, Military Sealift Command, with fellow graduates of the U.S. Merchant Marine Academy assigned aboard MSC fleet replenishment oiler USNS Flint May 19, 2010.

(Source: U.S. Navy photo by Sarah Burford, Sealift Logistics Command Pacific public affairs)





Fuelling Marine Propulsion Innovation

Air Emission Regs

by Henrik Segercrantz

In March this year, The U.S. Environmental Protection Agency proposal to designate waters off the North American coasts as an Emission Control Area was adopted by IMO, the International Maritime Organization. The North American ECA is a key part of a comprehensive EPA program to address harmful emissions from large ships. Which are the time schedules of upcoming emission regulations? How are marine engine manufacturers preparing for the tighter air emission limits being adopted? Henrik Segercrantz explores.

The North American 200 nautical mile Emission Control Area for sulfur oxides (SOx), nitrogen oxides (NOx) and particulate matter (PM) will also include Canada's Pacific and Atlantic coasts, the South coast of Alaska, and Hawaii.

The latest component of EPA's coordinated strategy for addressing emissions from ocean-going vessels is a proposal, from August this year, to designate an Emission Control Area for the U.S. Caribbean. The United States submitted a proposal to IMO in advance of the September 2010 IMO meeting, requesting that waters around the coasts of Puerto Rico and the U.S. Virgin Islands be designated as an ECA.

Other EPA programs to address harmful emissions in the U.S. include voluntary partnerships under EPA's Clean Ports USA program and implementation of a Clean Air Act rulemaking that EPA finalized last December.

The first designated ECA areas, governed by IMOs revised Annex VI (Regulations for the Prevention of Air Pollution from Ships) of the International Convention for the Prevention of Pollution from Ships (MARPOL convention), were those of the Baltic Sea and the North Sea area, which also includes the English Channel. The revised Annex VI allows for ECAs to be designated for SOx and particulate matter, or NOx, or all three types of emissions from ships. The regulations implementing the new North American ECA are expected to enter into force in August 2011, with the ECA becoming effective from August 2012.

In the U.S. Caribbean ECA proposal, ships operating in the area would be required to use lower sulfur fuel beginning as early as 2014, and new engines would have to meet emission standards requiring the use of advanced emission control technologies, beginning in 2016.

In coming years many new ECAs are expected to be set up along coastal areas worldwide.

In parallel with reductions in sulfur oxide emissions, taking place in coastal ECA areas and, on a less demanding and time lagging level globally, also nitrogen oxide (NOx) emissions from ships are being cut both globally, through upcoming Tier II, and within designated ECA areas, in which areas the very tough Tier III limit is being implemented.

These new and more stringent regulations to reduce harmful emissions from ships are expected to have a significant beneficial impact on the atmospheric environment and on human health particularly for people living in port cities and coastal communities.

Sulfur Oxide and Particulate Matter

Catching up with the time schedules for the ECAs in Europe, and locally in California (see below), tougher EPA sulfur standards in North America are to phase in starting on August 1, 2012, when sulfur content for ship fuels is limited to 1.00 percent, or 10,000 parts per million, and reaching a cap of 0.10 percent, or 1,000ppm, on January 1, 2015. As an alternative to switching to cleaner distillate marine fuels, shipowners have the alternative to install an exhaust gas cleaner, or scrubber, allowing heavy fuel oil to be used as fuel. Enforcing the stringent ECA standards on sulfur content in fuel will slash particulate matter emissions by 85 percent, according to EPA.

From July 1st this year, the sulfur content in fuels for the ECAs of the Baltic Sea and the North Sea including the English Channel, provided an approved scrubber is not in use, was limited to 1.00 percent (or 10,000ppm), from previous 1.5 percent (15.000ppm). As of year 2015, the limit is to be 0.1 percent (1,000ppm). Outside ECA areas the current global sulfur cap is still 4.5 percent, to be reduced to 3.5 percent from January 1st 2012. Ships sailing under the flag of a country that has not implemented Marpol Annex VI can, even then, continue to use less environmentally friendly fuels within ECA areas, as long as they do not call an ECA port. From year 2025 this is though to change when a limit of

LEFT: Chart of the North American Emission Control Area.

0.5 percent is to enter into force globally. There is a checkpoint in 2018. If suitable fuels are available the starting year would be 2020.

In Californian waters Marine gas oil (DMA) with a maximum sulfur content of 1.5 percent or Marine diesel oil (DMB) with a maximum sulfur content of 0.5 percent has been in force since July 1st 2009, for ocean going ships within 24 nautical miles from the coastline. From year 2012 oceangoing vessels calling on California ports must switch to Marine gas oil (DMA) or Marine diesel oil (DMB) with or below 0.1% sulfur, within 24 nautical miles of the California coastline for the main and auxiliary diesel engines as well as auxiliary boilers.

Also in other areas low sulphur emissions is being promoted. The Port Authority of New York and New Jersey's Ocean-Going Vessel Low-Sulfur Fuel Program reimburse vessel operators half of the costs for using low sulphur fuels within 20 nautical miles of the port on a first come first serve basis due to an annual budget cap. From the beginning of year 2010, ships in European Union ports have to run their engines on 0.1 percent sulfur fuels.

Nitrogen Oxide Emissions

Nitrogen oxide (NOx) emissions from ships are to be further cut from that of current IMO Tier I level, which entered into force for new ships from year 2000. The Tier II level of IMOs revised Marpol 73/78 Annex VI will enter into force globally from next year, for ships with keel laying on or after January 1st 2011. Tier II will reduce nitrogen oxides in the exhaust gas by 15.5 percent to 21.8 percent, depending on engine speed. From year 2016 Tier III enters into force in all ECA areas, including that also in North America. Nitrogen oxides are cut by as much as 80 percent from the current Tier I level, down to between 3.4g/kWh to 2g/kWh, depending on the engine speed.

EPA's final emission standards under the Clean Air Act for new Category 3 marine diesel engines with per-cylinder displacement at or above 30 liters installed on U.S.-flagged vessels were published on April 30, 2010. The final engine standards are equivalent to those adopted in the amendments to Marpol Annex VI Tier II and Tier III standards. EPA adopted changes to the diesel fuel program to allow for the production and sale of diesel fuel with up to 1,000 ppm sulfur for use in Category 3 marine vessels.

Cost effects

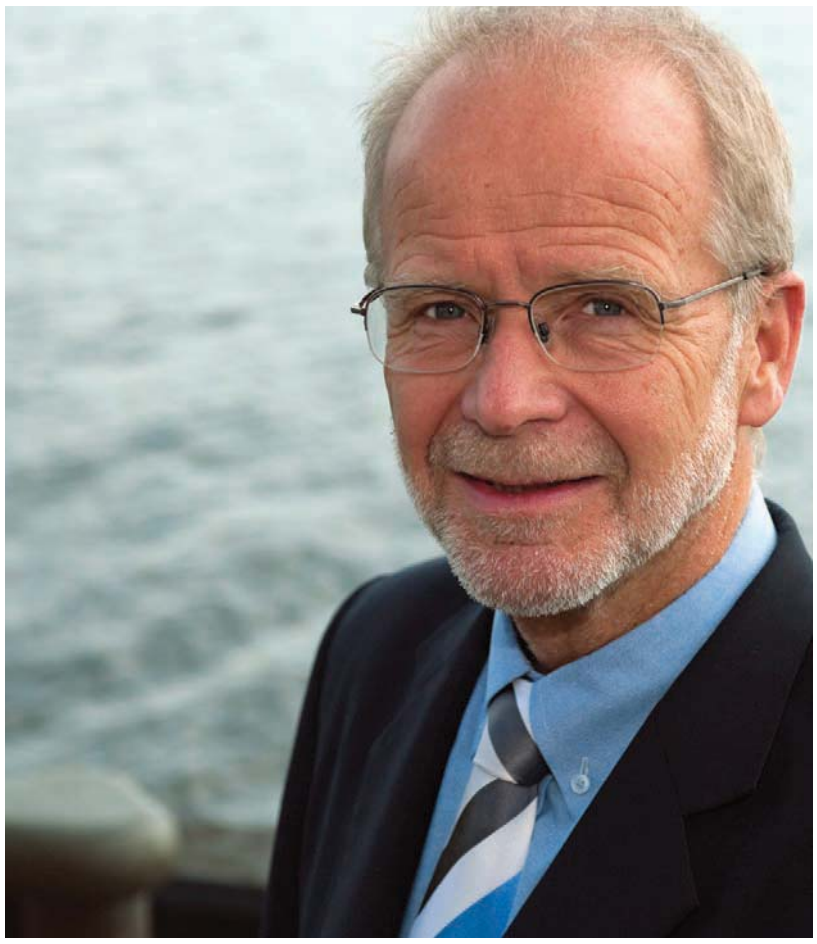
For the latest Emission Control Area (ECA) initiative for the U.S. Caribbean, EPA estimates that the total costs of improving ship emissions from current performance to ECA standards while operating in the proposed ECA will be approximately $70 million in 2020. **The costs to reduce a ton of NOx, SOx and PM are estimated at $500, $1,000 and $10,000, respectively.** EPA states in its announcement of the proposal: "The economic impacts of complying with the program on ships engaged in international trade are expected to be modest. For example, the impact on the price of a cruise on a medium-sized cruise ship that operates a route between the U.S. mainland and Puerto Rico is estimated to increase by approximately $0.60 per passenger per day for a 5-day cruise. This represents a less than one percent increase in the price of such a cruise. Container ships operating in the proposed ECA are expected to see a cost increase of less than one percent of the cost of transport of a 20-foot container, or about $0.33 to $1.35 per unit, depending on the size of the ship and the length of the route."

Greenhouse Gases, GHGs

Meanwhile, IMO is also addressing the reduction of greenhouse gases (GHGs) from ships. Carbon dioxide CO2 greenhouse gas emissions are directly related to ships fuel efficiency and fuel consumption of the engines, and is thus relates directly to engine builders' R&D work for fuel efficiency and to total transport efficiency of ships, a topic gaining much attention by the shipbuilders.

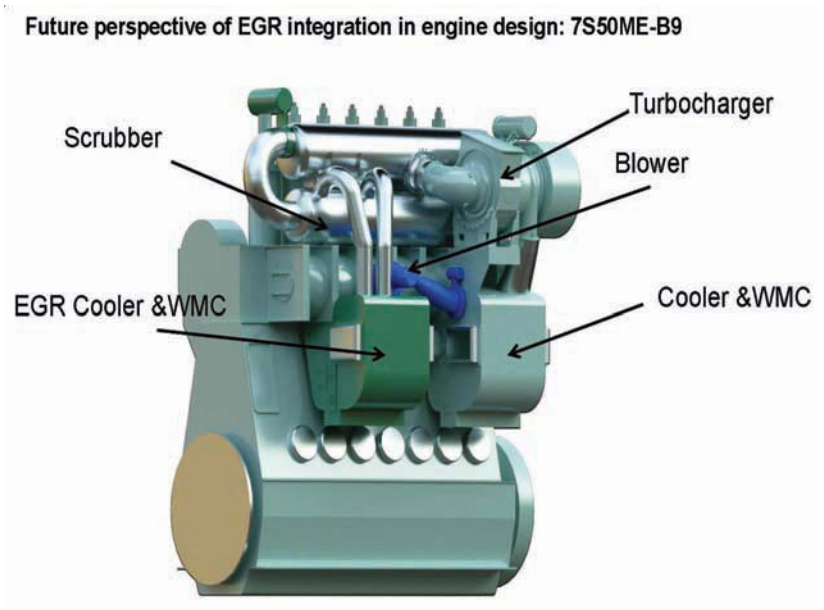
According to IMO, good progress is being made on related technical and operational measures, with further work being undertaken on market-based measures. This work is to continue at the next session of IMO's Marine Environment Protection Committee (MEPC 61), which will meet from September 27 to October 1, 2010. At the MEPC 60 meeting in March, opposition was though evident on several matters. Several countries, including China and India, insist on requiring a differentiation between developed and developing nations regarding this issue and the need to comply with the principles of the UNFCCC (called the CBDR principle). To steer clear of this principle, a proposal was presented to regulate energy efficiency only, without specifically setting limits on CO2 or greenhouse gases. A working group was set up to continue the work on a plan for implementing a mandatory energy efficiency design index EEDI for ships, despite opposition. The COP15 meeting in Denmark last December left no guidelines on greenhouse gases to IMO.

Marine engine manufacturers are working hard to develop and test technologies



"For Tier III we have to reduce the NOx by 80 percent from the Tier I level. Only in ECA areas you need this drastic reduction. Outside ECA areas Tier II will apply."

Lars Bryndum, MAN



MAN EGR engine: Graph of a Tier III compliant MAN 7S50ME-B9 low speed diesel engine with integrated EGR.

through which the demanding new emission levels can be met efficiently. Maritime Reporter talked to the two largest, MAN Diesel & Turbo SE, on their two-stroke low speed engine developments, and with Wärtsilä Corporation, on their developments on the four-stroke medium speed engine side.

Developments with Low Speed Engines

Mr. Lars Bryndum at MAN Diesel & Turbo SE is Director of Customer Supports, Marine Low Speed, Sales & Promotion. He has a long career within MAN, having worked at the company since 1979 in management positions for R&D, on vibrations, and later design of large bore engines. Bryndum holds degrees in Mechanical Engineering and Naval Architecture.

When asked about how MAN is approaching upcoming air emission regulations for their low speed engines, he goes directly to the point: "We have prepared for Tier II by means of internal adjustments of the engine. There is higher scavenging air pressure, another timing of the fuel injection, introduction of rate shaping in the fuel injection profile, and exhaust valve timing," he tells Maritime Reporter. "With all these things we are ready to meet Tier II but it has cost some increase in fuel oil consumption." He points out though that the increase is not that big on the engines where the fuel injection is electronically controlled. "We are all the time getting new information from testing the engines. We have 53 different models of stroke-bore ratio, rpm, loadings etc. so we are still learning things. We call it the Tier II evolution." MAN is currently actively testing its engines to adjust the parameters further to cut fuel consumption but to still meet the emission levels required. "We do not come back to Tier I level but we will cut back somewhat," Bryndum points out.

How is your development going on for Tier III, entering into force in 2016?

"For Tier III we have to reduce the NOx by 80 percent from the Tier I level. Only in ECA areas you need this drastic reduction. Outside ECA areas Tier II will apply." Bryndum notes that this will require shifting between modes of the engine or requiring engine adjustments. "NOx formation is a combustion feature resulting from high temperature and high pressure, where the nitrogen and the oxygen in the air react and create NOx, which is NO or NO2. In order to reduce this chemical process you need to lower the temperature." Bryndum mentions that there are several methods to do this. MAN has not tested spraying water directly in the combustion chamber, as some other engine builders, but has instead mixed water into the fuel, which then evaporates during the burning process resulting in a cooling of the gases. Bryndum points out that with this technology, called WIF, an 80 percent NOx reduction could not be reached. MAN has also tested another method, scavening air moistening, called SAM for two stroke engines (and HAM for four stroke) where water is sprayed into the hot air after the compressor on the turbocharger. Bryndum describes the process: You can spray in salt water which will immediately evaporate and cool down the scavening air. You then take out some droplets from that and spay in fresh water once more. Then you wash out any salt droplets after which a third spraying with fresh water takes place. The air goes through the cooler without any salt content and when the intake air enters the cylinder the temperature will be around 70-80 deg.C.. and completely humid, saturated with water vapor. This results in relatively less atmospheric air which reduces the amount of oxygen. Combined with the higher specific heat capacity of the water vapor and less oxygen with a lower partial pressure, the formation of NOx is lower. "That was one technology we tested some years back. We could reach a 60-70 percent NOx reduction but an 80 percent reduction seemed to be out of range, so we looked for a third technology." The technology Bryndum refers to is EGR, exhaust gas re-circulation. The principle is the same as with SAM, to use another gas which has less oxygen than the atmosphere in the combustion process. The engine's re-circulated exhaust gas has an oxygen level which is reduced. It is first cleaned from soot and for sulfur dioxide, components in engines burning heavy fuel oil. After this it passes through a cooler and to the scavenging air receiver. "The reduced oxygen level, from 21 percent, which is in the atmosphere, down to maybe 16 percent in the intake air, gives a tremendous lowering of the combustion temperature and therefore also in the formation of NOx." MAN has made lots of tests with EGR on their research engine proving that this technology works. With a recirculation of about 40 percent of the exhaust gas an 80 percent reduction of the NOx is reached. The cleaning process from soot and sulfur dioxide, needed to avoid corrosion of the engine air cooler, is done using a scrubber, developed and patented by MAN. The water in the scrubber will over time become acid and is neutralized with sodium hydroxide, or caustic soda, transforming into harmless natrium sulfide or natrium hydrosulfide, which can be discharged into the sea. A filter in the water loop takes out the soot. "I should add that with the EGR the fuel penalty, when you reduce NOx by 80 percent, is small, less than one percent." The pressure of the exhaust gas is approximately 0.3 bar lower than the scavenging air pressure. When the exhaust gas is cleaned in the scrubber, its pressure has to be

increased using a blower. The additional power consumption of the blower is some one percent of the total power of the engine."

"You have to switch on this EGR, when you go into an ECA area. There will be more and more ECAs in the world," Bryndum reflects. "If the Mediterranean Sea becomes an ECA area it will have a huge impact on how many ships that has to have Tier III reduction technology onboard."

In order to comply with Tier III, required for ships with a keel laying after January 1st, 2016, MAN applies a strict development schedule both using test engines and in testing in real operating conditions. One EGR is currently in service test, since last May, on container vessel Alexander Maersk, on its MAN 7S50MC low speed engine. MAN is looking for experiences with the scrubber design and with the water cleaning system, and the impact of the re-circulated exhaust gas on the engine, cylinder and air cooler. "This is a long term test where you will see the results after one year. We have made the first inspection and it looks nice, but we need more," he points out. As this is a retrofit design, MAN is now also working on a final EGR design, integrated and optimized for its various engine types. Also these need to be tested before year 2016.

MAN is currently proposing to shipowners to become test partners in testing the first integrated EGR engine. "We want an owner who is interested and where we can access the vessel. We can not have one sailing in the South Pacific all the time. We need someone coming to Europe or Singapore frequently, allowing us to get onboard and examine the engine. The long term service experience we can only get from tests onboard a commercial vessel."

"After 2016 maybe 1,000 ships will have their keel laying, every year. How many of these ships, maybe 50 percent, will have to have the possibility to meet Tier III, Bryndum asks. "You can see there is a risk that you will go from a few prototypes to something like 500 engines with EGR every year. If there is something we have to modify later on, while in service, we can become very busy if the design is not well proven," Bryndum reflects. "There is one strange thing with this as you can imagine that many shipowners will order their ships just before 2016, as these only have to fulfill Tier II. They can go with Tier II into all ECA areas without any EGR or a catalytic converter. **There could be an advantage to order ships with keel laying before 2016, resulting in a halt or in a reduction of orders of new vessels after that. Economically, the vessels which are not operating with Tier III equipment will be more efficient. Tier III equipment will cost more due to extra fuel and energy consumption."**

But MAN has an attractive card up its sleeve. With the EGR running with a tested 21 percent recirculation, one fulfills the Tier II requirements regarding NOx emissions, but also with a reduction in fuel consumption compared to Tier I. He shows a graph showing -2.6 percent excluding the power loss of the EGR blower. "This is a result of our internal engine development for fuel savings," Bryndum notes. "This means that when you have installed your EGR and you sail in a Tier II area, you can still used the EGR and be more efficient than with a ship without an EGR. This is what we hope will be the bait for the shipowners to go into a test with a final execution of this EGR system."

Bryndum points out that MAN walks two paths regarding technologies for reducing NOx, the other one being catalytic converters, a proven technology that works well, with a handful of vessels operating such already. "There you take the exhaust gas before the turbocharger. That means at a high temperature, at a high pressure, and then you put it into a Selective Catalytic Reactor, SCR, and then through the turbocharger. "We go for these two solutions equally, because we know there are those who would prefer one of the technologies."

For MAN there is no hesitation in this matter. "These are the two only options," Bryndum stresses. "We have to work very hard and invest a lot of efforts and money to have reliable and proven technology ready in 2016." Bryndum notes further that the SCR will need ammonia, or urea, to operate and wonders will that be available in the upcoming ECAs around the world? He notes, on the other hand, that the EGR requires caustic soda, or sodium hydroxide. "But this is more available worldwide, we guess." "We now go full steam for both solutions. We have to drive the market and to give clear guidance now what to go for."

Will the development on the turbocharger side affect low speed engines regarding NOx emissions?

Two-stage turbocharging development takes place for our four-stroke engines, in connection with Tier III complience" Bryndum notes. "However the on-off operation of the EGR system in ECA and non-ECA calls for flexible turbocharger performance, and there our VTA Variable Turbine Area technology will be very useful. In the long run the higher scavenging air pressure available with two-stage turbocharging might be beneficial also on two-stroke engines but that is a next step in the evolution.

How does the decreasing on sulfur dioxide in fuels influence on your low speed engines?

"You can say that up to 1950 the low speed engines were running on low sulfur fuels, as they were running on diesel oil, and they were running very well. It took us fifty years to refine the design so that they could run on these heavy fuels with high sulfur and all kinds of bad things in the fuel. Now the pendulum is not swinging back, but we have to run on both, the very clean gas oil or diesel oils and the dirty heavy fuel, and this is a challenge," Bryndum notes. "But this has been done already for some years, on the U.S. West Coast, where there have been strict voluntary rules on sulfur emissions. The big container and other ships have been switching to marine gas oil in California voluntarily."

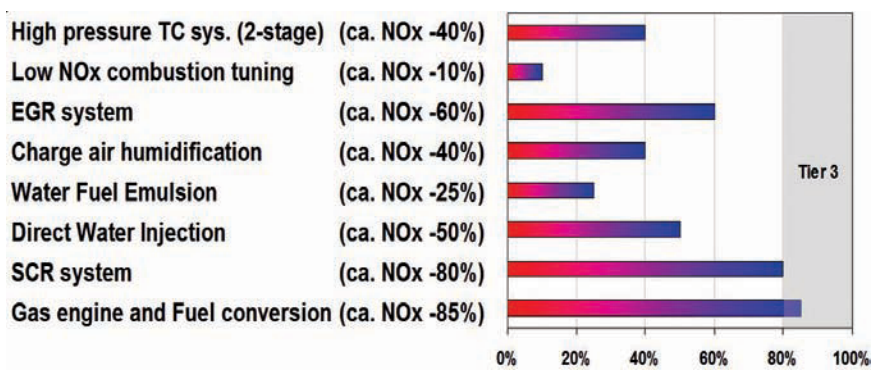
Bryndum points out that if one is running a low speed engine on low sulfur fuel for a prolonged time, say for more than a week, one should change the cylinder lube oil. The cylinder lube oil has an detergent agent which neutralizes the sulfur. If there is no sulfur to neutralize then this agent which contains calcium, and if supplird in too big quantities, starts to build up deposits on the piston top and in the piston ring grooves etc. Another issue Bryndum points out is that the low sulfur fuels have nature low viscosity. "We have a limit for the fuel regarding viscosity, two centistoke at 40 degrees. There are some marine gas oils and also maybe diesels which can be delivered down to 1.4 centistroke at 40 degrees. We are now introducing a cooler just before the engine inlet that assures that we will have sufficient viscosity. That is simply because a higher viscosity gives a better oil film, and less risk of seizure of the parts." A suitable high viscosity is also needed by the fuel supply pumps of the ship. A third issue is with old, somewhat worn fuel pumps, where, according to Bryndum, the fuel might be too thin to allow building up the injection pressure due to leakages, with a risk of not being able to start the engine. "These are the three big issues on running on low sulfur marine gas oil or diesel oils."

Any comments on the discussion on heavy fuel oils fouling the Selective Catalytic Reactor?

"With SCR we take the exhaust gas before the turbocharger. That means it has sufficient temperature to go into the catalytic reactor without clogging, even with high sulfur contents. In addition we are also able to match that with the engine. We can at least with the electronic engines adjust the timing in order to increase the temperature of the exhaust gas at lower engine loads. Thus we are able to operate our engines together with the catalytic reactor and high sulfur fuels also at low load," Bryndum notes. "But you should think at one thing. When you aim at Tier III and need to lower the NOx by the catalytic reactor you are not allowed at the same time to use high sulfur fuels. Therefore that helps for the sulfur clogging of the catalytic reactor."

"For the client lifetime cost is what is interesting, and it is very unclear yet what these technologies will cost and which will have the lowest operating costs. Two-stage turbocharging gives a benefit both for NOx and in fuel consumption. That is why we see it as very attractive."

Mikael Troberg, Wärtsilä



NOx reduction technologies tested by Wärtsilä. Gas engine technologies and using an SCR system enables a 80% reduction in NOx. To fulfill Tier III, Wärtsilä is further develping two-stage turbocharging, Exhaust gas recirculation, Water fuel emulsion and Direct water injection.

Developments with Medium Speed Engines

Maritime Reporter talked with Mr. Mikael Troberg, Director, Testing and Performance, R&D, at Wärtsilä Corporation, who has worked at the company since year 1993. He started his carer at Wärtsilä's diesel engine plant in Turku and then worked at the Vasa Engine Laboratory for four year. For the last eleven years, he has been located in Trieste, in charge of the Testing and Performance activates within Wärtsilä covering both two-stroke and four-stroke diesel and gas engines. "We have twenty-one test engines in our engine laboratories two of which are located in Finland, and one in Italy, Switzerland and in Spain. The performance development is related to the output, emissions and efficiency of our products," Troberg notes.

Tier II enters into force quite soon. How are your engines prepared to cope with these rules?

"Our engines are Tier II compliant. We have further developed the Tier II performance package for all our engines which we are implementing. These have an improved performance regarding fuel consumption. Normally when you want to decrease NOx emissions fuel consumption increases. We have done some developments to optimize the engine for Tier II, and are to improve the fuel consumption near to that of Tier I, although we have Tier II." Troberg points out that with the latest development "package" the Tier II engines of Wärtsilä will remain competitive "as they are". "We are not going to do much upgrading on these. We focus instead very much on Tier III. This is a big step. Most of our product development aims at having competitive engines that fulfill the Tier III requirements."

Wärtsilä looks at three different technologies for Tier III, Troberg describes. First there is the technology called "after treatment", which is a completely standard Selective Catalytic Reactor, SCR. "Anyone can buy a standard SCR and place it after the engine. The problem with SCR is that if it is not delivered together with the engine one does not receive a fully optimized package. We can optimize the engine if we also supply the SCR." Secondly Wärtsilä is looking into the engine technology. "This is perhaps the area where the main focus is within our engine R&D." The third technology promoted by the company is to use engines driven by natural gas, which produce very low emissions. Troberg notes that there is further development taking place also on these engines. "These are the three main technologies we believe in."

"The most demanding work is naturally on the engine technology side, where we have the goal to work between both Tier II and Tier III. The engines operate sometimes in a Tier II area and sometimes in a Tier III area. A quite intelligent engine is needed to get it to function well, both on the fuel injection side and regarding the valve mechanism. This double requirement comes from the fact that Tier III applies only in ECA areas, and some ships operate in ECA areas only occasionally. The shipowner wants an engine optimized for Tier III when operating in a Tier III area and for Tier II when operating in a Tier II area, as there is a definite difference in the engine efficiency. Probably some day in the future all coastal areas will be governed by the Tier III regulation," Troberg estimates.

Troberg presents various NOx reduction technologies under development by the company, and their current ability to reduce NOx emissions. The list comprises High Pressure 2-stage turbo charging reducing NOx by some 40 percent, Low NOx combustion tuning achieving a reduction of about 10 percent, an EGR Exhaust Gas Recirculation system achieving a 60 percent reduction in NOx, Charge air humidification -40 percent, Water fuel emulsion -25 percent, Direct water injection -50 percent and an SCR system achieving a NOx reduction in the exhaust gases of some 80 percent. By using a Wärtsilä Gas engine with fuel conversion, i.e. using a dual fuel engine, a NOx reduction of some -85% can be achieved. Currently only Gas engine technologies and an SCR system fulfil Tier III. Wärtsilä is currently develping also the following technologies to meet Tier III, alone, or in combination: two-stage turbocharging, Exhaust Gas Recirculation, Water Fuel Emulsion, and Direct Water Injection. "Operational flexibility between different emission areas will be a success factor for the future engine concepts," Troberg states.

When looking at the other engine technologies, apart from the SCR and gas engines, there is the High Pressure two-stage turbocharging where the changed combustion results in reduced NOx gas emissions by some 40%. "Through this we have reached halfway of the Tier III requirements. In addition to this we need something else," Troberg describes. Wärtsilä is looking at various alternatives here, an SCR on the engine, an EGR system where exhaust, or as a third solution, various ways of humidification, where DWI, Direct Water Injection, is one possibility, or to inject water behind the compressor. A third method is

Emulsified fuel, where water is mixed into the fuel itself. "When the water in the cylinder evaporates, it consumes energy, resulting in a lower combustion temperature," Troberg describes. "The challenge with these methods has been to combine them with high sulfur fuels of more than 3.5 percent, which might results in corrosion. Now in ECA areas where sulfur content will be low these methods can be used without problems, and also in the future when there will be a one percent global cap on sulfur content in fuels, these technologies will become very competitive," he points out. "There is a benefit with water. It is always nearby. We use quite high quality water today, but we work on technologies where sea water could be used directly. That would be ideal. As a basis for Tier III we have the two-stage turbocharging, SCR, EGR, and the water technologies. These should all be such that they can be turned off without losing anything in engine efficiency. It should become better when turned off. These technologies should not impair on engine efficiency."

Of these technologies, are there any preferred technical solutions you would opt for today?

"Not actually," Troberg answers. "For the client lifetime cost is what is interesting, and it is very unclear yet what these technologies will cost and which will have the lowest operating costs. Two-stage turbocharging gives a benefit both for NOx and in fuel consumption. That is why we see it as very attractive. It remains to be seen which other technology, applied on this base technology, is the most competitive." Wärtsilä has entered into a cooperation agreement with ABB Turbo Systems and Swiss company specialized in aftertreatment, Hug Engineering, in order to develop a technology comprising two-stage turbocharging and SCR. "We build in the SCR on the engine itself. When the client buys an engine, it is Tier III compliant without the need for any additional outside equipment. If this technology proves cost efficient we will introduce it on the market." Troberg points out that this is a development Wärtsilä believes in much. "First we achieve low emissions.

Then the SCR becomes smaller and also the amount of urea needed, as it only needs to reduce about half the amount of NOx. Also the higher pressure reduces the needed size of the SCR. This makes it possible to place it on the engine itself. We are going to build a prototype Tier III compliant engine. When looking at the various environmental requirements being planned or implemented today, the Tier III requirement is the most demanding as such, and is the focus area for the engine builders today," Troberg notes.

CO2 greenhouse gas emissions are directly related to fuel consumption, and thus relates directly to the R&D for fuel efficiency for the engine manufacturers. Troberg points out that their goal is to develop an IMO Tier III minus 80 percent NOx compliant engine without a penalty in fuel consumption. "This is our goal. Things become much simpler if one allows for higher fuel consumption, and higher CO2 emissions, but we believe that there will also be CO2 trading in the future, so this is just a thing where we have to be good."

How do you look at the requirements of the lube oil with sulfur content fuel?

"Our engines operate with fuels with any sulfur levels. We have no problems with running our engines on low sulfur fuels. The only thing is that our minimum viscosity requirements have to be fulfilled, which is a minimum 1.8 centistoke. The reason is simply that otherwise leakage occurs in the fuel injection pump and the performance is affected. Problems can also arise if the maintenance interval recommendations are not followed. Normally when you run on heavy fuel oil you use lube oil with a high TBN number to help neutralize combustion gases. If you run on low sulfur fuel, you do not need a high TBN content in the lube oil. This is a question of the cost of lube oil. It does not have a practical implication on the engine itself.

Your comments on SCR s getting clogged when using heavy fuel oil?

"Yes this is true. We have some challenges. There are development projects ongoing for developing an SCR without fuel grade limitations. Until now there has not been a big demand for an SCR with high sulphur content heavy fuel oil, as the ECA areas are introducing the sulphur cap. The market is looking for a solution with heavy fuel oil also for the ECA areas. This would mean that an exhaust gas scrubber in combination with an SCR would be preferred for the ECA areas," Troberg notes. "It is not the sulphur as such that causes problems, but mainly the ash and the vanadine in the fuel. Within our own company Ecotec, we sell and develop SCR. We strongly believe that the winner in this game will be the one that can handle both low sulfur fuels and high sulfur fuels.

A scrubber behind the engine is something that will most probably be attractive. A scrubber capable of running on bad heavy fuel oils will most probably be very competitive in the future. The price of good quality fuels will rise and the difference in price between good quality fuels and heavy fuels will increase from what it is today. The cost efficiency of a combination of a scrubber operating on heavy fuel will improve from what it is today. We do not always deliver the SCR though."

A Good Hull Deserves

A Good Rebuild

by Alan Haig-Brown

British Columbia, on Canada's west coast, has some attractive and well-proven tugs, but the fleet is aging with many vessels over thirty years old. Four years ago Vancouver's Island Tug and Barge (www.islandtug.com) launched the new build Island Scout with a pair of Cummins KTA38 main engines.

This August, they will return their 1977-built 21 x 7.3-m tug Island Defender to service. The midlife rebuild has taken a year to complete but as Island Tug's president Bob Shields explained this was much more than a repower, "As with our other Cummins repowers, we conducted a life cycle cost analysis using Robert Allan Ltd. for assistance and determined that a package that included a pair of Cummins KT19s would yield us the best value. The engines are soft mounted and connected to the drive train via a Centa Link coupling which we expect to have a tremendous impact on overall vessel noise as it did on the Island Scout. We added a Krill fuel management and monitoring system, new shafts and Kobelt shaft brakes, Rice nozzles and propellers and a pair of John Deere gensets. Most of the rest of the vessel has been re-built as well which has taken a little over a year to complete."

Project manager Paul Kruse filled in some of the details of the extensive job as well as the pros and cons of such a rebuild versus a new construction. "We had a good hull to start with," he said. The Island Defender was built in Vancouver as the log-towing tug Hamilton Bailey with a pair of 480 HP Cat D346 mains. Later the boat was taken around to the Great Lakes aboard a heavy lift ship. There she was renamed the Josee M and re-powered with a pair of Detroit DDEC V16-92 engines rated for 1100 HP each at 2100 RPM. Subsequently North Arm Transport brought her back to the Pacific coast before selling her to Island Tug. "A steel boats rusts from the inside out," explains Kruse, "It is easy to sand blast them and paint them all up nice on the outside but the inside is often neglected. But this boat had good steel through most of the boat. We gutted the hull taking out all the piping and repainting it with modern epoxy paints."

That was just the start of the job. The fact that the hull had sponsons that act as mounts for the fendering and guards for the hull was an asset. Although use over the years had opened cracks in the steel that allowed salt water in, the main hull was well protected. The sponsons were opened up, blasted and painted inside then divided into four compartments be-

Owner	Island Tug & Barge
Yard	Allied Shipyards
Main Engines	Cummins
Naval Architect	Robert Allan Ltd.
Couplings	Centa
Gears	ZF
Nozzles	Rice
Shaft brakes	Kobelt
Gensets	John Deere
Winches	Burrard

(Photo: Courtesy of Island Tug and Barge Ltd.) INSET IMAGE: (Photo: Alan Haig-Brown courtesy of Cummins Marine)

fore being resealed. The entire bulwark steel around the aft deck and stern was replaced and the Western Machine Works towing pins refurbished with new parts. The tug's original Burrard single drum towing winch was taken back to the Burrard shop for a complete rebuild and minor updates. ""I've got nothing but good to say about Burrard and their winches," said Kruse.

The accommodation areas were not neglected in the rebuilt with some bunk rooms gutted and refurbished. The galley got a total rebuild with fine new woodwork done in house at Island Tug's own maintenance facility. The original concrete layer on the deck was taken up and replaced with a sound-damping system that includes layers of a cork- concrete mix and perforated aluminum all topped with an acrylic flake finish.

The bridge as well as two outside control positions received updating including a new set of Cummins engine monitoring and control panels in the main wheelhouse. Additional winch controls including air- assisted power brakes were added on the flying bridge as well as the control station on the aft cabin top. Even the stack got the company's new color scheme.

The engine room is the heart of a tug and it was here that the most significant changes took place for the Island Defender. With old main and auxiliary engines removed as well as the piping, it was possible to clean the interior and apply the new acrylic paints. The existing ZF 5.037:1 gears were sent out to the Seattle shop to be refurbished and adapted from the direct link that they had to the old engines to the new flexible link that they would have to the new Cummins mains. While the old engines were 1100 HP each the new will be only 500 HP each it was decided to keep the original gears which were hard mounted to the hull while the engines are soft mounted to reduce noise levels in the boat.

When in dry-dock at Allied Shipyards, the old Kort 19A nozzles and their five-blade Kaplan props were removed. New Rice nozzles and three blade props were installed with the trailing edge of the nozzles cut away to allow the placement of the rudders within six or seven inches of the wheels for improved handling. In spite of the reduction from 2200 HP to just under 1000 HP total, The ownsers are expecting improved performance. Bob Shields explained, "According to the RAL predictive graphs, the Rice nozzles will produce a static bollard pull of 34,000 pounds and, with a 5500 ton barge, we will see seven knots loaded and nine knots empty which is an increase in efficiency of 8% over the previous setup."

Canadian crewing regulations require a full time engineer in tugs with over 1000 HP. The reduced crewing and significantly reduced fuel consumption will contribute to increased profitability for the rebuilt tug. Todd Barber of Robert Allan Ltd. developed re-power scenarios for three different engine manufactures taking into account capital and operating costs to come up with this re-power. As the new engines are significantly lighter, the existing ballast that had been mounted inside the hull on either side of the centerline was removed and replaced with a 5.5-ton steel bar on the bottom of the keel.

The boat's primary work will be coastal towing of 25,000 barrel fuel barges and 5500 tonne deck barges As the installation and fittings of the engine room were being finished up the high quality of workmanship became apparent as did the pride that the fitters took in the project. One of the shipyard crew protested that a photographer should wait until the job was finished "And we have all the 'bling' in place". He went on to explain that there would be a good bit of bright finished metal in the immaculate engine room. The owners are well aware that their commitment to careful study prior to such a job will ultimately bring savings in capital costs (this rebuild costs are about 60% of a new build) and savings in operation with lower fuel costs and less down time. But they also recognize the value of the pride generated in the installation crew and the boat's future crews in having superior equipment to operate.

(Photo: Alan Haig-Brown courtesy of Cummins Marine)

New Initiatives Probe

Thruster Interaction Effects

by Hans Cozijn, MARIN

MARIN has a long history in research into the performance of thrusters during Dynamic Positioning (DP) operations. Research on ducted propellers started in the late 1960s (Oosterveld) but a lot of today's knowledge on thruster interaction effects was developed in the late 1980s and early 1990s (Nienhuis).

As a result of the application of DP systems on many different vessels, there is continued interest in this subject. Today, newly developed tools enable more detailed measurements and computer simulations of the thrusters on DP vessels. This has lead to new research initiatives to improve the understanding of thruster interaction effects.

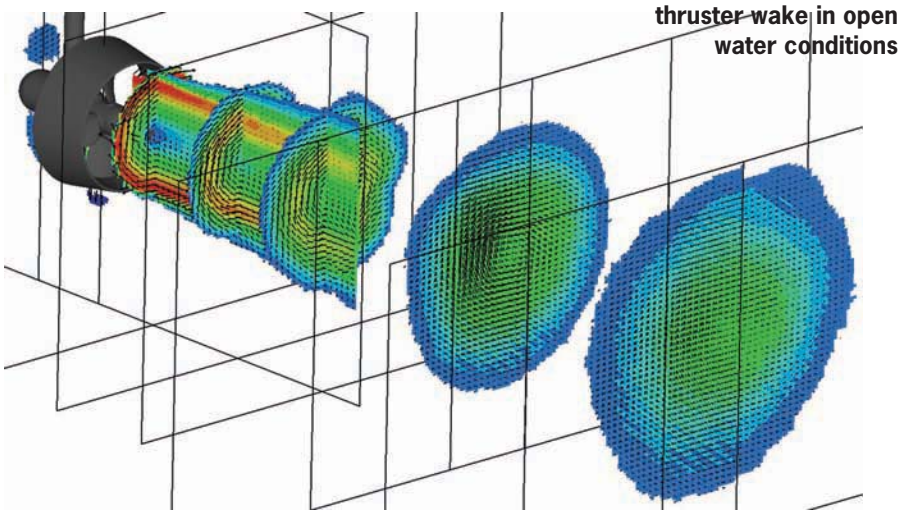
During DP operations the effective force generated by thrusters can be significantly smaller than would be expected based on the thrusters' open water characteristics. This is a result of thruster interaction with the hull, current and the wake of neighbouring thrusters. The understanding and quantification of thruster interaction (or thrust degradation) effects is essential for an accurate evaluation of the station-keeping capabilities of DP vessels.

At present, thrust degradation effects can be quantified using data available from literature,or by carrying out dedicated model tests. Published data can give valuable insights but often it is too general, or not applicable to the specific design. Model tests, on the other hand, do provide detailed results but they are relatively expensive. In addition, model test results often only become available relatively late in the design process, making it difficult to incorporate the results in the design.

CFD calculations could be an alternative method but there is little experience in the application of CFD as an engineering tool for thrust degradation effects. With the rapidly increasing capabilities of CFD models and computer hardware, the time is right for the development of new tools to analyse thruster interaction.

New measuring techniques

In the summer of 2009, MARIN received its new stereo-PIV measurement system which has a powerful Class 4 laser with two digital cameras built into a single underwater housing (see Report 98). A research project was carried out to evaluate the possibilities of using the PIV system for measuring the flow velocities in the wake of an azimuthing thruster. Model tests were carried out in MARIN's Deepwater Towing Tank. An example of the measured wake velocities in open water conditions, showing both cross sections and velocities in the longitudinal plane, is shown above.

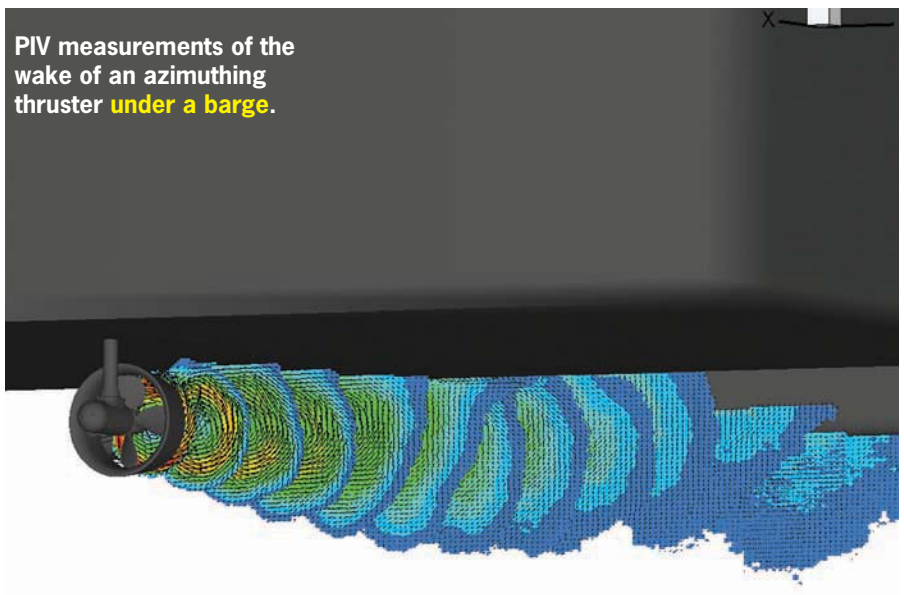


PIV measurements of a thruster wake in open water conditions

Results show that the new PIV system is capable of recording the velocity field in the propeller wake, with a level of detail that was not possible before. This data is extremely valuable for the validation of CFD calculations. The model test programme also included measurements with the thruster built into a barge model. Here, the deflection of the thruster wake, due to the presence of the hull and its rounded bilge (Coanda effect), could be captured (see example alongside). These first PIV measurements will be used as validation material for CFD calculations. A key issue in these calculations is the correct representation of the shape of the thruster wake.

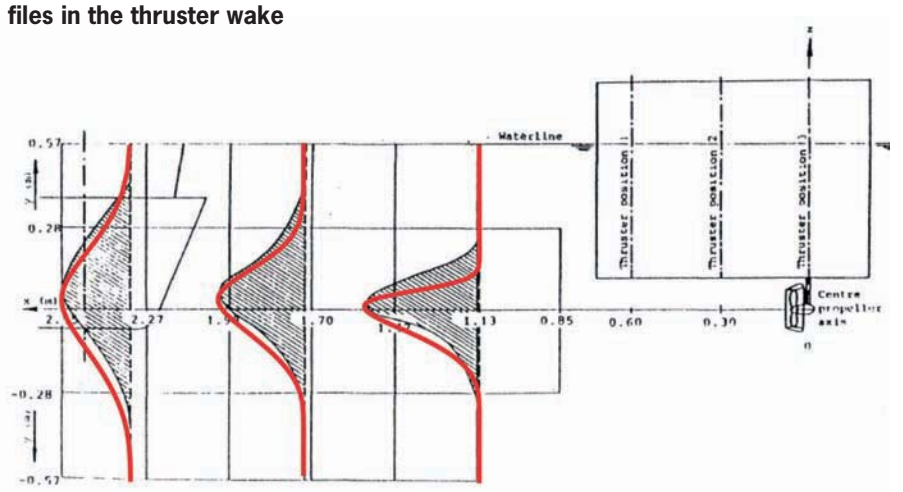
Research efforts

In the coming years, CFD calculations will increasingly be used as an engineering tool for application in offshore hydrodynamics. Examples are the calculation of current and wind loads, viscous effects in wave loads, VIM and the analysis of thruster interaction. MARIN's research plans for CFD have been documented in a "roadmap", in a bid to streamline R&D.



PIV measurements of the wake of an azimuthing thruster under a barge.

Comparison of measured and calculated velocity profiles in the thruster wake



Currently, MARIN is starting a Joint Industry Project on the hydrodynamics of thruster interaction, called the Thrust Hydrodynamics JIP (TRUST JIP). The TRUST JIP aims to gain insight into physical phenomena, quantifying thruster interaction effects and investigating possibilities for improvement. In the TRUST JIP model test data, CFD calculations and full-scale measurements will be combined to provide the methods and tools for the hydrodynamic optimisation of a DP vessel's thruster configuration during the design.

The project deliverables will include a calculation tool for DP capability calculations. This combines traditional DP capability plots with the evaluation of other operational criteria, such as motions and accelerations. Thruster interaction data obtained will be included in this tool. Guidelines will also be developed on how to use model tests and CFD calculations in the analysis of thruster interaction effects and for the optimization of thruster configurations on DP vessels. More information can be found at http://www.marin.nl/web/JIPs-Networks/Public/ TRUST.htm.

Calculation possibilities

The application of CFD calculations for the analysis of thruster interaction is still largely unexplored. At this moment CFD calculations of a vessel hull, complete with all its thrusters, may seem too complex but suitable modeling methods will be investigated and developed in the near future. A thorough validation of CFD models against measurement results, both at model-scale and at full-scale, is required. An example of some initial calculations on a single thruster under a schematical barge is shown. Results show the same trends found in the measurements by Nienhuis but further developments are necessary to achieve more accuracy.

Research into CFD calculations for thruster interaction will first focus on the calculation of the velocities in the wake of a thruster in open water. The accurate calculation of the velocities, especially at larger distances from the thruster, is crucial for an accurate prediction of thruster interaction effects later on. Different modelling options will be investigated. Subsequently, increasingly complex configurations are considered, introducing step-by-step additional physics, such as friction forces on the hull, deflection of the thruster wake (Coanda effect), the effects of current and loads on appendages. Another example is the calculation of the loads caused by the thruster wake on the opposite pontoon of a semi-submersible. In this manner, the performance of thrusters in various different configurations can be investigated.

The latest developments in CFD calculations and PIV measuring techniques offer new possibilities to increase the understanding of the physics of thruster interaction effects. The TRUST JIP will investigate the applicability, accuracy and limitations of CFD for thruster interaction by comparing the results from model tests, CFD calculations and full-scale measurements.

About the Author

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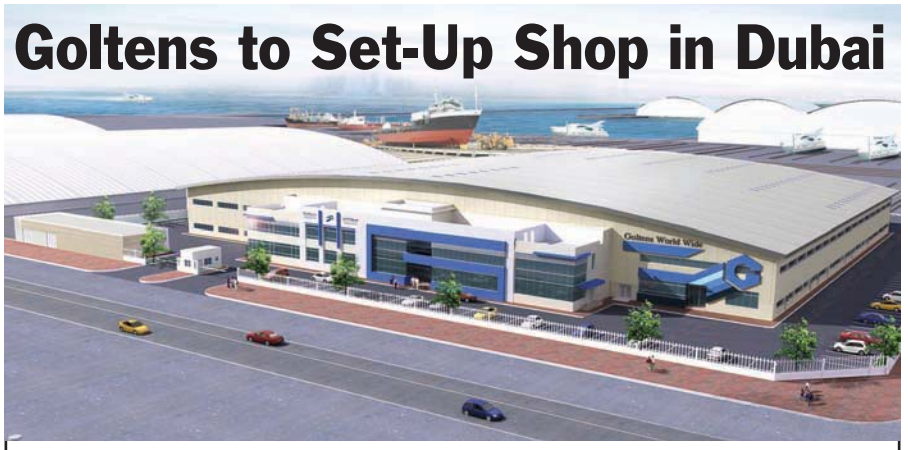
Goltens to Set-Up Shop in Dubai



Goltens confirmed leasing 23,000 sq. m. in Dubai Maritime City to create a ship repair facility. Goltens is the first company to sign up for a plot in Dubai Maritime City – Industrial Precinct (DMC) in an official signing ceremony in Dubai and confirms that it will lease Industrial Precinct plots 6 and 7 for 25 years. "Shipowners around the world rely on us to solve critical repair projects. Now finalizing our agreement with the ship repair yard, Drydocks World, Jadaf Dubai, we can embark on building a new facility to consolidate all of our services in an optimum fashion under one roof, introduce some new services and provide additional capacity for future expansion," said Paul Friedberg, President, Goltens Worldwide Service. The 2.27 million sq. m. Dubai Maritime City – Industrial Precinct is divided into the Maritime Center, the Industrial Precinct, The Academic Quarter, the Marina District, the Harbor Residence, and the Harbor Offices. The Maritime Center District is the center piece of Dubai Maritime City and will serve as an international hub for maritime business. This sector is a hub for ship repair facilities, yacht repair and manufacturing, as well as workshop units. The precinct is managed by Drydocks World, Jadaf Dubai. "We are seeing viable signs of a market recovery. Despite a global shipping recession, there is a steady flow of ship repair activity and business. We are a global point of contact for best-in-class support, repairs and consulting. Our new workshop and repair/maintenance center will be our hub for the Middle East," said Friedberg. The new DMC– Industrial Precinct integrated workshop facilities and administration/sales offices will be substantially larger than those at Goltens current location in Al Jadaf. An increased business portfolio, together with an expected future head count considerably larger than the current 520, has made facility expansion necessary. Goltens will start construction immediately and hopes to move into the new, more centrally located Dubai facilities by 3Q 2011.

The new facility will house both a large workshop and an administrative office in its new 15,000 sq. m. purpose built facility . The new purpose-built workshop will perform specialist 2/4 stroke diesel engine reconditioning and repair services including all associated engine room and mechanical services.

Yard
Reflex Advanced Marine Corp.
Name *Reflex 850 Spyder*

About The Reflex 850 Spyder is a modular, center console RIB craft using the company's patented Reflex Mk III tri-hull technology. This tri-hull design has proven fuel efficiency and provides high speeds with lower than normal hp.

Main Particulars
Length, o.a., excluding engines . . . . . .28.9 ft
Beam, collar inflated . . . . . .8.9 ft
Draft . . . . . .1.4 ft
Dry weight, approx. . . . . .3,311 lbs
Max. design displacement, approx. . . . . .7,125 lbs
Deadweight, approx. . . . . .2,764 lbs

Yard
Brunswick Commercial & Government Products (BCGP)
Name *750 Impact 170*

About (BCGP) has produced the 750 Impact for riverine patrol missions for the Mozambique Navy. The vessel has a heavy-duty fiberglass hull, commercial-grade tubes made with polyurethane fabric and non-skid molded into the deck and applied to the tubes.

Main Particulars
Length, o.a. . . . . .24.6 ft
Beam . . . . . .10.1 ft
Draft . . . . . .1.5 ft
Weight . . . . . .2,734 lbs
Weight capacity . . . . . .3,597 lbs
Persons capacity 15
Fuel capacity . . . . . .157 gal
Max. hp . . . . . .300 hp
Max. engine weight . . . . . .1,040 lbs
Max. speed . . . . . .54 mph w/ 2x Yamaha 150 hp engines

Yard
Kvichak Marine Industries, Inc.
Name *MPF/UB-40 Navy Utility Boats*

About Kvichak Marine delivered three MPF/UB-40 utility boats for the U.S. Navy. Since 2006, Kvichak has delivered a total of 21 of these to the Navy, not including this latest order. The high-speed landing craft are replacing the Navy's existing LCM-8 craft as part of the Improved Navy Lighterage System.

Main Particulars
Length, o.a. . . . . .44.1 ft
Beam, o.a. . . . . .14.5 ft
Displacement . . . . . .40,375 lbs
Draft . . . . . .2.5 ft
Fuel capacity . . . . . .600 gal
Fresh water . . . . . .20 gal
Operational speed, approx. . . . . .27 - 41 kts
Engines . . . . . .2x Cummins QSM 11, 660 bhp @ 2,300 rpm
Waterjets . . . . . .Hamilton 364
Transmissions . . . . . .ZF 325
Genset . . . . . .Northern Lights 6 kW

Yard
Everglades Commercial & Government Division
Name *35FP*

About The 35FP features a pilot house with port and starboard sliding doors along with a rear window panel that manually retracts against the fiberglass hard top. The helm area converts from an enclosed ventilated compartment to an open helm in seconds.

Main Particulars
Length, o.a., w/o engines . . . . . .35.4 ft
Length, o.a., w/ engines . . . . . .38 ft
Beam . . . . . .10.7 ft
Draft, hull only . . . . . .2 ft
Draft, engine down . . . . . .3.4 ft
Max hp capacity . . . . . .1,050 hp
Max persons capacity 14
Max weight capacity . . . . . .6,630 lbs
Fuel capacity . . . . . .411 gal
Cockpit Area . . . . . .158 sq ft

Yard
Lee Shore Marine, Inc.
Name *Silverheels 26*

About Silverheels 26 is a fast response/rescue vessel. One was delivered to the City of Klawock, in Southeast Alaska. The vessel features a Softlite Ionomer foam flotation collar/fender, full police boat accessories, a dive door and towing bracket and is powered by two 140 hp outboard.

Main Particulars
Length . . . . . .25.5 ft
Beam, outboard fenders . . . . . .11.5 ft
Transom . . . . . .2.1 ft
Max. hp . . . . . .400 hp
Weight w/ engines . . . . . .6,200 lbs
Cruising speed . . . . . .30 kts

Yard
Wing Inflatables
Name *P-Series RIBs*

About Wing Inflatables has developed a new series of durable polyurethane inflatable boats for military, commercial and workboat applications made of Cooley Coolthane polyurethane highly puncture-resistant fabric. Tube seams are heat welded into a single fabric. The P-4.7 will be launched in summer 2010, followed by a 17.6 ft model in fall 2010.

Main Particulars
Model . . . . . .P-4.7 . . . . . .P-5.3
Length, o.a. . . . . .15.4 ft . . . . . .17.6 ft
Beam . . . . . .6.5 ft . . . . . .7.3 ft
Folded dimensions, bare boat . . . . . .2.3 ft x 4.8 ft . . . . . .TBD
Usable deck space . . . . . .38.7 sq ft . . . . . .TBD
Weight, bare boat, w/o deck . . . . . .180 lbs . . . . . .TBD
Max. payload, incl. engine & fuel . . . . . .2,760 lbs . . . . . .TBD
Crew/passenger capacity 10 12

Yard
Metal Shark LLC

Name *28 Relentless*

About The 28 Relentless is the most versatile and customizable craft in the Metal Shark patrol series. The vessel's hull is welded from 5086 aluminum alloy and the deck-height longitudinal and transverse structures interlock with one another to form the boat's rigid "skeleton."

Main Particulars
Length, o.a. .....28 ft
Beam, w/ collar .....10 ft
Draft .....2 ft
Fuel capacity .....150 gal
Deadrise at transom .....22 degrees
Max hp .....600 hp
Fuel capacity .....150 gal

Yard
Moose Boats Inc.

Name *M2-35 Patrol Boats*

About The Moose Boat M2-35 Patrol Boats for the U.S. Navy are all-aluminum catamarans. The wide, stable hull along with an all-weather cabin will accommodate a crew of four. Equipment includes a seven kW Westerbeke Genset, 16,000 BTU marine air conditioner, and Furuno electronics suite.

Main Particulars
Length, o.a. .....35.5 ft
Length, w.l. .....27.5 ft
Hull beam .....13.5 ft
Displacement, dry .....13,000 lbs
Fuel capacity .....260 gal
Dead rise, aft .....15 degrees
Max draft .....3.2 ft
Propulsion .....Twin 250 hp Yamaha outboards
Service speed .....30 kts
Max. speed .....38 kts

Yard
MetalCraft Marine, Inc.

Name *FireStorm 36*

About MetalCraft Marine built a series of FireStorm 36 vessels for the San Diego Harbor Police. The FireStorm 36 series was the first Fireboat designed and built by MetalCraft Marine almost 10 years ago. Since then the company has built 45 fireboats ranging in size from 27 to 70 ft with six new ones currently

Main Particulars
Length, o.a. .....39.2 ft
Beam .....13 ft
Power .....Twin Cummins QSB 5.9 L
Waterjets .....Twin Hamilton Jet 292's
Max. speed .....38 kts
Fire system .....Darley Pump 1750 psm, Foam Pro 2002

Yard
Ribcraft USA

Name *RIBCRAFT 6.5*

About Two Ribcraft 6.5 RIBs have been delivered to the James City County Police Department. The RIBs will be used for rapid response, patrol, interdiction, boarding and dive team operations. The two RIBs feature a deep-V hull, full length lifting strakes, heavy duty multi chambered Hypalon tubes.

Main Particulars
Length, o.a. .....21.4 ft
Beam .....8 ft
Weight, w/out engine .....1,650 lbs
Tube diameter .....1.8 ft
Draft, w/out engine .....1.3 ft
Maximum persons 12
Max hp .....175 hp

New President, CEO STX Europe

STX Europe AS appointed Su-Jou Kim as its new President and CEO. Su-Jou Kim will replace Sang-Ho Shin, and will start in his new position with immediate effect. Sang-Ho Shin joined STX Europe in September 2008, initially as COO, and since May 2009 as President & CEO. Mr Shin has been appointed.

Adams Takes OMSA Helm

The Offshore Marine Service Association (OMSA) appointed James Adams as interim President and CEO. Adams' appointment followed the resignation of Ken Wells, who has led OMSA since 2004.

INTERTANKO Nominates Angelo Managing Director

INTERTANKO's Council will be invited at its October meeting in Singapore to appoint Joseph Angelo, Deputy MD, to succeed Peter Swift as Managing Director on his retirement on 31 December, 2010. In addition, Katharina (Kathi) Stanzel has been appointed Deputy MD.

Joe Angelo has worked for INTERTANKO for six years, first as Director of Regulatory Affairs and the Americas. Prior to joining INTERTANKO he held various senior roles in the U.S. Coast Guard, lastly as Director of Standards for Marine Safety, Security and Environmental Protection.

Rear Admiral Greene, Jr. at the USMMA Helm


Rear Admiral Greene

Rear Admiral Philip H. Greene, Jr. will become the new Superintendent of the U.S. Merchant Marine Academy in Kings Point, NY. Admiral Greene holds a Merchant Marine Master's license and is a 1978 Academy graduate. Rear Admiral Greene came to the U.S. Merchant Marine Academy from the U.S. Navy, where he was most recently Director of the Navy Irregular Warfare Office.

There he developed and employed a global maritime preventive security strategy. Before that, Rear Admiral Greene served as Commander of the Combined Joint Task Force – Horn of Africa, where he helped establish the first multinational Maritime Center of Excellence in East Africa. Rear Admiral Greene's Navy service also includes a post as Director of the Navy Europe/Africa Policy,

New CEO for DK Group

DK Group announced the appointment of Katia Kardash as its new CEO. Ms Kardash, joined the company at the beginning of 2010 in an operational capacity to support the development of the business plan for the retrofit version of its ACS (Air Cavity System) technology, and will now take over the reins as Chief Executive to lead the company through its next phase of growth.

Crowley Announces New VPs Evans & Otero


Otero


Evans

Crowley announced the promotion of Eric Evans and Tony Otero each to the role of vice president, finance & planning, supporting several different business groups.

Evans will support Crowley's technical services, petroleum services, Alaska petroleum distribution and marine contract services business groups. Otero will support Crowley's liner and logistics business units.

Caldwell New VP Bay Shipbuilding

Marinette Marine Corporation (MMC) welcomes Gene Caldwell as its new Vice President and General Manager of Bay Shipbuilding Company. "We are very pleased to add Gene Caldwell to our team" said Mr. Fred Moosally, President and CEO of Fincantieri Marine Group.

G&C Appoints New VP of Engineering

Gibbs & Cox appointed Warren Lundblad as Vice President of Engineering. Prior to joining Gibbs & Cox, Mr. Lundblad served 25 years in the U.S. Navy. Most recently, as Director of NAVSEA's Supervisors of Shipbuilding, he led contract oversight efforts for all Navy shipbuilding. Lundblad earned his Bachelor's degree in Industrial Engineering from North Dakota State University, a Masters in Mechanical Engineering from the U.S. Naval Postgraduate School, and an MBA from Virginia Tech.

Lord Joins Resolve Marine Group


Lord

Martha Lord has joined Resolve Marine Group as Manager of Marketing and Communications in the company's Fort Lauderdale, Fla. Headquarters.

Resolve Expands in Singapore

Resolve Salvage & Fire (Asia) expanded its presence in Singapore with the addition of Ajay Prasad, Operations and Technical Director. Prasad joins Resolve's Managing Director- Singapore, Anuj Sahai, in the company's Singapore office at #34-11 Centennial Towers, 3 Temasek Avenue, Singapore 039190. In addition to emergency and crisis response services, Resolve provides consulting services for operational and safety excellence to the international shipping and cruise industries, worldwide. Resolve's Singapore operation delivers a variety of services including: hands-on regional support for shipping interests in Asia; expert advice and counsel on the new United States Coast Guard's OPA-90 requirements.

Ajay

Anuj

Donjon-Smit Relocates Office

Donjon-SMIT, an OPA-90 Alliance, has moved its principle office to 909 North Washington Street, Suite 300, Alexandria, Va., 22314 USA. The relocation to larger facilities was effected in order to support additional staff required to meet the new U.S. Coast Guard Salvage and Marine Firefighting regulations. All phone numbers, including the emergency number, remain the same. The main office number and 24/7 emergency number is 1-703-299-0081. The fax number is 1-703-299-0085. The e-mail address is info@donjon-smit.com. Paul Hankins, Vice President for Operations, is Donjon-SMIT's office director.

Titan Establishes Salvage Base in Australia

Titan Salvage continues to expand globally with the recent addition of a new salvage base and depot in Australia. The facility located in Cairns, Queensland is strategically located to respond to marine and environmental disasters threatening the Great Barrier Reef and other marine casualties throughout the Australasia and South West Pacific regions. The new Australian company will operate under the name Titan Maritime (Australia) Pty Ltd. Titan also operates a fully staffed and equipped salvage facility in nearby Singapore.

www.titansalvage.com

Schoolenberg New VP, Global R&D at Wärtsilä

Trudy Schoolenberg, PhD (Tech), 51, has been appointed Vice President, Global R&D in Wärtsilä Industrial Operations as of August 15, 2010. Schoolenberg will be responsible for global Research and Development of the Wärtsilä products. She has a successful career in Shell in several leading positions with strategic, operational and technology experience since 1989.

Zash Joins Bouchard

Bouchard Transportation Co., Inc. said that Matt Zash has joined its team in the capacity of business development and sales. Zash joins Bouchard after graduating from Duke University in 2006 with a bachelor's degree in Economics and Hofstra University in 2008 with a master's degree in Education.

AVEVA Announces New Center of Excellence

AVEVA opened a new oil and gas Center of Excellence for Operations Integrity Management (OIM) in Stavanger, Norway.

Noreq Group opens Office in USA

Noreq opened a new US office in Houston this week. At the same time as we open our US office, Noreq currently is establishing an office in Brazil, in collaboration with Bergen Group Dreggen. Wellington de Barros has been appointed to the Brazil office and will commence his activities for DreggenNoreq do Brasil in September 1st.

Bernardo

Royal Lankhorst Euronete Enters Brazil

The Royal Lankhorst Euronete Group announces the acquisition of a new industrial unit in Rio de Janeiro – Brazil. This new industrial unit will be used for production of deep water mooring ropes for the oil & gas platforms, production of maritime ropes for the local market and - at a later stage - also for production of buoyancy materials for the oil & gas industry.

Reeve Joins Robert Allan

Reeve

Robert Allan Ltd. announced that Henry Reeve, P.E. (BASc, UBC Mech 95, Masters, NA and Offshore Engineering, Berkley '97) has joined RAL as a Senior Naval Architect. His areas of expertise include hydrodynamics and motions, mooring, resistance predictions, stability (ship and offshore), model testing, CFD analysis, regulatory and classification issues, and vessel survey. He has worked on the naval architecture aspects of CNG and LNG Terminals and Ships, SWATHs, Ro-Ro Ferries, MODU's, FPSOs and FSOs, SPARs, TLPs and Offshore Current Turbines.

Hatteland, Emerson Process Reach Deal

Emerson Process Management has chosen Hatteland Display to provide type-approved computers and displays for their DeltaV digital automation system.

Vigor Marine Tacoma Opens

Vigor Marine completed the asset purchase of Marine Industries Northwest, Inc. (MINI) in Tacoma, WA. The transaction closed on August 9, 2010 and Vigor Marine officially began vessel repair and conversion operations the same day. Key points of contact for the company are

WSS moves 1500HP Rig

In a demonstration of the global networking capabilities of Wilhelmsen Ships Service the company recently arranged transportation of an oil rig from Edmonton Canada, through the United States to Kuwait. The land based oil rig consisted of 3,675 cubic metres of cargo with the heaviest unit being 52 tons. The rig was transported on behalf of WSS customer, Burgan Company, which specialises in well drilling, trading and maintenance. Burgan is the leading company in Kuwait for oil well exploration, drilling and work-over. "The challenge was crating and dispatching 45 truck-loads of cargo across 3,800 km from Canada to Houston Port, USA in time to connect with a heavy carrier vessel bound for Kuwait." says Wilhelmsen Ships Service Assistant Sales Manager, Arun Ravindran.

General Manager Adam Beck and Ship Repair Manager Mark Donahue. Contact information for the company is as follows: Vigor Marine Tacoma, 13 East F Street, Tacoma, WA 98421, Tel: (253) 627-9136.

EIMA Safety Training

Emirates International Maritime Academy (EIMA) concluded an STCW standard five-day fire safety and fire-fighting training course and mooring safety for port workers for a select staff of one of the world's leading maritime services provider, P&O Port Services division. The course, conducted within the premises of EIMA in Dubai, covered various critical areas of safety, personal survival techniques, and fire fighting in the marine environment, including extinguishing different types of fire, search and rescue, familiarization with fire fighting equipments, crowed management, and the use of breathing apparatus.

Canfornav Expands ShipDecision Use

Canadian ship owner Canfornav has added a new set of features to the Chartering Module of its ShipDecision maritime software suite. The Module gives Charterers one consolidated view of all information related to a Contract of Affreightment including: all documents and emails pertaining to the COA; cargo type and volume; allotment across a specific number of voyages; and a complete trail of all actions taken to move the cargo. Ultimately, the consolidated view makes it easier to track and manage the individual voyages taken to fulfill each Contract of Affreightment

APL Wins NAMEPA Enviro Award

Clay Maitland, Founding Chairman of the North American Marine Environment Protection Association (NAMEPA), announced that the liner company APL is the recipient of NAMEPA's 2010 Marine Environment Protection Award. The award will be presented at NAMEPA's Awards Dinner to be held at the Harvard Club in New York following NAMEPA's seminar on Corporate Risk Management, which will focus on the need of the maritime industry to evaluate measures required to retain corporate value in a challenging operating environment.

STX Norway Offshore to Build Icebreaker Tugs

STX Norway Offshore has signed contracts for the building of two icebreaker tugs to JSC Circle Marine Invest. The vessels will be delivered in 2011, and the total value of the two contracts amounts to approximately $71.4m. JSC Circle Marine Invest will through its subsidiary Caspian Offshore Construction in Kazakhstan operate the vessels in the Kashagan field of the northern Caspian Sea. The vessels are designed by the STX Europe subsidiary Aker Arctic, and have a length of 213.2 ft and a beam of 53.8 ft. The vessels will have the Ice class notification 1A* Super, according to the Finnish-Swedish Ice classification rules. Further, the vessels will be equipped and designed for other operations like fire-fighting, rescue operations and towing in shallow waters.

TRAC Ecological Products Represented by PAC West

TRAC Ecological Products, manufacturer of environment-friendly products for onboard equipment cleaning and maintenance, has appointed Pac-West Marketing to represent its product line in the western U.S. and British Columbia.

www.trac-online.com

Viking Introduces Design-Your-Own Lifejackets

Viking Life-Saving Equipment has launched a new product line: design-your-own inflatable SOLAS lifejackets. Made possible by a new, modular design, Viking customers can tailor their own solutions for specific working conditions, such as those encountered in maritime

environments, as well as offshore wind power, offshore welding and other industrial conditions.

Smiths Detection at Port of Providence

Smiths Detection announced the award of a contract for its FirstView early warning chemical threat detection and video management system to be installed at the Port of Providence, R.I. Funded through a competitive Department of Homeland Security grant, the system will alert authorities to chemical hazards in the port area and provide real-time video and sensor data to first responders and emergency personnel. It combines Smiths Detection's chemical detection capabilities (Centurion II) and FirstView video and sensor management software with Raytheon's Athena command and control system to monitor traffic in Narragansett Bay. Using radar, Geographic Information System (GIS) systems and long-range video cameras, vessels can be remotely identified and tracked from the harbor entrance at Newport to the loading docks at the Port of Providence.

Hybrid Tug to Get a Sister

Foss Maritime Company, builder and operator of the world's first hybrid tugboat, will soon add another pioneering vessel to its Southern California fleet with the help of an air quality grant obtained by the Port of Long Beach. Building on the success of Foss' Carolyn Dorothy hybrid tug, which was launched into service at the Port of Long Beach in 2009, Foss will retrofit an existing tug with hybrid technology for service in San Pedro Bay, thanks to a $1 million grant from the California Air Resources Board (CARB) to the Port. The project will be implemented through a partnership between Foss, the Port of Long Beach, and the Port of Los Angeles.

Construction to Start on New Damen Vinashin Shipyard

On August 19, 2010 the signing ceremony for the start of construction of the new shipbuilding facility of Damen Vinashin Shipyard in Haiphong, Vietnam took place in the head offices of the Vietnam Shipbuilding Industry Group (Vinashin) in Hanoi. Nguyen Duy Hung, Vice Operations Director of Song Cam Shipyard signed together with Erik van der Noordaa, Chief Operations Officer of the Damen Shipyards Group in The Netherlands. Song Cam Shipyard has been allocated by Vinashin to act as the local partner in the construction and operation of the new shipyard which is a joint venture between Vinashin and Damen. Completion of the first phase of the project is planned for February 2012. In the first phase the shipyard will concentrate on the outfitting, under cover, of hulls built by Song Cam Shipyard. Capacity is approximately twelve vessels per year, all current orders are for export.

ACMA Relocates Office

Alan C. McClure Associates (ACMA) relocated its corporate office to 2929 Briarpark, Suite 220, Houston, Texas 77042. "Although we moved less than a mile from our original location that served the company for 35 years, our new location has given us the opportunity to reorganize our offices to better fit the growth we've experienced over the past decade," said ACMA Vice President Darrel Harvey. Company phone and fax numbers, as well as e-mail addresses, all remain the same.

MERPAC: Aground as STCW Flood Tide Crests

USCG: Failure to have a "signed" charter reason for Merchant Marine Personnel Advisory Committee cancellation

September's regularly scheduled Merchant Marine Personnel Advisory Committee (MERPAC) meeting is cancelled.

The U.S. Coast Guard cites failure to have a "signed" charter as the reason. With Committee members in the dark about MERPAC's future, key STCW decisions could be made without important stakeholder input. Still to be answered: In MERPAC's absence — does the Coast Guard have the expertise and/or the best interests of U.S. mariners at the heart of their decision process?

First established in 1992 at the request of the Coast Guard Commandant, the Merchant Marine Personnel Advisory Committee (MERPAC) advises the Secretary of the Department of Homeland Security (DHS), via the Commandant, U.S. Coast Guard, on matters relating to the training, qualification, licensing, certification and fitness of seamen in the merchant marine. The Committee acts in an advisory capacity in accordance with federal guidelines — or at least it did until the Coast Guard announced that the regularly scheduled September 2010 meeting had been cancelled. In an August 6 e-mail message, the U.S. Coast Guard's Mayte Medina told all 19 MERPAC committee members, "I am writing this email to inform you that the Fall MERPAC meeting scheduled for September 8th and 9th in San Diego has been cancelled due to not having a signed committee charter … We will keep you informed of any future developments.

If you have any questions, please feel free to contact me directly." In a nutshell, each advisory committee, formed under the Federal Advisory Committee Act (FACA) has a charter that forms the committee and spells out their duties. Renewed every few years, the charters all go to the Secretary of the Department (in the case, DHS) for signature.

The same is true with the nominations of committee members. And according to one MERPAC member, "Right now, the MERPAC charter is waiting for a signature, and the committees cannot meet because the money for the meeting cannot be spent, without a charter in place." And there, you have it. The only unanswered question is why?

Follow Joe Keefe's "Global Maritime Analysis" blog on Maritime Professional.com

Does MERPAC Matter?

To be fair, the absence of MERPAC input won't prevent the U.S. Coast Guard from considering feedback from the general public in advance of their internal STCW deliberations. And despite a tight-lipped approach to the process that fairly rivals the MARAD theory of "no information is good information," they have also signaled their intention to publish a Supplemental NPRM as a next step. The SNPRM would describe any proposed changes from the NPRM, and seek comments from the public on those proposed changes. Arguably, input from MERPAC would have been better structured, far better informed and of greater value.

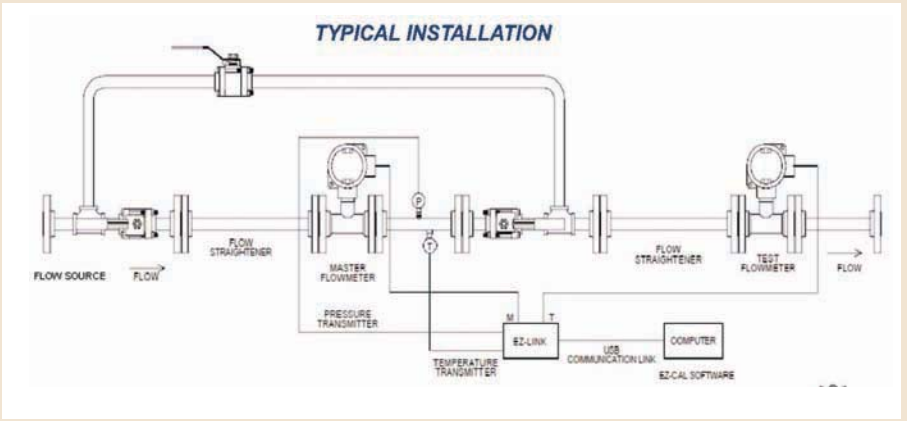
*An excerpt from a blog entry by **Joseph Keefe** posted on MaritimeProfessional.com on 8/17/2010*

Flow Transfer Standards

Versatile Solution for Calibrating Vessel Flowmeters

By Mark Evans, Applications Engineer, Flow Technology, Inc.

Look around a marine vessel, and chances are you'll find numerous flow measurement applications. These range from diesel fuel and hydraulic supply/return lines, to generators, positioners and other onboard systems. Most flow-metering devices require periodic calibration in order to maintain their accuracy when subjected to the rigors of the vessel operating environment. In many cases, however, calibration of flowmeters on workboats, supply ships, fishing trawlers and ferries is simply overlooked. Calibration typically requires that meters be removed from the vessel and sent it to an outside lab for service. Depending upon the calibration provider, this process can take days (or weeks) to accomplish. Increasingly, fleet operators are seeking a cost-effective way of performing calibrations to help maintain their flowmeters in optimal working order. The flow measurement industry has responded to this demand by offering portable Flow Transfer Standard (FTS) solutions that allow for easy and convenient meter calibrations.



Latest Portable Calibrators

Calibration equipment manufacturers have employed recent advancements in computer technology to develop FTS systems that can be used as portable flowmeter calibration/validation devices in a wide range of marine applications. Typically offered in a suitcase kit, an FTS is regarded as a secondary standard with traceability, via a master flowmeter, to the National Institute of Standards and Technology (NIST). Secondary standard calibrations are completed with a master flowmeter having been calibrated on a primary standard. The flow rate is derived from the master meter and other application inputs. Secondary standard calibration uncertainty increases with the introduction of additional inputs to derive the flow rate and repeatability of the master meter. Designed to calibrate flowmeters that cannot be easily removed from their application, an FTS is intended for in-line calibration of meters using the actual measurement fluid. Some flow transfer standards also have the capability of measuring and correcting the influences of line pressure and temperature effects on flow.

How the System Works

Unlike older flow transfer standards intended for use with one flowmeter technology only, today's universal FTS design can calibrate or prove all principal meter types. The calibrator employs an interface box that takes inputs from a master meter, temperature sensor, and pressure sensor and supplies these outputs to the system software. Based on the inputs, the software can calculate the flow rate. The software merges the output information from the master meter, temperature sensor, pressure sensor and device-under-test, and generates a calibration data sheet in volumetric or mass units, which can be stored for future reference.

With an FTS, overall system accuracy is dependent on several factors, including master flowmeter calibration, repeatability and primary standard accuracy; as well as temperature/pressure sensor accuracies. This fundamentally allows the user to tailor the accuracy of the system to meet their needs through the level of master sensors they choose to utilize. The key benefit of the FTS lies in its versatility: the system can be installed into an existing application utilizing the flow source and actual conditions of the measurement liquid.

In addition, a bypass system can be built into the application for ease of installing the master meter with flow straighteners. Once the calibration is complete, the master flow meter can be replaced with a spool piece. This bypass approach maximizes accuracy while minimizing costly downtime.

Benefits to vessel operators

Thanks to current flow transfer standard technology, marine vessel operators can utilize a portable calibrator to monitor a critical operation or perform multiple calibrations to trend a flowmeter. They can reduce calibration costs by only having to calibrate 3-5 master flowmeters to cover almost all the liquid flow applications on a given vessel. Furthermore, this solution eliminates the need to rotate calibrated meters in order to ensure uninterrupted operation. The use of an FTS also allows workboat fleets to implement regularly scheduled meter calibrations. Vessel maintenance personnel can install the master flowmeter, calibrate the device-under-test and print a calibration data sheet within just minutes.

This compares with the normal 2-3 week turnaround time necessary to remove the flowmeter from the installation and send it out to a remote site for calibration service. In addition, portable FTS calibration solutions allow vessel operators to schedule more frequent flowmeter calibrations. The calibration device can even serve as a tool for troubleshooting errors on meters. As a result, users can trend the actual meter in service to identify operational issues or equipment malfunctions, as well as plot calibrations year over year in order to schedule any type of maintenance that might be required.

Conclusion

Today's advanced flow transfer standards enable marine workboat fleets to perform accurate, fully documented flowmeter calibrations without the cost and complications associated with removing their instruments from service. For a vessel operator with multiple flowmeters calibrated on an annual basis, the investment in an FTS system is typically recouped within a year or less.

About the author

Mark Evans is an applications engineer for Flow Technology, Inc. (www.ftimeters.com) in Tempe, Ariz. Email: mevans@ftimeters.com.

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VARNA Products

VARNA Products offers a line of High efficiency, positive displacement "whisper vane" pumps for Engine Prelube and Oil transfer applications. They are optimized to provide better efficiency & power savings over typical gear pumps used in the similar applications. The VARNA Pumps were designed with Prelube in mind. They provide a high efficiency, cost saving, and maintenance-free solution specifically designed for Prelube. VARNA Products unique "whisper vane" technology is designed to allow for higher compression ratios than other vane pumps for faster self-priming and better lift. The design employs 3 continuous floating vanes that "float" between the walls of the cavity rather than utilize springs.

www.VARNAProducts.com

Vic-300 MasterSeal Butterfly Valve

Vic-300 MasterSeal butterfly valves from Victaulic are designed to offer improved flow and a better seal, as well as a longer life expectancy than most conventional valves. The unique design of the offset disc and two-piece stem increases flow and reduces operating torque up to 35 percent, and provides a 360-degree bubble-tight seal. The pressure-enhanced rubber seat within the valve body seals equally on both sides of the valve, minimizing long-term wear and maximizing service life. A patented cartridge design with redundant and replaceable stem seals increases reliability and ease of service. The combination of stem bearings and a pressure-enhanced rubber seat keeps torque consistent over the life of the valve. A unique square integral neck design with standard ISO top flange allows for direct mounting of ISO-conforming operators and actuators, and accommodates standard 2-inch insulation. They are approved by ABS, BV, CCS, RINA, and USCG.

www.victaulic.com

Allweiler Looks Worldwide for Its Oldest Pump

Winner will receive a modern replacement pump at no charge

Allweiler AG has been manufacturing pumps in Germany for 150 years, making it the country's oldest pump manufacturer. To celebrate, the company is looking for the three oldest Allweiler pumps still in service anywhere in the world. Submissions will be accepted until the end of December 2010 and the operators will receive a modern replacement pump at no charge.

Since Allweiler's founding in 1860, building long-lived and reliable pumps has been one of the company's most important objectives. Having the right materials, designs, and configurations was just as important back then as it is today. "Just as we optimize our pumps today to minimize overall costs for the operator with high efficiency and long maintenance intervals, 50 or 100 years ago Allweiler pumps were designed to be incredibly reliable. Giving customers the best possible solutions has always been our focus," according to Stefan Kleinmann, Vice-President of the Industry business segment and member of the Allweiler AG management board. The

success of this strategy is evidenced by numerous patents, awards, and innovative solutions from every era of the company's history, including 150 years of market leadership. During its 150th anniversary year, Allweiler is looking for pumps that have been in service for several decades. According to Kleinmann, 30 or 40 years of service is nothing unusual, but 50 years or more is worth looking at. Allweiler AG will offer the operator of the oldest pump the latest pump technology at no charge. This may include, for example, cutting-edge intelligent monitoring and control systems that extend maintenance intervals, immediately detect unusual operating conditions or changes to the pumped liquid, and ensure that the pumps deliver the necessary performance while consuming the lowest amount of energy possible. Achieving the lowest Total Cost of Ownership (TCO) has been the top priority of research and development efforts for several years.

Make submissions by December 31, 2010. A photo and brief description of the operating conditions are sufficient for initial contact via e-mail to

innovation@allweiler.de.

Preparing Tankers to Meet Low-Sulfur Fuel Regs

Shipowners face a unique challenge: an array of current and upcoming environmental regulations. Among them is the MARPOL (marine pollution) Annex VI Regulations for the Prevention of Air Pollution from Ships, which stipulates that burning of high-sulfur fuel oils is not permitted within emission-controlled areas. Since May 2005, specific MARPOL regulations requiring emissions from main and auxiliary machinery be kept within specific limits have been in force. They require, for instance, reduction of sulfur oxide (SOx) combinations, carbon dioxide (CO2) and nitrogen oxide (NOx) combinations.

Additionally, European Union directives for 2010 require ships at berths for more than two hours to use marine fuel oil with 0.1 percent sulfur content. This means that the ships will have to switch fuel during port stay to a low-sulfur, low-viscosity fuel known as marine gas oil (MGO). This fuel, due to its low viscosity and poor lubricity, will have a great impact on the ships' machinery, especially the fuel oil pumps.

Low-Sulfur Fuel Presents Challenges

Prior to the regulations, ships could burn higher-sulfur fuel, which is more viscous. In some cases ships needed heaters to warm the fuel enough for it to become less viscous and easier to pump. But the low-sulfur fuel is less viscous to begin with, and ambient temperature in a crude oil transport ship engine room easily reaches 40 degrees Celsius and higher – in some cases as much as 55 degrees Celsius. Adding excessive heat from pipes and engines will raise the temperature even further. As a consequence viscosity will fall, causing a significant change of operating conditions in the system. Ships therefore need cooling units to bring down the temperature of the fuel to make it thick enough to pump.

One of the world's largest tanker operators installed 55 Imo OptiLine pumps.

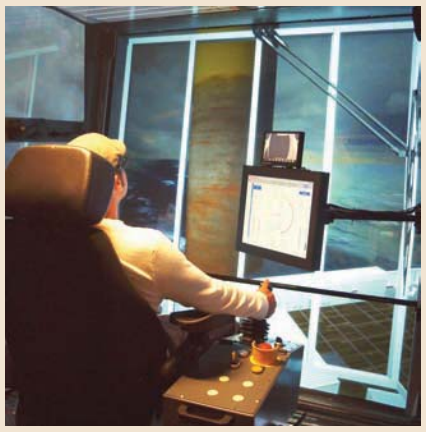
Under some of the regulations, ships can continue to burn the higher-sulfur fuel until they near a port, at which point they must burn the lower-sulfur diesel fuel. To do that, they need a fluid-handling system flexible enough to handle both.

Colfax Offers a Solution

One of the world's largest tanker operators – which maintains 100 vessels and holds an International Organization for Standardization (ISO) 14001 certificate for reducing its environmental footprint – wanted to comply with the low-sulfur fuel requirements as soon as possible. Fluid-handling system company Colfax Corporation sent a team from its Imo AB subsidiary to examine the tanker operator's existing technology and evaluate its service environment. It determined the current pumps could not handle low-sulfur fuel.

The Imo AB OptiLine pump systems ultimately selected by the tanker operator are a screw design that relies on the rotors' being lubricated by the pumped media. An oil film that builds up by the hydraulic balance in the pump causes the rotors to "float" and be lubricated. The ship operator has installed 55 IMO® OptiLine pumps on 12 of the company's tankers, enabling them to use low-sulfur fuel, and will outfit an additional 38 ships in the near future.

Portable Simulator for Offshore Crane Operators



Cargotec's first full AHC offshore crane simulator.

Cargotec has developed a simulator to provide realistic training for operators of offshore load handling equipment employing advanced active heave-compensated (AHC) technology, such as AHC offshore and subsea cranes. The new simulator is a logical enhancement to Cargotec's integrated approach to the offshore support sector, whereby the company not only offers complete engineering solutions that optimize functionality for specific ship types, but also distinct value added service products, planned and on-demand, such as maintenance and advanced operator training, both theoretical and practical.

Recent hardware and software developments have resulted in significant advances in simulator technology, opening the doors for such new, specialized applications. The simulator was designed, constructed and tested in house by a team of system engineers at Cargotec's offshore load handling site in Kristiansand.

"The rapidly expanding base of active heave-compensated cranes on offshore ships utilized in subsea load handling and their operational complexity were decisive factors in selecting this type of equipment for training by simulator," said Eldri Nærum, project manager.

Comprehensive training in the proper use of equipment has great benefits in terms of safety and efficiency and also reduces the likelihood of damage, downtime and repair costs due to incorrect operation. By allowing crane operators to gain more realistic, varied experience in a few days than they would in weeks of live training, the simulator has a major role to play in Cargotec's wider training program for offshore load handling. This includes training in failure and emergency scenarios in various environmental conditions.

www.cargotec.com

Martek BNWAS

A bridge navigation watch and alarm system (BNWAS) launched by Martek Marine with a full suite of type approvals from major classification societies enables shipowners to fit the IMO-mandated equipment without delay. The Navgard system offers a relatively low cost and effective means of avoiding operational navigational accidents and can also double as a bridge security system in port. A BNWAS is designed to monitor bridge activity and detect any operator disability that could lead to shipping accidents. The system monitors the awareness of the Officer of the Watch (OOW) and automatically alerts the master or another qualified OOW if, for any reason, the OOW becomes incapable of performing duties.

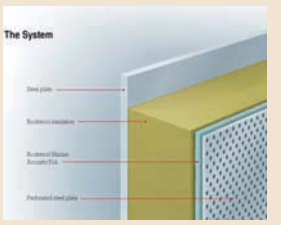
www.martek-marine.com

Lalizas SOLAS Liferafts

Lalizas SOLAS Liferafts have been certified according to SOLAS 74 as amended Reg.III/13, 21, 26, 31 and 34, LSA-code I, IV, MSC/Circ. 980,1994 and 2000 HSC Code Chapter 8, IMO Res. MSC81 (70), MSC.218(82). Lalizas is introducing in the market SOLAS Liferafts for 6, 10, 12, 15, 16, 20 and 25 persons canister and with weight of the liferaft from 75kg up to 185kg. The SOLAS liferaft is designed to be extremely safe with its tubes made of strong rubber material.

www.lalizas.com

Marine Acoustic Foil



Rockwool Marine & Offshore debited a new product: Rockwool Marine Acoustic Foil, part of a sound absorption system specifically designed for engine rooms, cargo pump rooms and similar applications. Traditional insulation solutions which consist of an alu-foil or steel plate finish provide a good solution for fire protection and oil contamination prevention; however these surface materials reduce the otherwise excellent noise absorption properties of the insulation behind them.

Email: jan.sandler@rockwool.com

Doctor Becomes Consultant

The new Diagnostic Reporter module for Icon's Doctor Analysis software is touted as a step forward in diesel engine monitoring; designed to provide high accuracy with evaluation. This innovation will truly empower engineers and provide a valuable tool in their engine management portfolio. The new tool is designed to give the engineers a quick and simple way to assess engine condition. The analysis results help to point the engineers in the right direction regarding maintenance of the engines.

www.iconresearch.co.uk

Semi-Automated Corrosion Mapping

Olympus NDT introduced its first semi-automated (semi-AUT) ultrasound phased array solution developed for corrosion mapping applications. The portable inspection solution comprises several components including the OmniScan MX PA flaw detector, OmniScan MXU software with corrosion mapping functionality, and the HydroFORM Phased Array Probe Carrier with a Mini-Wheel encoder.

www.olympusNDT.com

The L.C. Doane Company

The L.C. Doane Co.'s latest entry in LED lighting is the ML290. With a rated life of more than 50,000 hours, LEDs can reduce onboard maintenance and energy costs. The small size of the ML290 lighting fixture allows for various applications in remote locations where changing bulbs can be problematic. Long synonymous with Mil-spec lighting, The L.C. Doane Company has been a leader in lighting technology for the commercial trade as well. Today, the company markets commercial marine lighting for every type of marine application from yachts to tug boats to oil rigs.

www.lcdoane.com

ESAB

ESAB Welding & Cutting Products introduces the Origo MIG family of welders. Origo MIG 320, 410 and 510 are 230/460 V 3 ph 60 Hz step-switched power sources for medium (320) to heavy-duty (410 and 510) MIG welding. These powerful, flexible machines offer a wide current and voltage range that make it easy to optimize settings for a wide variety of filler metals and gases. Made with a strong galvanized metal casing designed to withstand harsh environments.

www.esabna.com

New Horizons Catalog

Omega's new catalog contains more than 180 pages of information on top selling products, including the Digital RTD Thermometers with NEMA 4 Enclosures for wash down, sanitary, and marine applications. 3-A approved, top selling products include Sanitary RTD Sensors, RTD Temperature Transmitters with 316 Stainless Steel Construction, ideal for Wash-down, Outdoor, Sanitary or Marine Environments and Wireless RTD Probe/Transmitter Assemblies for use in Sanitary Applications.

www.omega.com/literature/sanitary/

Marine Stick-A-Stud

Fia Inc. is introducing their Marine Stick-A-Stud, a new peel and stick stud fastener. This 3M adhesive backed poly-carbonate stud fastener can be used in most marine situations where a conventional screw on or riveted stud is currently used. Marine Stick-A-Stud has the ability to conform to most concave, convex, and angled substrates.

www.gofia.com

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

AUTOMATION AND COMMUNICATION SYSTEMS
L-3 Maritime Systems, 9 Malcolm Hoyt Drive, Newburyport, MA 34232, USA

AUTOPILOT SYSTEMS
AG Marine, 5711 34th Ave NW 2nd floor, Gig Harbor, WA

AZIMUTH CONTROLS
Prime Mover Controls, 3600 Gilmore Way, Burnaby, BC V5G 4R8, Canada

BOAT BUILDING AND DESIGN
Textron Systems, 1010 Gause Blvd., Slidell, LA , tel:985 661-3621, fax:985 661-3631, dmirelez@tmls.textron.com contact: Daniel Mirelez, www.textron.com

BOATBUILDER
Washburn Doughty, P.O. Box 296, E. Boothbay, ME 04544, USA

BOW AND STERN THRUSTERS
Omnithruster Inc., 2201 Pinnacle Parkway Twinsburg, Ohio 44087, Cleveland, OH 44139, USA , tel:330 963-6310, fax:330 963-6325, widmer@omnithruster.com contact: Kurt Widmer, www.omnithruster.com

BRAKE SYSTEMS
Hilliard Corporation, 100 West 4th Street Elmira, New York 14901-2148, NY , tel:607 733-7121, fax:607 732-8979, rdoud@hilliardcorp.com contact: Rob Doud, www,hilliardcorp.com

BRONZE VALVES
William E.Williams Valve, Inc., 3852 Review Avenue, L.I.C., NY , tel:718 392-1660, fax:718 729-5106, sales@williamsvalve.com contact: Kevin Cole, www.williamsvalve.com

BULKHEADS/MJ DOORS
Advanced Structures Corporation, 235 W. Industry Court, Deer Park, NY , tel:631 667-5000, fax:631 667-5015, advstrcorp@aol.com contact: Susan Stark, www.AdvancedStructuresCorp.com

CAD/CAM SYSTEMS
Autoship Systems Corp.,, 409 Granville Street Suite 1451, Vancouver, BC V6A 1E1, Canada

CENTRIFUGES
Westfalia Separator, Inc., 100 Fairway Ct., Northvale, NJ , tel:201 784-4395, fax:201 767-3416, Francis.Kennedy@geagroup.com contact: Frank Kennedy, www.wsus.com

CONTROL SYSTEM-MONITORING/STEERING
Omega Engineering, One Omega Dr., Stamford, CT 06907, USA , tel:203 359-1660, fax:203 968-7192, kkwait@omega.com contact: Dan Jackson, www.omega.com

CORDAGE
Yale Cordage, 77 Industrial Park Road, Saco, ME , tel:207 282-3396, fax:207 282 4620, info@yalecordage.com contact: Dick Hildebrand, www.yalecordage.com

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

DECK MACHINERY- CARGO HANDLING EQUIPMENT
Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, USA , tel:228-832-7655, fax:228-832-7675, sales@coastalmarineequipment.com
Smith Berger Marine, 7915 10th Ave. S., Seattle, WA 98108, USA

DIESEL ENGINE- SPARE PARTS & REPAIR
Goltens Worldwide, PO Box 1176, Marion, MA , tel:508 728-3128, fax:508 536 6025
Motor-Services Hugo Stamp, 3190 SW 4th Avenue, Ft. Lauderdale, FL 33315, USA , tel:954 763-3660, fax:954 763-2872 , www.mshs.com

DOOR LOCKS
The Brass Works Inc., P.O. Box 566, Deland, FL , tel:386-943-8857, fax:386-943-8810, info@marinedoorandcabinethardward.com

DOORS- MARINE & INDUSTRIAL
Walz & Krenzer, Inc, 91 Willenbrook Rd.Unit B4, Oxford, CT , tel:203 267-5712, fax:203 267-5716, sales@wkdoors.com contact: Melissa Shepstone, www.wkdoors.com

ELECTRIC PROPULSION
Avtron Industrial Automation, 7900 E.Pleasant Valley Road, Independence, OH , tel:216 642-1230/ext 1263, fax:216 642-6037, mduskey@avtron.com contact: Mark R. Duskey, www.avtron.com

ELECTRONICS/NAVIGATION COMMUNICATIONS SERVICE AND
Mackay Marine, 921 Seaco Avenue, Deer Park, TX 27616-1851, USA , tel:281 478-6245, fax:212 500-0013

EPIRB
Whiffletree Corporation Inc., PO Box 27, Bridgton, ME , tel:207 647-3300, fax:207 647-3700, glcl@bellatlantic.net

FENDERING SYSTEMS/ BUOYS - DOCK & VESSEL
Schuyler Rubber Co., 16901 Woodred Rd.NE, Woodinville, WA 98072, USA , tel:425 488-2255, fax:425 488-2424, Greg@schuylerrubber.com contact: Greg Armfield, www.schuylerrubber.com

FILTRATION
Boll Filter, 9822 General Drive. Ste. 180, Plymouth, MI 48170, USA , tel:734 451-4680, fax:734 451-4681, Latorre@bollfilterusa.com contact: Michele Latorre, www.bollfilterusa.com

FURNITURE
Wright Computer Products Inc., PO Box 565, Woodbury, NJ

GALLEY EQUIPMENT
Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431, USA
Maritime Associates International, 3832-010 Baymeadows Rd. #407, Jacksonville, FL 32217, USA
US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

HATCHES & DOORS
Maritime Associates International, 3832-010 Baymeadows Rd. #407, Jacksonville, FL 32217, USA
US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

HORNS/WHISTLES
Kahlenberg Brothers Co., P.O. Box 358, Two Rivers, WI 54241, USA , tel:920-793-4507, fax:920-793-1346, EKahlen@Kahlenberg.com contact: Erick Kahlenberg, www.Kahlenberg.com

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

INTEGRATED BRIDGE SYSTEMS
L-3 Maritime Systems, 9 Malcolm Hoyt Drive, Newburyport, MA 34232, USA , tel:978 462-2400, fax:978 462-4497, Jon.Miller@L-3com.com contact: Jon Miller, www.L-3com.com/MPS

INTERIORS
Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431, USA
Maritime Associates International, 3832-010 Baymeadows Rd. #407, Jacksonville, FL 32217, USA
Thermax Marine-Panel Specialists, Inc., 3115 Range Rd., Temple, TX 76501, USA , tel:813 340-3940, fax:813 264-2507, thermax@panelspec.com contact: John Hutchinson, www.thermaxmarine.com
US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

JOINER PANELS/FURNITURE
Maritime Associates International, 3832-010 Baymeadows Rd. #407, Jacksonville, FL 32217, USA
US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

LIFEBOATS/RAFTS
DBC Marine Safety Systems, 101-3760 Jacombs Rd., Richmond, BC V6V 6T3, Canada

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

LIGHTING SYSTEMS/ EQUIPMENT
Maritime Associates, P.O. BOX 1788, Crystal Bay, NV 89402, USA

LUBRICANTS
Kobelco Eagle Marine, Inc., 366 Fifth Avenue, Suite 712, NY, NY 10017, USA

MARINE & OFFSHORE SIGNAGE
Maritime Associates, P.O. BOX 1788, Crystal Bay, NV 89402, USA

MARINE FLOORING & ACCESSORIES (IMO CERTIFIED)
Tuflex Rubber Products, LLC Marine Division, 1101 Channelside Drive Suite 244, Tampa, FL , tel:1 800-770-6008, fax:813 875-2312, marine@tuflex.com contact: Kristy Nash, www.tuflex.com

METEOROLOGICAL INSTRUMENTS
R. M. Young Company, 2801 Aero Park Drive, Traverse City, MI , tel:231-946-3980, fax:231-946-4772, vsherman@youngusa.com

PARTS LOCATOR SERVICE
Inventory Locator Service, 8001 Centerview Parkway Suite 400, Memphis, TN 38018, USA

PARTS/SERVICE AND REPAIR
Westfalia Separator, Inc., 100 Fairway Court, Northvale, NJ 07647, USA , tel:(201) 784-4335, fax:(201) 784-4399, Klaus.Brinkrode@geagroup.com contact: Klaus Brinkrode, www.wsus.com

PASSIVE FIRE PROTECTION
Microtherm, 3269 Regal Drive, Alcoa, TN , tel:865 681-0155, fax:865-681-0016, ABostrom@microtherm.us contact: Alyssia Bostrom, www.microtherm.us

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Kahlenberg Brothers Co., P.O. Box 358, Two Rivers, WI 54241, USA , tel:920-793-4507, fax:920-793-1346, EKahlen@Kahlenberg.com contact: Erick Kahlenberg, www.Kahlenberg.com

PROPULSION EQUIPMENT
Motor-Services Hugo Stamp, 3190 SW 4th Avenue, Ft. Lauderdale, FL 33315, USA

PROPULSION EQUIPMENT AND SERVICES
Sound Propeller Systems, LLC, 9130 15th Pl.S Suite A, Seattle, WA , tel:206 392-0021, fax:206 392-0026, nhansen@soundpropsys.com contact: Norm Hansen, www.soundpropellersystems.com

PROPULSION ORDER TELEGRAPHS
Prime Mover Controls, 3600 Gilmore Way, Burnaby, BC V5G 4R8, Canada

RIGID INFLATABLE BOATS
Pennel & Flipo Inc., P.O. Box 1695 Mount Pleasant, SC 29465 , tel:843-270-4191, fax:843-883-3000, orca@pennelusa.com
Wing Inflatables, P.O. Box 279, 1132 Samoa Blvd., Arcata, CA 99521, USA

SATELLITE COMMUNICATIONS
Intellian Technologies, 9261 Irvine Blvd., Irvine, CA , tel:949 916-4411, fax:949 271-4183, sales@intelliantech.com contact: John Minetola, www,intelliantech.com

SEALS
Kobelco Eagle Marine, Inc., 366 Fifth Avenue, Suite 712, NY, NY 10017, USA , tel:212-967-5575, fax:212-967-6966, hawkins@kobelco-eagle.com contact: David Hawkins, www.kobelco-eagle.com

SEATING
H.O. Bostrom, 818 Progress Ave., Waukesha, WI 53186, USA , tel:262.542.0222, fax:262.542.3784, sales@hobostrom.com contact: Mike Oemichen, www.hobostrom.com

SHAFT HORSEPOWER SYSTEMS
Hillhouse Industrial Marine, 296 Knox Mountain Road, Sanbornton, NH , tel:603 566-4330, fax:603 934 5388

SHIPBOARD SURGE SUPPRESSORS
Wright Computer Products Inc., PO Box 565, Woodbury, NJ , tel:856 845 6767, fax:856 384 1145, wcpinc@verizon.net contact: David Wright Sr., www.wcp-usa.com

SURFACE PREP TOOLS
Aurand Mfg., 1210 Ellis St., Cincinnati, OH 45223, USA

TANK GAUGING AND SENSORS
Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065, USA , tel:732 382-4344, fax:732 388-5111, emsmarcon@aol.com contact: Tom Priola, www.emsmarcon.com

TANK LEVELING INDICATORS
King Engineering Co, PO Box 1228, Ann Arbor, MI 48106, USA
Technical Marine Service,Inc., 6040 North Cutter Circle, Suite 302, Portland, OR 97217-3956, USA , tel:503-285-8947, fax:503-285-1379, SBrox@tms-usa,com contact: Steve Brox, www.Levelcom.net

WASTE WATER TREATMENT
Marinfloc AB, Industrivagen 10, Verekil , tel:+46 (0) 304-606 300, fax:+46 (0) 304-100 51, pl@marinfloc.com

WINCHES & FAIRLEADS
Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, USA , tel:228-832-7655, fax:228-832-7675, sales@coastalmarineequipment.com
Skookum, P.O. Box 280, Hubbard, OR 97032, USA

Ordinary Seaman Advancement Program

Job Location: USA, Military Sealift Command (MSC) Vessels Worldwide

Who May Apply:

Open to all qualified United States Citizens who are currently not employed with Military Sealift Fleet Support Command (MSFSC) as civil service mariner (CIVMAR) employees. Relocation expenses are not authorized for this position.

Program Purpose: This program is designed to bring experienced personnel and previous apprentice participants into the

Command for up to 24 months of being mentored by the Civilian Mariner staff. The successful candidates would serve as Ordinary Seaman in the Deck Department aboard all classes of MSC civil service crewed ships, both at sea and in port. The Program will provide on-the-job training and work experience. The selected participants will receive Rating Forming Part of Navigational Watch (RFPNW) training, Able Seaman in Lieu Course, and Lifeboat in Lieu Course and up to 120 Navigational Watches. This program will allow the individuals to learn about Civilian Mariner opportunities at MSC; gain perspectives about how Mariners perform their duties; and, gain sailing skills in an intellectually challenging environment.

Duties:

The Ordinary Seaman will perform and/or aid other crewmembers in work pertaining to general
maintenance, repair, sanitation, and upkeep of material, equipment, and areas that are the responsibility of the Deck Department. General maintenance consists of, but is not limited to: chipping, scaling, scraping, priming, painting, sounding and or cleaning of the ship's hull, decks, superstructure, cargo gear, smokestack, rescue boats, lifeboats and or life rafts, emergency and damage control gear, and working aloft. Further, the incumbent will become familiar with general nautical terminology, boxing the compass, navigational running lights, rules of the road, including day shapes, sound signals and all distress signals.

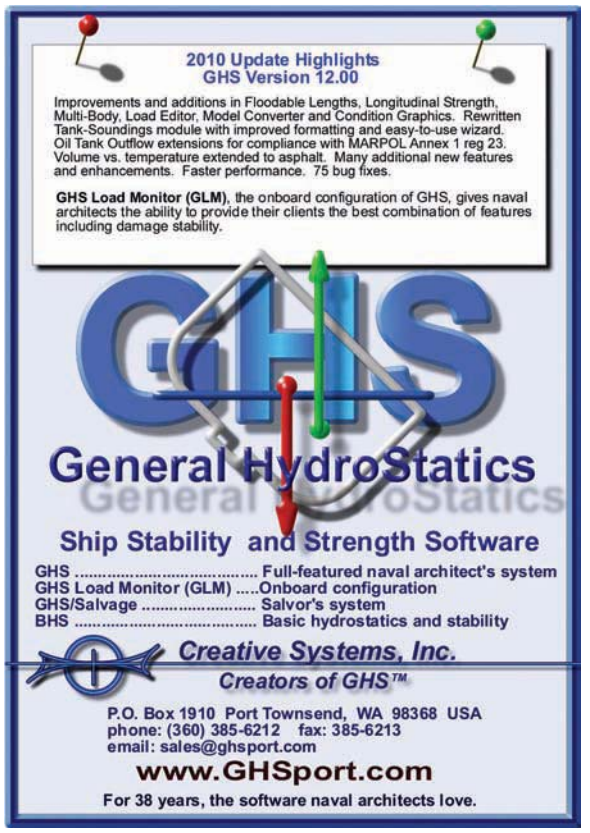
The Ordinary Seaman will also be instructed and assigned to perform traditional shipboard marlinespike
seamanship duties that include the splicing of wire rope, as well as synthetic and natural fiber lines, reaving and unreaving blocks and falls, overhauling and maintaining both standing and running rigging, cargo
loading, discharging, shoring, lashing, and rigging cargo nets, slings, ladders, boat fenders, tricing pendants and gangways. The Ordinary Seaman will also be instructed and assigned to perform general deck
sanitation duties. This includes sweeping, scrubbing, sougeeing and conducting wash downs in general,
and the sorting and proper disposal of trash and garbage.
Performs other duties as assigned.

Minimum Eligibility Requirements:
Must be a United States Citizen of at least 18 years of age and possess and maintain a valid:
1. U. S. Passport with a minimum of 7 months remaining of expiration date,
2. United States Coast Guard (USCG) Merchant Mariner's Document (MMD), or Merchant
Mariner Credential (MMC), with a minimum of 10 months remaining of expiration date with
the following endorsement: Ordinary Seaman or higher.
3. Transportation Worker Identification Credential (TWIC) card with a minimum of 10 months
remaining of expiration date.

NOTE: Participants must also possess one of the Four Additional Qualifications:

Experience:
Six months of sea experience that is directly related to an Ordinary Seaman (such as
military or maritime duties on ships or small boats).
Or USCG certified Basic Safety Training certificate within 5 years of expiration to include:
Basic Firefighting Personal Safety and Social Responsibility
First Aid
Personal Survival
Or
Education: Successful completion of full time study in navigation, seamanship, and/or other maritime studies in an accredited Maritime School
Or
Endorsement: Possess one of the following endorsements:
Able Seaman (OSV), Able Seaman
(FISH), or Able Seaman (SAIL)
Evaluation Criteria:
Applicants who meet the Minimum Eligibility Requirements described above will be further evaluated.
Documented experience, education, training, and awards contained in the application package will be
reviewed to determine the degree to which you possess the required knowledge, skills, and abilities (KSAs)
that are essential to perform the duties and responsibilities of the position.

How To Contact Us:
Please send completed packages to:
Military Sealift Command
CIVMAR Support Center
6353 Center Drive, Building #8, Suite 202
Norfolk, VA 23502



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43	Aurand Manufacturing	www.aurand.net	(513) 541-7200
27	Austal	www.austal-gdlcs.com.	Please visit our website
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11	Fairbanks Morse	www.fairbanksmorse.com	(608) 364-4411
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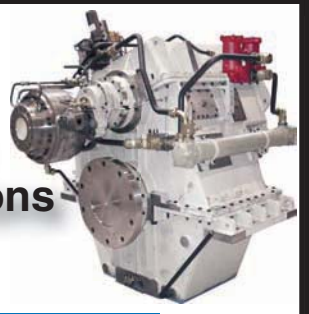

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