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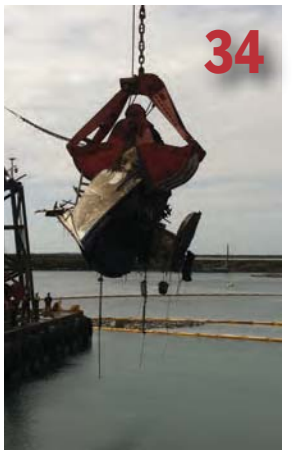
See story page 24



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When talk turns to the environment, most everyone in the maritime industry, from ship and boat owners and ship and boat builders start to "see green." But from my experience in covering this market for nearly two decades, the green they see are dollars, specifically calculating the short- and long-term cost of compliance to new and ever-tightening environmental regulations.

There are of course exceptions to every rule, and there are a significant number of quality owners that realize an investment in advanced technology today more often than not is a prudent business strategy, particularly in the tumultuous offshore energy market that demands near perfection of its vessels and personnel in the attempt to minimize potential disasters.

Much of the maritime world, and the bulk of this July 2011 edition of *Maritime Reporter & Engineering News*, is focused on the marine environment for good reason: Going forward, the price of doing business on the world's waterways – from inland rivers and lakes to coastal treks and the world's oceans – is going nowhere but up. At the same time, most of the world is still engaged in a financial hangover emanating from the global financial collapse of 2008, meaning that assistance via government subsidies is generally going nowhere but down.

In her Legal Beat column (p. 16) this month **Joan Bondareff** of Blank Rome gives a 'soup to nuts' overview regarding budget cuts in Washington and their immediate and long-term effects on the maritime industry, particularly noting the imbalance between the push to further reduce Greenhouse Gas emissions while simultaneously floating a proposal to eliminate all funding for the Diesel Emissions Reduction Act (DERA) beginning in 2012.

The push to open the Arctic, for both a shipping route and energy production, continues in earnest and could prove to be one of the more important geopolitical issues of the coming generation. Challenges abound in the quest to own the Arctic, namely in the infrastructure needed to ensure that when, not if, an accident occurs, there is ample personnel and technology to ensure a timely and complete resolution. In his report on "The New Polar Code and Commercial Aspects," contributing editor **Henrik Segercrantz** examines some of the issues driving the debate.

Finally, last month I had the opportunity to tap insights from **Elisabeth H Tørstad** of DNV for the classification's societies views on all things environmental. Anyone who knows Norway and Norwegians knows that they are passionate about the environment, and this is evident in the global environmental stewardship of DNV across the industries it serves. Tørstad (p. 30) specifically addressed the rising cost of technology, discussing challenges in making LNG powered vessels the norm, not the exception, as well as offering insights on other technologies that promise to make maritime operations more safe, efficient … and Green.

Gregory R. Trauthwein, Editor & Associate Publisher | **trauthwein@marinelink.com**

ON THE COVER

Pictured on this month's cover

is a Crowley tug reportedly on drills in Alaska. The image is courtesy of Alan Sorum of Valdez, AK, who submitted this image in the inaugural Don Sutherland Photo Contest.

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Rick Pearson

General Manager, Sea Tel

*Modern maritime communications are essential to safe, efficient operations. Sea Tel's **Rick Pearson** shares with MR his thoughts on maintaining contact between ship and shore.*

Tell us a little about yourself.

Pearson I have been the General Manager of ea Tel since July of 200 . Prior to that I worked for 23 years at ewlett Packard and its test and measurement spin-off, Agilent Technologies. At P, I worked in finance, marketing, operations and several times as a Division General Manager.

How would you describe your management philosophy

Pearson What I learned at P was that when you create the right environment the right things will happen. Internally, this means setting clear ob ectives, measuring progress, knocking down barriers and building on success. Working with our customers and suppliers this means that we want to be a good business partner where we work towards creating win win situations. Both of these depend on being forthright on surfacing issues and being proactive at solving problems.

Put in perspective the way in which the maritime community uses satellite communication services today versus just 10 years ago?

Pearson The maritime satellite industry is following the same trend line as mobile cellular and broadband where end users expectation's for communications are moving from wanting occasional connectivity to being both ubiquitous and also a fundamental requirement to accomplish many must-do activities.

Where do you see opportunities for growth in your sector?

Pearson All sectors are seeing growth as the demand for bandwidth increases exponentially over time. Because the utilization of high bandwidth communications create positive feedbacks (the more you have the more you use and get the benefit of) the demand is growing fastest where bandwidth utilization is highest such as in oil and gas markets.

In your opinion, what has been the biggest driver for improved satcom services between ship and shore?

Pearson The driver is level or number of mission critical business processes being supported. The more mission critical the communications circuit, the more investment is made in having high quality system components, redundancy and network margin or tolerance environmental performance degradation. From one perspective this would tend to increase costs, however by optimizing the total cost of ownership and by applying total quality management techniques it is possible to increase reliability while actually reducing costs.

What trends do you see today that you believe will fundamentally change the market in the coming decade?

Pearson As the market grows and matures it will naturally move toward consolidation where larger companies can use scale advantages to deliver services more consistently and at lower overall costs. This is not to say that there is not a place for innovation, it's ust that the successful innovators will bring new value to market and create new reasons for utilizing satcom at sea.

How is business shaping up for 2011 and beyond?

Pearson We have strong demand for our one meter V AT, the xx0 series, as well as our large 2. meter C band and u band systems. The recovery in global trade and as well as strong oil process are the also help stimulate demand.

What do you count as the leading technical challenges to making SatCom services even faster and more reliable?

Pearson To get to faster and more reliable services requires two parallel activities. Faster is driven by new technology as seen in the sophistication of hubs and modems and also by the amount of available bandwidth from the satellite operators. Both are increasing in pace with the end user demand for more bandwidth. Increased reliability can be achieved through the development and implementation of standards. tandardization activities can apply to many aspects of the industry from proper installation to service life testing to data collection for troubleshooting procedures and so on. These standards can be open, proprietary or a mixture of both, what's is important is to bring people together to eliminate common problems.

What challenges (outside technical) do you face to increase your penetration in this market?

Pearson Everyone benefits from reducing the total cost of ownership as achieving it frees time and money that can be better spent on growing the overall size of the maritime satcom market. We are doing many things to help reduce total cost of ownership from introducing lower priced products to improving remote management tools.

How is your company investing today to better serve the maritime market?

Pearson ea Tel is working closely with Inmarsat and iDirect to develop the terminal for the Inmarsat Global xPress service in 2013. G will grow the overall market by offering greater bandwidth in a smaller terminal.

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The Numbers Leave You Numb

At mid-year, there is no shortage of news from the domestic waterfront and far beyond into the international trade routes.

$1.58 Billion	Dollars recently authorized by U.S. DOT for Major Transit Projects Across America in the near future (announced June 27).
7.648 Million	Tons of cargo passing through the St. Lawrence Seaway System (YTD) as of May 31, 2011. Up modestly from this time one year ago.
1154	Number of State Maritime Academy graduates in 2010.
568	Number of 2010 State Maritime Academy graduates who sat for and received a marine license. Less than half opted for the license track.
445	Number of global piracy attacks in all of 2010. 2011 numbers are on a pace to eclipse that number by a wide margin. *Source: IMB Reporting Center*
439	Total number of mariners being held hostage by so-called pirates as of June 13 2011.
243	Total Number of Global Piracy/Armed robbery incidents reported in 2011 through 13 June 2011. At this pace, that number would top 500 by year's end.
97	Percentage of tanker port calls in the U.S. in 2010 that were made by double-hull vessels, up from 78 percent five years earlier *Source: MarAd*
40	Number of firms, oil companies and training institutions that were planning to attend the U.S. Coast Guard, two-day primer on STCW developments. January 2012 is looming large in the porthole.
27	Number of DOT Transit Surface Projects recently authorized (but not necessarily funded) – See: $1.58 billion above. Note the word "surface" – it refers primarily to roadways.
23	Total number of merchant vessels being held by pirates as of June 13.
13	Percentage that vessel calls at U.S. ports are up in 2010, as compared to 2009. According to Marad, oceangoing vessel calls reflect waterborne trade between the U.S. and countries around the world, and are a measure of import, export and domestic ocean shipments.
10.27	Percentage increase in total transits through St. Lawrence Seaway, YTD. This coincides with Marad's domestic port call numbers. Note that while Seaway traffic is up 10 percent, tonnage has only increased 3.66 percent.
8	Percentage of total marine volume (or vessel calls) that declined in 2009 during the economic downturn. This year's upsurge would indicate that we are nearing previous "normal" levels. Is it enough?

Excerpted from Joe Keefe's Blog on MaritimeProfessional.com

Tanker Market *in the Doldrums*

The global tanker market is depressed, it appears that there is little hope that it will recover for at least two years, according to a panel of expert speaking yesterday at a MarineMoney event in New ork City.

"What a difference a year makes," said Jonathan B. Chappell, Managing Director- Research, Evercore Partners, Inc., and the moderator of the panel dubbed " il Tankers: Challenges and pportunities Beyond upply Demand."

"Last year everyone was slapping each other on the back, but I don't think there is any doubt where we are today we are in a trough," Chappell said.

The global shipping markets are historically cyclical and difficult to predict, even for seasoned veterans, and there was no consensus on when a full recovery would come about, though generally it seems 12 to 36 months is a popular line of thought. "The easy answer is: 'rates are down and there are too many ships,'" said Jan Andersen, ead of hipping, T hipping and Transport Pte. Ltd.

Theories abound as to why the tanker market remains in the doldrums despite strong demand, particularly in developing markets. When the world economy took a dive in 2008, a large number of VLCCs were used to simply store oil, waiting for more favorable rates to return. The market has now fully absorbed most of this tonnage back into the pipeline. "Floating storage took VLCCs out of the market and sent false signals to the market," said Michael Reardon, Manager Global trategy and Freight Traiding, ConocoPhillips. "We are at or near the bottom things can get worse, but not much worse."

Another factor keeping rates low is the relatively young age of the fleet, with many new ships still in the pipeline for delivery, and the dearth of scrapping activity.

While most of the panelists agreed that the demand for quality tonnage will mean the traditional 2 -year lifecycle of a tanker is a thing of past, accelerating the scrapping of younger tonnage, they concur that scrapping alone will not bring rates back, rather they called for discipline among shipowners to not order new ships anytime soon. "There will have to be discipline going forward, as everyone has to watch their cash flow," said Andersen.

Jeffry D. Pribor, Executive VP CF , General Maritime, put it succinctly: "Please, let's not add any more vessels."

While the outlook is grim, the coming months present tanker owner operators the opportunity to get their collective financial house in order, and the stronger companies will have the opportunity to pick up some ships, perhaps even an entire company, at vastly reduced rates.

"In the next 12 to 18 months you must make your business as efficient as possible," said Andersen. e said a number of costs are rising, from general maintenance to insurance costs to bunker costs, while rates remain flat. "Eventually this downturn will present opportunities, whether it is buying ships or companies cheap." ***ra ein***

ClassNK Type Approval for World First

ClassN issued the world's first class approval for an immersion testing system for coatings of the inner bottom of cargo oil tanks in line with the IM 's Performance tandard for Protective Coatings (P PC) for cargo oil tanks to the Japanese Paint Inspection and Testing Association (JPIA). Adopted by the IM 's Marine afety Committee in May 2010, the new P PC for cargo oil tanks lays out clear requirements for coating preparation, application, and service life, as well as for coating testing systems and testing processes. As the top and inner bottom of the cargo oil tank are sub ect to different corrosive forces, however, JPIA began working with the Japanese Paint Manufacturers Association (JPMA) to develop testing systems that can accurately simulate the different corrosive environments found at the top and bottom of the cargo oil tank. As a result of that collaboration, JPIA successfully developed a gas chamber corrosion testing system for simulating the corrosive environment found at the top of cargo oil tanks which became the first such system in the world to receive class approval when it was approved by ClassN in February of this year.

Rickmers Takes Delivery of 13,100 TEU Pair

Another naming ceremony for two 13,100TE containerships being built for the Rickmers Group took place in late May at the lsan shipyard of yundai eavy Industries. Tauro Rickmers and Libra Rickmers are the final two in an eight-ship series being built for the amburg shipowner for long-term charter to Maersk Line.

The pair were christened by family friends of Rickmers Group Chairman Bertram Rickmers. Mrs. Antoinette ornig named Tauro Rickmers while Mrs. Elke charfe named Libra Rickmers.

A wiss citizen and a mother of seven children, Mrs. ornig is married to Professor Dr. Carsten ornig of the Israelite ospital in amburg and is a supporter of both the board of members of the French chool in amburg and the committee of uman Rights Watch. Mrs. charfe was born in amburg and lives now with her husband Rolf charfe in amburg Blankenese. Mrs. charfe established her own non-profit association amburger inderw nsche in 200 . This organisation cares for seriously ill children during their clinical treatment at the niversity Medical Center amburg-Eppendorf.

Following the ceremony, Tauro Rickmers was renamed Maersk Evora and sailed to Busan to commence loading for Europe on Maersk's AE2 service. At the end of July, yundai is due to deliver Libra Rickmers, which under the name Maersk Essex should start loading in Busan on July 30, also for Europe on the AE2 service.

Containers are carried 1 -wide below deck and 1 -wide on the hatchcovers. The maximum capacity of each ship is ,0 TE on deck and 6,018TE below deck, making 13,100TE in total. Based on a homogeneous container weight of 1 tons per TE , the maximum capacity is approximately ,080TE . Reefer plugs are available for 800 x 0 ft. containers.

Each ship is powered by a single yundai-W rtsil 12RT-flex 6C main engine weighing over 2,000 tons and developing 68,6 0 kW (MCR) at 102 rpm and 61, 6kW (NCR) at 8. rpm. Five 2, 00 kW diesel generators are installed.

Although designed for a service speed of 2 .33 knots, the flex-engines still achieve 21. knots at 60 of the engine's normal output but can also slow steam as required under charterers' current service patterns, generating substantial fuel savings.

Captain Wojciech Kucz, the master of Maersk Elba, had the honor of showing Donald Tusk, the Prime Minister of Poland, around his vessel in the Port of Gdansk. Maersk Elba is the biggest containership ever to call in a Polish port.

Italian actress and star of Baarìa was the special godmother at the Naming of the "made in Italy" flagship on Saturday, July 2, in Trieste.

Costa Favolosa

Margareth Mad , the Italian actress who became a household word as the star of the Italian film "Baar a", served as the godmother of the Costa Favolosa. The naming ceremony for the flagship of Costa Cruises, will take place on July 2, 2011, in the setting of the Piazza nit d'Italia in Trieste.

The 11 , 00-gt, , 00-passenger Costa avolosa,will be the largest ship flying the Italian flag. The event to celebrate the ship's naming will be a tribute to Italian identity: art, beauty, music, personages and history narrated through an extraordinary experience that will involve everything around the square, from the sea to buildings and the sky. The naming event was included in the official celebrations of the 1 0th anniversary of the of Italian nification.

Margareth Mad is one of Italy's most elegant Mediterranean beauties and a new icon of the great Italian cinema. "Margareth Mad and Costa Cruises share the values that represent the Italian style: beauty, refinement and a strong personality," said Pier Luigi Foschi, Chairman and CE of Costa Crociere .p.A. "It could only have been this fabulous actress, who rose by right to the international elite of Italian icons, to become the muse of our flagship and Costa's unmistakable world-renowned style." Costa Favolosa was built by Fincantieri.

www.costafavolosa.com

2011 Admiral of the Ocean Sea (AOTOS) Award Winners

Henry, General McNabb & Somerville

The nited eamen s ervice ( ) 2011 Admiral of the cean ea Awards (A T) will be presented to James L. enry, Chairman and President of the Transportation Institute General Duncan J. McNabb, Commander, . . Transportation Command and Robert D. omerville, Chairman of AB (formerly the American Bureau of hipping). The prestigious maritime industry award will be presented at a gala industry dinner and dance to be held at the heraton New ork otel and Towers, New ork City, on ctober 28, 2011. A special A T recognition plaque will be presented to Captain George uick, former President of the Association of Maryland Pilots.

enry has played in virtually every ma or initiative in . . maritime policy since he assumed the presidency of the Transportation Institute in 1 8 and became its chairman in 1 0. e played a particularly key role in protecting the Jones Act when it came under attack in the mid-1 0s.

enry is also Chairman of the National Defense Transportation Association s Military ealift Committee and Chairman of the nited tates Maritime Coalition. In 200 , he was awarded the Vincent T. irsh Maritime Award for utstanding Leadership from the Navy League of the nited tates. In 200 , he was the recipient of the prestigious National Transportation Award from National Defense Transportation Association (NDTA) during its Annual Forum in Charleston, .C.

General McNabb is commander of . . Transportation Command (- TRAN C M), the single manager for global air, land and sea transportation and the world s largest shipper for the Department of Defense. A command pilot, he has amassed more than ,600 flying hours in transport and rotary wing aircraft. e graduated from the . . Air Force Academy in 1 .

General McNabb has held command and staff positions at squadron, group, wing, and ma or command and Department of Defense levels and has more than 20 awards, recognitions and achievements.

General McNabb s staff assignments have been a variety of planning, programming and logistical duties. These include serving as the Deputy Chief of taff for Plans and Programs on the Air taff and Chairman of the Air Force Board having oversight of all Air Force programs.

The American Bureau of hipping (now AB) promotes the security of life, property and the natural environment primarily through the development and verification of standards for the design, construction and operational maintenance of marine-related facilities. Mr. Robert omerville has led the global agency consisting of more than 3,000 employees, serving as its Chief Executive fficer until April 2011. e now serves as Chairman of AB .

erving as Director of AB Group of Companies, Inc., Mr. omerville s distinguished maritime career includes 0 years with AB in various capacities. Prior to oining AB in 1 0, he served as a seagoing engineer and gained shipyard experience at Newport News, at the time the largest shipbuilder in the world.

omerville serves as a volunteer member of the MMA Alumni Association Board of Directors, trustee of the eamen s Church Institute, and Vice Chair-

Floating Hotel for Offshore Renewable Sector

vitzer and anderson Maritime launched a new concept in accommodation for the offshore renewable sector. eatel is a specially adapted North ea barge with a 0 bedroom hotel module offering a stable platform and quality accommodation at what the companies claim is half the cost of current alternatives. It is designed to be securely anchored in a deep sea location, maximizing the man hours on site. eatel covers 2 ,000 sq. ft., and has been designed to offer the space and feel of an equivalent land based motel. The actual vessel is a North ea barge fixed to an offshore barge. It is self sufficient, with onboard generators, an infield maintenance workshop, storage facilities, restaurant, gym, lounges and social areas. eatel provides 0 bedrooms which can be single or double capacity at a cheaper price than a city centre hotel. Designed to be moored indefinitely up to 0 miles offshore, eatel is secured using a single point mooring system and a fixed anchor spread specifically designed for each location. nce moored, eatel can safely operate up to sea state and a critical wave height of 6. m. "At the moment most wind farms transfer their staff from onshore facilities out to the work location by boat, which can be a four hour round trip or more," said Mark Malone, managing director, vitzer. " eatel provides on site accommodation to maximizes the number of productive man hours. taff can be transferred by either helicopter or boat to the portable renewable work site. eatel therefore offers fully flexible, efficient and comfortable accommodation and rest facilities which will provide significant advantages to overall pro ect cost.

www.seateloffshore.co.uk

man of the International Association of Classification ocieties (IAC).

e is a member of the Maine Maritime Academy Classof 1 6 and completed arvard Business chool s program for Management Development in 1 8 . e has devoted his professional life to the marine industry.

In addition to the three A T recipients, Captain George A. uick will receive the A T plaque honoring his many years in the industry, particularly his activity in the pilot sector. e is a 1 1 graduate from the . . Merchant Marine Academy and earned his Juris Doctorate degree in 1 6 from the niversity of Baltimore Law chool. e is admitted to the practice of law in Maryland and is a proctor member of the Maritime Law Association.

Captain uick served as a deck officer on passenger and cargo ships until 1 6 when he entered the training program of the Association of Maryland Pilots. e holds a federal license by the . . Coast Guard as master and first class pilot and state license by Maryland as a pilot of ships of any draft. e was President of the Association of Maryland Pilots Vice President of the American Pilot Association and since 1 82 has been Vice President for the Pilot Membership Group of the International rganization of Masters, Mates and Pilots (MM P) representing pilots throughout the nited tates and the Panama Canal.

Historic Containership Contract for China

The new generation of 10,000 TE container vessels contracted in China by easpan represents ma or improvements in energy efficiency, cargo capacity, operational efficiency and emission reductions. The new features have been developed in a collaboration between easpan, the angzi iang hipbuilding Group, MARIC and DNV. The order for seven 10,000 TE container vessels plus 18 options which was signed in hanghai on June 8, 2011 is the biggest ever container contract entered into in China. The vessels will be built to DNV class.

The improvements due to new design features are substantial. The cargo capacity is increased by 10 while the fuel consumption is reduced by 20 . The new hull design enables the vessels to carry minimum amounts of ballast water while in operation. The vessels are designed to reduce the emissions to air by approximately 20 in order to meet the future regulatory emission requirements. This follows easpan's three-year AVER (easpan Action on Vessel Energy Reduction) program aimed at improving cargo uplift, reducing fuel consumption and improving operational performance.

"The AVER 10,000 TE vessels embody easpan s long-term focus on and philosophy of providing the market with increasingly efficient vessels and retaining easpan s leadership in this area. We were leaders in introducing post-8,000 TE vessels, we promoted slow steaming back in 2006 and we are now presenting a next-generation product that provides for a paradigm shift in the performance of the larger-size container ships," says Peter Curtis, Vice President of easpan hip Management Ltd. The ship hull lines have been optimized for a speed range of 18-22 knots. In this range, the fuel consumption has been reduced by 16-2 .

Going Beyond Just Talking about the Weather

About the Author
Rich DeSimone is president of Travelers Ocean Marine. He can be reached at rich.desimone@travelers.com

y ichard eSimone, President Travelers cean arine

Natural disasters occur on their own timetable and can leave devastating results that no one expected. Mark Twain almost had it right when he said, "Everyone talks about the weather, but nobody does anything about it."

While we can't change the weather, the insurance industry has been helping people both prepare for and recover from it for many years. Against the backdrop of recent severe storm activity, it's important to remember that marine transportation and service companies can take concrete steps to reduce their economic exposure to ma or weather events. By considering the potential impact of a ma or storm in advance, maritime businesses can develop business continuity plans designed to minimize business disruption and speed the recovery process. Insurance companies and agents can be excellent resources to ensure that the plans are as effective and current as possible.

ST PS T I TH W ST

Weather may be unavoidable and often unpredictable – but planning can still make a difference. Before a disaster, companies can be prepared with protective measures and guidelines so that no one has to decide what should be done in the heat of the moment. Factors to consider include:

Protecting assets. Whether a business is operating tug boats or chartering yachts, they should have a plan for moving the vessels out of harm's way. A shipyard may want to sink dry docks, board up windows and take other steps to protect property. A marina can look at ways to better secure moorings, or haul vessels out of the water.

Identifying needed resources. Many weather events are preceded by warnings, giving businesses time to prepare. But will they have adequate staff to take protective measures ften, employees or crew members live in the same area and may be busy sandbagging their homes or helping their families out of harm's way.

Businesses need to have contingency plans for getting the manpower they need.

Assessing responsibilities to others. A marina may have pledged to haul vessels out of the water if a hurricane is approaching. A barge may be contractually obligated to deliver goods before a deadline, without regard to weather-related events, such as a flood-stage river that is no longer navigable. These types of contracts should be reviewed carefully and modified if necessary to protect a business from being committed to perform services that may not be achievable.

I P P TH T TH

After a disaster, commerce grinds to a halt locally, and the flow of income is interrupted as businesses lose the ability to operate and customers find alternatives. The long-term effect can be substantial. The American Red Cross estimates that 0 percent of small businesses never reopen after a disaster. But here too, planning can make a difference.

A business continuity plan that is specific to a company's situation can address a number of factors so the response to a disaster is well organized and almost automatic. Elements of such a plan can include: an alternative worksite, an employee notification process, appointing a logistics lead for continuing operations, and a communication plan for customers, suppliers and others.

While such plans can range from relatively simple to very extensive, many resources and templates exist to help companies prepare. ften an insurer's risk control services will include assessing business continuity plans and providing assistance in identifying strengths and weaknesses. Insurance agents can also be helpful in working with businesses to annually review plans so they are properly updated with current information.

aving business interruption or loss of income coverage as part of a company's insurance can also be a critical component of the plan, especially if it is with the same insurer that provides the property coverage. aving a single insurer can streamline the claim process and allow a business to better focus on getting back to business.

I I TTH ST S

Contingency plans can make the difference between whether a business survives or sinks after a natural disaster strikes.

nfortunately, many businesses simply overlook the planning process, believing that their insurance alone is enough. The fact of the matter is proper risk management and preparing to survive demand both. By working with agents and carriers, marine business owners can put solid pre- and post-disaster plans in place, and stand a much better chance of riding out the storms that may be headed our way.

C CTI In the May 2011 column Today s Ports – Tomorrow s Pressures, we inaccurately cited a statistic. We apologize for this error and share the correct statistic as follows – According to the World Factbook, in 2010 in the nited tates received nearly 2 trillion in imports, taking the number one position among all countries, and shipped out close to 1.3 trillion in exports, third behind China and Germany.

Impact of Budget Cuts on the Maritime Industry

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y oan ondareff, f Counsel, lank ome P

Just as the defense industry is ad usting to coming cuts in the defense budget, the maritime industry may find itself in the same situation unless a stronger voice is heard on Capitol ill in defense of significant maritime programs. In this article, we will review those programs and examine the status of their support on Capitol ill.

Congress took final action on the F 2011 budget almost six months into the fiscal year. Except for the defense budget, all other budgets were incorporated into an omnibus continuing resolution act (or CR)(Pub.L. 112-10). Actually, the maritime budgets fared pretty well in the CR.

For the Coast Guard, its budget was protected and enacted at about the same level that Congress had authorized in the Coast Guard Authorization Act of 2010 (Pub.L. 111-281).

Congress funded the acquisition budget at 8.86 billion, or 8 million over the F 2010 enacted level. This should give encouragement to . . shipyards who want to bid on these programs.

Even the Maritime Administration's budget fared pretty well in the CR. The bama Administration sought to rescind more than 0 million from the title I loan guarantee program, but the Congress refused to accede to this request. MARAD now has more than 0 million in subsidy funds to support over 1.2 billion in loan guarantees for shipbuilding and shipyard modernization in the . . MARAD recently awarded a 2 1 million loan guarantee to a Brazilian company purchasing five offshore supply vessels from Eastern hipbuilding Group of Panama City, FL. The vessels will be deployed in the deepwater oil and gas fields off Brazil. The application withstood outside financial review and a review by the Department of Transportation's (D T) Credit Council, comprised of high-level D T officials. We can only hope this award opens the floodgates and allows MARAD to approve more loan guarantees that are pending in the queue.

The CR also provided 10 million for the popular mall hipyard Grant Program. The Program opened on April 1 , 2011, and applications were due on June 1 , 2011. This is but a small reflection of the 100 million mall hipyard Grant Program funded under the American Recovery and Reinvestment Act (ARRA, popularly known as the stimulus bill), but at least it will allow some small yards, with fewer than 1,200 employees, to acquire new cranes and other equipment.

Finally, the CR continued to provide full funding for the Maritime ecurity Program and the Ready Reserve Fleet (RRF). At this writing, the press has reported on a transfer of the RRF to the Department of Defense but this has not been confirmed.

The Administration submitted its F 2012 budget in February of this year, and Congress is considering how to respond to the requests. The Administration, as has been its custom, did not seek any new funding for the title I loan guarantee program, the marine highway program, described below, or the mall hipyard Grant Program. At a budget hearing on March 1, 2011, key members of the Coast Guard and Maritime Transportation ubcommittee of the ouse Transportation and Infrastructure Committee reiterated their support for both title I and mall hipyard Grants, but since the hearing was captioned "Finding Ways to Do More With Less," it remains to be seen what funds are actually appropriated before the end of the fiscal year.

At the same time that the pressure is increasing to reduce GHG emissions from vessels, the Administration has proposed eliminating all funding for the DERA (Diesel Emissions Reduction Act) beginning in 2012.

I P TS

n the port side of the maritime business, the port security grants that have been very popular with ports and have been generally funded at the 300- 00 million level each year since 11, only received 2 0 million in the F 2011 CR. The Department of omeland ecurity, through FEMA, ust announced these and all other homeland security grants. The deadline for submission was June 20, 2011.

Ports are actively awaiting word on the omnibus dredging bill, known as the Water Resources Development Act or WRDA. A dilemma for members is how to address specific port dredging requirements in light of their self-imposed earmark ban. The question all year is likely to be what's an earmark

ome Members of Congress have been effective in making threats to agencies to deliver on dredging promises, but this is not an effective long-term strategy. (ee May 1 , 2011 article by Peter Leach in the Journal of Commerce, entitled "Army Corps to Fund Charleston Deepening tudy.") If . . ports are to accommodate Post-Panamax vessels and remain competitive with its trading partners, dredging to accommodate these larger vessels must be a top priority. As reported in the New ork Times on February 21, 2011, Maersk recently placed an order for "30 of the largest container ships ever built from Daewoo hipbuilding and Marine Engineering in outh orea," but they only will be deployed in the Asia-Pacific-Europe trade because the ships are too large even for West Coast ports to accommodate. To remain competitive as a nation, we have to find the funds for our port infrastructure.

This brings me to the next program that has been at the same time both popular and disappointing to ports, the so-called "TIGER" grants (which stands for Transportation Investment Generating Economic Recovery) another initiative from the much-maligned stimulus law. An announcement of the TIGER III grants is expected some time this summer. The program was funded at 28 million in the CR. This grant program, administered by D T, funds transportation pro ects of national and regional significance. A number of ports have benefited from this program, but without a carve-out for ports, it is difficult for them to compete against more popular highway and transit programs.

n April , 2011, the ecretary of Transportation issued its new report to Congress on the Marine ighway Program. The report recommends: waiving the arbor Maintenance Tax for some cargo investment tax credits for vessel and port equipment and modifying the title I program to introduce greener vessels into the fleet. Although 18 corridors have been designated as marine highways under the Program, and million in grants initially awarded, the funding has not matched the vision of this program. If the Administration is serious about developing a marine highway system, allowing more cargo to go by sea instead of on our crowded highways, the money will have to follow the report. Creating a separate title I program that expedites approvals and streamlines the process for awards for smaller ships will be imperative if the Program is to become a reality. Port infrastructure also could be added either to the list of eligible title I pro ects, or an expanded TIFIA (Transportation Infrastructure Finance and Innovation Act of 1 8) loan program being considered by Congress, below.

Congress is beginning work on the next surface transportation or highway bill.

The Administration had proposed an Infrastructure Bank to fund ma or highway pro ects but its bill is still pending with MB. Chairman Mica (R-FL) of the ouse Transportation and Infrastructure Committee has not been favorably disposed to authorizing a Bank and giving carte blanche to the Administration to fund pro ects. Instead, he has discussed providing help for public-private partnerships. Both the ouse Transportation and the enate Environment and Public Works Committees are drafting new versions of the highway bill. At least the enate is talking about adding a new national freight policy and an expansion of the TIFIA loan program. nce again, ports and maritime interests will have to speak up if they are to receive funding down the road for important maritime infrastructure pro ects and influence what the new freight policy will entail.

I T P S CTI TH ITI I ST

The shipping industry is under intense pressure, both nationally and internationally, to reduce emissions. According to the IM , international shipping contributes 2. percent to the global emissions of carbon dioxide, one of the so-called greenhouse gases (G G). As of 2012, the waters off the . . and Canada will be incorporated into a new Emissions Control Area and all vessels transiting these waters will have to use low-sulfur fuels. Companies are scrambling to find greener alternatives.

At the same time that the pressure is increasing to reduce G G emissions from vessels, the Administration has proposed eliminating all funding for the popular DERA (Diesel Emissions Reduction Act) program beginning in 2012. nder DERA, companies can seek funding for new diesel engines and alternative fuels working through non-profit organizations and state agencies. Many companies have taken advantage of this program to upgrade the engines of their fleets.

enator Carper (D-DE) has been a ma or supporter of DERA and was instrumental in getting DERA reauthorized in January of this year (Pub. L. 111-36). The next step will be to get funding for the program.

New regimes are about to be put in place for the Arctic and Antarctic that will affect the shipping industry. A new regime was ust put in place for Antarctica that will reduce the number of cruise ships that can enter these waters. ome European nations are calling for a ban on heavy fuel oil in Arctic waters, but no agreement has yet been reached.

Finally, in the absence of a national energy or climate change bill, tates such as California are enacting their own legislation to reduce G G emissions from vessels transiting off their coasts. (For further discussion of California's law, see the Blank Rome Maritime Developments Advisory, April 2011, No. .)

T P T 2012

Congressional committees have held hearings on the F 2012 budget requests of maritime agencies, and have begun to mark-up their respective appropriation bills. The ouse has passed the ome-land ecurity bill which will include funding for the Coast Guard, among other D agencies, but the Transportation bill will not be marked up until July. The enate schedule is as yet undetermined.

We can expect the ouse committees to adhere to the guidelines in the Ryan budget adopted earlier this year which was re ected by the enate. nce again, we may face an end-of-year fight over the budget, leaving agencies scrambling for funds to begin the 2012 fiscal year which starts on ctober 1, 2011.

C C SI S

n May , 2011, the maritime industry had its Washington, DC ail-In day to visit with Members of Congress. But, it will take more than one day to remind members of the importance of the industry to our trade balance and overall economy, and ensure that important maritime programs get funded. At the same time that Congress is acting on the budget, the Administration can act to streamline the authorities they already have to promote . . obs and energize our maritime industries. The bama initiative to reduce the impact of regulations on businesses is but a first step in this process.

The iews e pressed in this article are those of the author and ma or ma not reflect the position of lan Rome .

Tackling Piracy Head-on ... *and Otherwise*

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Piracy is a continuing problem in the western Indian cean and ad acent waters. What makes piracy in this locale different than piracy elsewhere is the political situation ashore in omalia. Piracy armed robbery against ships occurs intermittently almost everywhere. The common form of modern piracy is best termed "smash and grab." The perpetrators come aboard, sometimes in uring the crew, steal what they can, and quickly depart. Rarely, the perpetrators steal or attempt to steal the entire ship. More commonly, though, they take cash, electronics, and supplies, then disappear into the night.

Piracy as practiced by omalis is different. The pirates board a ship and then force the master and crew to sail it to a location ust off the coast of omalia. In most cases, the ship and its crew stay there while the omalis negotiate with the owner regarding a ransom amount and method of payment. These negotiations can take up to a year, but in most cases are concluded in four to six months.

Meanwhile, the ships are anchored in full view. The pirates make no attempt to hide the ships. The pirates make daily trips ashore in small boats to obtain supplies and conduct other activities. The ships are visible in satellite images. Naval vessels patrol ust offshore, but take no overt action for fear of reprisals against the hostage crew.

The reason all this can occur is that there is little or no law enforcement presence ashore in most of omalia. This is particularly true in Puntland, an autonomous region which comprises about the northern half of the west coast of omalia, where the Transitional Federal Government (TFG) exercises little sway. omaliland, on the north coast of omalia, experiences some piracy, but not to the same extent.

Proposals for tackling omali piracy have largely ranged from shooting them on sight to flooding the Indian cean with warships to arming all the crewmembers on ships transiting those waters. The International Maritime rganization (IM), which does not endorse the carriage and use of firearms on board merchant ships, recently and reluctantly promulgated guidelines on the use of privately-contracted armed security personnel on board merchant ships in the high risk waters off omalia. Any ship owners or operators that elect to arm their vessels should carefully follow the guidance developed by the IM .

While arming a merchant ship may deter the occasional hi acking, I contend that it will have little long-term impact on the piracy problem in waters off omalia.

The lawlessness in waters off omalia is little different than lawlessness ashore – and should be dealt with in the same general manner.

Let us assume for a moment that you live or work in or near a crime-ridden area, perhaps an inner-city ghetto or a waterfront. What approaches would you advocate to enhance safety I suggest that there are basically four steps available to address this problem.

The first step to increase the safety for those in an area sub ect to crime is self-defense. If in a car, keep the doors locked and avoid, to the extent possible, driving on certain streets. Do not go for walks alone at night. Install deadbolt locks on the doors and bars on lower-level windows. Install exterior lighting and security cameras. If your home or business looks secure, criminals will generally avoid it and move on to a soft target.

The second step to increase safety is to seek increased law enforcement presence. More police patrol cars generally discourage criminals. Better yet are foot or bicycle patrols.

The third step consists of the rule of law. nce arrested, criminals must be prosecuted. Failure to prosecute not only puts the criminal back on the street, but emboldens others to adopt the same life style. Vigorous prosecution, though, not only puts most perpetrators away for extended periods, but deters others from a life of crime.

The fourth and final step to increased public safety is to eradicate or significantly reduce the local poverty that is a root cause of most crime. This usually means provision of decent housing, education, and legitimate employment opportunities. Most criminals engage in that line of work because they believe that there are few other choices. Making better choices available and reducing incentives for making bad choices will minimize the number of persons who might otherwise engage in crime.

Those same four steps can be applied to the omali piracy situation.

First, all ships transiting the high risk waters near omalia should be hardened against assault by pirates. I find it amazing that, at this late date, ships are still transiting the high risk waters without implementing the maritime industry's Best Management Practices (BMP). The failure to report the planned transit to military authorities is the most egregious and the most difficult to ustify. The military forces, primarily warships, are there because the marine industry sought their presence. Effectively, they are the patrolmen on the beat. It is difficult for them to protect a merchant vessel that they do not know is in the area. ther measures that ships can and should adopt include transiting at the highest practicable speed, utilizing extra lookouts, deploying concertina wire and other barriers to deter authorized boardings, etc. hips regularly transiting the high risk waters might consider establishment of a safe room or citadel where the crew can take shelter from pirates while awaiting rescue.

While arming a merchant ship may deter the occasional hijacking, I contend that it will have little long-term impact on the piracy problem in waters off Somalia.

econd, governments worldwide should do more to make these waters safe. A significant, but small, number of nations have deployed warships, helicopters, and patrol aircraft to detect, deter, and detain pirates. More can and should

be done. All nations whose merchant ships or cargoes transit the high risk waters should contribute to the effort, through funding if nothing else. In addition, I recommend that the mix of warships deployed to the area be expanded. Cruisers, destroyers, and frigates look impressive and serve a purpose, but smaller patrol vessels are less expensive to operate and may be more effective for many purposes. Cooperation and coordination among the various naval forces operating in these waters must be enhanced. Recent steps taken by the European nion (E) and others to keep better track of merchant ships transiting the high risk waters are to be lauded. I recommend that increased effort should be utilized to monitor, harass, and (when possible) interdict pirate action groups before they assault merchant vessels. Patrol boats deployed ust offshore from known pirate strongholds can send a clear message. Motherships anchored off these strongholds might be rendered unseaworthy before they have an opportunity to depart.

Third, pirates must learn that, if caught, they will be prosecuted and most likely incarcerated for an extended period. The days of catch and release must end, except in those few cases where there is clearly a lack of evidence tying the detained individuals with a crime. Nations must tighten their laws so that prosecution is not impeded by unnecessary urisdictional or procedural issues. Piracy is an international crime, for which all nations have the authority to prosecute and the duty to take decisive action. Where necessary, domestic law must be amended to enable prosecution of piracy without regard to the nationality of the ship, its crew, or the perpetrators. enya and the eychelles have borne the brunt of prosecutions to date. The nited tates, the Netherlands, France, Germany, India, and outh orea have also undertaken prosecutions recently. Most, if not all, of the pirates currently operating in the high risk waters are omali citizens.

Developed nations must do more to assist omali federal and local authorities in the restoration of law and order in the areas ad acent to the pirate strongholds. No one suspected of piracy should be released due to the lack of a forum for prosecution. Efforts to interdict the flow of illicit weapons and supplies into omalia and the flow of illicit monies out of omalia must be made more effective.

Fourth, the root cause of piracy is poverty. ntil and unless that issue is addressed, there will be new candidates setting sail from omalia, despite all of the above efforts. The nited Nations established a special fund for economic development in omalia. It is sadly undersubscribed by the developed nations of the world. I do not contend that this fund can solve all the problems facing omalia and its population, or that every dollar contributed is spent wisely and utilized effectively. I do contend, though, that ust putting more warships on patrol will not solve the problem.

Piracy in waters off omalia did not arise overnight. It will not go away overnight. The world community (including the maritime industry) must develop and implement a long-term and multi-faceted approach to this complex problem.

MARIN Advances in the Offshore Wind Sector

About the Author
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With the growth in renewable energy, there is increased focus on offshore wind. The industry is maturing and going further offshore into deeper and more challenging waters. MARIN too, is actively participating in the development of the offshore wind energy sector.

By Erik-jan de Ridder

Larger and more efficient wind turbines are being installed offshore due to the higher wind energy potential. Nowadays, fixed offshore wind turbines are being installed in shallow water. However, technology is improving and the wind turbines are expected to move to deeper water where the wind is more frequent and stronger. The challenges of fixed and floating offshore wind turbines are very similar to those of the offshore industry: safe and economic design, production, transportation, installation, maintenance, repair and removal. Therefore, MARIN is committed to the investigation, design and development of these new fixed and floating offshore wind turbines.

This year, MARIN's Renewable Energy Team (RENT) will test three different floating wind turbine concepts for the University of Maine-led DeepCwind project. The floaters include a spar buoy, a tension leg platform and a semi-submersible. The model tests are being conducted to calibrate and validate simulation codes for floating wind turbines. Therefore, great attention will be paid to the coupling between aerodynamic and hydrodynamic behaviour. For example, the modelling and documentation of the wind field in the basin will be given special attention, as well as the relation between turbine behaviour and wind loading on the rotor. From 2010 to 2014, MARIN will participate in the FP7 project "Future Deep Sea Wind Turbine Technologies" (DeepWind). The hypothesis of this project is that a new floating vertical axis rotor concept, specifically developed for offshore applications, has the potential to offer better cost efficiencies than existing offshore technology.

SIMULATION CODE FOR FLOATING WIND TURBINE

Designing an Offshore Floating Wind Turbine (OFWT) brings new mechanical constraints to the nacelle and the rotor. The motions of the floater affect the performance of the wind turbine and vice-versa. As wind turbines get taller even small pitch or roll rotations can result in large motions at the location of the nacelle. To properly predict the motions of the floater, rotation of the rotor and the flexible nature of the blades and tower, the structural response of the wind turbine on the floater needs to be taken into account. MARIN and Energy Research Centre of the Netherlands (ECN) are working together to tackle the many challenges of the design of an OFWT. Therefore, the aero-elastic code PHATAS of ECN is being coupled to the multi-body, time-domain simulation code, aNySIM of MARIN. This facilitates a simultaneous calculation of all the aspects of an OFWT in one numerical simulation.

To assist in the testing of floating wind turbines, MARIN is presently working on a high quality, local wind field setup in its Offshore Basin. The wind field is generated by a square bed of 5*5 wind fans with guides and stators (straighteners). By controlling the RPMs of the different rows, the vertical profile of the wind can be controlled. CFD calculations are being carried out to assist in the design of the final, dedicated wind setup as illustrated in the figures.

WIFI JIP

At the end of 2010 more than 60 representatives of the international offshore wind industry gathered at the Offshore Wind Seminar organised by MARIN and ECN. This seminar provided a unique opportunity to see model tests being carried out at MARIN's facilities that showed the impact of breaking waves against an offshore wind turbine. This pilot series of model tests was carried out with a special model of an offshore wind turbine with realistic flexibility.

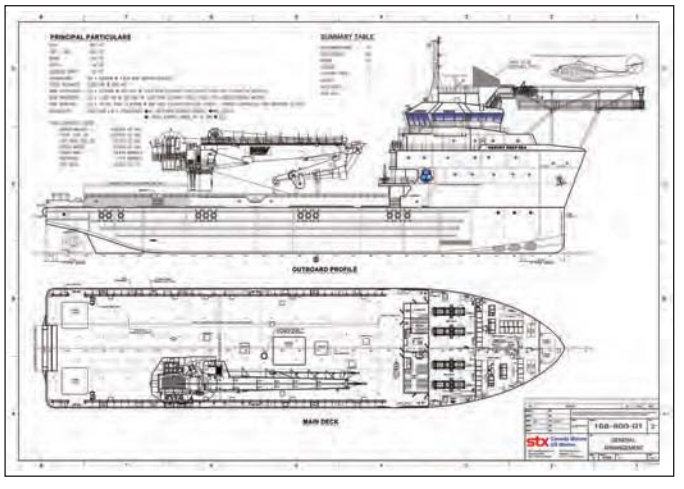
The tests confirmed that breaking waves can induce significant oscillations and accelerations in the turbine, resulting in extreme fatigue loads on the foundation, tower, turbine blades, shaft, gearbox and generator.

To further study this subject, MARIN and ECN, together with a number of other partners, are in the process of starting up a Joint Industry Project (JIP) with the acronym 'WiFi': Wave impacts on Fixed turbines. The objective of this WiFi JIP is to improve the manner in which the effects of steep (and breaking) waves are taken into account in the design methodology of fixed offshore wind turbines, so that optimized offshore wind turbines can be developed.

Harvey Gulf Goes Green With New OSV Series

Main Particulars

Length	300 ft.
Beam	64 ft.
Depths	24.5 ft.
Draft, design	19.5 ft.
DWT	5650 long tons
Class	ABS
Main gen engines	4x Cummins
Main generators	4x HHI
Emergency gen	1x John Deere
Main drive motors	Schottel
Bowthrusters	2x Schottell
Windlass	Coastal Machinery
Anchor/chain	Danforth
Max speed	14 knots
Cruising speed	12 knots
Max fuel consumption	273 gal/hr
Cruising consumption	215 gal/hr
Dynamic positioning	Converteam
DGPS	Furuno GPS Navigator
Radars	2x Furuno
Fuel	270,000 gal.
Drill/Ballast Water	618,578 gal.
Potable Water (Ships)	16,934 gal.
Liquid Mud	19,500 bbls.
Dry Bulk Mud	14,350 cu. ft.
Methanol	1,700 bbls.



While some companies may use an economic downturn as an opportunity to cut corners and "save," the leadership of Harvey Gulf has done the opposite, investing in a series of six high-quality, environmentally sound boats — the Tiger Series — being built at Eastern Shipbuilding. The new vessels, the first of which is scheduled for delivery at the end of this year, are significant as they are the first being built to the ABS Class Notation GP (Green Passport). When the topic turns to new rules and compliance, grumbling is common among vessel owners of all types and sizes, as new layers of rules and regulations generally mean additional cost. Quality owners with a long-term perspective tend to stay ahead of the curve, realizing that investment in quality, compliant tonnage is a solid business model to keep business flowing when times turn tough. In an interview earlier this year with *MR* sister-publication *MarineNews*, Shane Guidry, CEO and Chairman, explained: "Who would have ever thought that a supply boat would cost $47 million?" Guidry asked. He answered his own rhetorical question: **"Do you want to build it today to meet the rules, or do you want to build for the future? I invest additional capital to make sure that the long-term return is always going to be there. It doesn't pay to build less. We realize that we're making that commitment for 10 years from now."**

According to Guidry, state-of-the-art for offshore vessels means better station keeping and the ENVIRO Plus notation from ABS. The latest hulls are required to be longer, wider and deeper to accommodate more cargo and personnel. In addition, the latest vessel technology includes "extensive computerized tracking of loading and discharge of cargo, all the additional safety features. It comes at a huge cost compared to 16 years ago."

The new series features diesel electric propulsion, consisting of (4) 1825KW generators driving (2) 2500kW azimuthing main propulsion and (2) 1180KW bowthrusters. The four generators also provide ship's service electrical power. All (4) generators are "Tier II" compliant meeting all current U.S. and IMO emissions standards. The diesel electric propulsion system can operate during low power demand periods with only one of the four 1825KW generators in operation reducing emissions, noise and vibration footprints while conserving fuel when such low power settings are acceptable.

DSME Unveils

High-Pressure Fueled Gas Supply System

In May 2011, Daewoo Shipbuilding Marine Engineering (www.dsme.co.kr, CEO Mr. Sang-Tae Nam) has solely developed a new HP-F S(High-Pressure Fueled as Supply) system for MAN-Diesel Turbo's ME- I(as Injection) Engine, and presented it to the market via a road show in Copenhagen, Denmark.

Though there are small and middle size LN fueled vessels already, this dual fuel engine for large commercial vessels which cover most of shipping industry is an original. This HP-F S system effectively supplies highly-pressurized (about 00 bar) natural gas fuel to an engine. To date, existing F S systems compress gas to a high pressure. This process requires enormous amounts of electricity and large deck area to accommodate the size of this equipment.

However, DSME HP-F S system uses another method to supply gas. This system compresses liquefied natural gas and vaporizes it into gas form. With this method, this system can supply high pressurized gas (about 00 bar) using low electricity (e.g. about 100kW for the same amount gas supply) compared to existing similar products. It also is compact enough to be mounted on the ship, so it is the most suitable and efficient device for ME- I engines which need high pressurized natural gas. As a matter of fact, the ME- I engine had already been developed in 1 4 and applied to power plants. But it has never been loaded on commercial ships because there was no such high pressure gas supply system with high efficiency so far. DSME HP-F S system fixed all these kinds of efficiency and size problems, so it has opened a new era for LN fueled propulsion of vessels.

Due to the framework created by the convention on climate change, many industries will start to move from traditional fossil fuels to clean energy. In shipping, large LN -fueled vessels will bring about a revolutionary change.

LNG i ene - enera i n e a i e n i a y ea i e and e - riend y T i i re ri ed a ered en ine e i ini i an y e er an an e in e r r die e de rea in CO_2 e i i n y er and SO e i i n y er I i a e n i a The price per thermal unit(USD mmBTU(1 Million British Thermal Unit)) for LN has been historically cheaper than that of Bunker-C oil or marine gas oil(M O). Experts generally expect this trend to continue into the near future. Thus compared with a conventional diesel propulsion system, it is expected that LN propulsion systems will open a new era in ship propulsion market.

DSME expects its 1st contract for an LN fueled vessel soon. Additionally, it has been predicted that LN -fueled propulsion systems will be also be adapted for use in other commercial vessels such as containerships, crude oil carriers, and so on.

While others are currently attempting to develop a similar device, DSME is leading the market right now with this state-of-the-art technology. In addition, DSME's HP-F S system design is based on proprietary technologies that are under many domestic and international patents. DSME has been applying for technical patents in several foreign countries since 2007. Up to now, DSME registered 25 patents in United States, South orea, Europe and has been granted patents including ones for a high pressure pump(HP Pump), high pressure vaporizer(HP aporizer), etc.

Arctic Shipping New Polar Code and Commercial Aspects

By enrik Se er ran

Per S nderstrup, Head of Center, Danish Maritime Authority is not only dealing with the shipping around Denmark, with some 40,000 ships passing Copenhagen every year, and another 20,000 ships passing the Stora Belt passage in and out from the Baltic Sea. His department also governs shipping activities in a much larger and environmentally more challenging area, reenland. We have a coastline of about 40,000 km, and it is a quite different challenge, he says, referring to shipping safety issues. The number of ships operating in this huge area is small. 44 ships visited in 200 . I do not think the numbers has changed that much from then. There were 14 cruise ships, the biggest with up to 4,200 people onboard. Other ships sailing in reenland waters were 14 survey ships, 5 cargo vessels, 6 navy vessels, 4 police vessels and one cable ship. S nderstrup notes that there is increasing economic activity with increasing cruise traffic. Some 26,000 cruise passengers visit reenland annually and there are some offshore survey related activities as well. There are millions of square miles that have not been adequately surveyed yet. The weather conditions are extreme, the area is remote with very limited infrastructure and search, rescue and pollution combat capacity, and then there is the ice, he notes.

Before, we had the local operators, with 0 years experience up there. We did not need to regulate that much, as they had the knowledge of how to build the ships, and how to operate them. Now we see a lot of different ships coming out there, with different nationalities. S nderstrup points out that this is the reason why we need an international legal framework for operating in the Arctic.

The first proposal to a Polar Code was IMO s uidelines for ships operating in Arctic ice covered waters, adopted in 2002. In the guidelines, there was reference to the Unified Requirements for Polar Class adopted by IACS (International Association of Classification Societies) in 2006, which has put the framework for operation in icebound waters. The guidelines were revised and approved in 200 to include both the Arctic and the Antarctic. There is also the STCW (Standards of Training, Certification Watchkeeping Convention) code amended i 2010 by IMO to include guidance regarding training of masters and officers for ships operating in polar waters.

(Photo Courtesy of the Danish Shipowners Association)

The shortcut through the Arctic reduced the trip by 18 days and

saved more than 450 tons of fuel

Regarding accidents S nderstrup notes it is not only a question of having sophisticated helicopters and rescue ships in the area. The problem is, where do you put all these cruise ship passengers and crew members He stresses the importance of this. When you go up there, you should look at which other ships there are in the area, when considering whether you can have sufficient aid if something goes wrong. Denmark participates in IMO s work for a mandatory Polar Code. IMO is working slowly but as fast as possible, S nderstrup notes. Ongoing we have a Correspondence roup that tries to draft a new Polar Code. This new Polar Code is not only for ice covered waters. It will be for operating in the Arctic. S nderstrup notes the work plan is to have the Polar Code ready for approval in late 2012. My guess is that for the time being it might not be 2012 but 201 , he says. For the Danish Maritime Authority the long term perspective is to develop a Risk Based Polar Code, as a supplement to IMO instruments.

COMMERCIAL ASPECTS OF T E ARCTIC REGION

Talking about the commercial opportunities in the Arctic region, for Danish shipping, Ren Piil Pedersen, Director at the Danish Shipowners Association divides these into three commercial pillars, the Arctic Sea Routes, the Eastern and Western transport corridors, Arctic Trade, providing maritime transport in and out of the Arctic, and Arctic Energy, production and related maritime services regarding oil, gas and other raw materials.

Also Denmark has ambitions when it comes to voyages along the NorthEast passage, or the Northern Sea Route as it is called in Russia. In 2010, Nordic Bulk Carriers took a cargo of 41,000t of iron ore with the ice class 1A bulk carrier M Nordic Barents, from irkenes in Norway to ingang in China, making the trip between September 4 and 27. Despite the fact that this was not the first ever commercial transit through the Northern Sea Route, as claimed by the company (a lot of Russian ships and at least two Finnish tankers have done it years ago, in addition to Adolf Erik Nordenski ld, a Finnish-Swedish geologist, who made the trip on Ms ega back in 1 7 , without commercial cargo onboard though), the shortcut through the Arctic reduced the trip by 1 days and saved more than 450 tons of fuel, for the company. The trip was, according to Pedersen, commercially a success.

There are no current plans for more immediate such sailings, but future possible sailings would be done in close cooperation with Russian authorities. Nuclear powered icebreaker assistance is still needed in summer time for such an operation, says Pedersen. He obviously refers to ships of the type of M Nordic Barents. Pedersen points out some obstacles. The water depth in the Dimitry Laptev Strait is 6.7m, restricting ship size to 20,000dwt. The Sannikov Strait has a water depth of 1 m, a little deeper but still not allowing ships of more than 50,000dwt, so we will not see super tankers and LCC s there in the near future. He points out the challenge of retaining speed which requires icebreaker assistance. This is not always available. The insurance costs are high and there are many more obstacles, which he does not define. For the time being icebreaker assistance is offered below cost, Pedersen thinks. In the long run they would not offer this service below cost, but the problem is also how to calculate cost for a 15 years old nuclear powered icebreaker.

The distance from Rotterdam to okohama becomes 4 shorter by going through the Northern Sea Route, but is just shorter between Rotterdam and Hong ong, and 2 longer between Rotterdam and Singapore. Pedersen points out that you would very seldom see a containership trading between Rotterdam and okohama with say 10,000 containers. The vessel would be trading on its way, in the Mediterranean Sea, in the Suez, Red Sea, India and the Far East before arriving in okohama, with perhaps 400-500 containers, making the northern route not a realistic alternative. ou will not see the Arctic as a Maritime Highway in the near future, at least for a decade and probably also the next. The day we do not have any ice up there it may change, Pedersen concludes.

When looking at the Arctic Trade, with ships going in and out of the Arctic, Pedersen believes this will be of a much higher volume. If you look at the 0 billion barrels of oil, the estimated undiscovered conventional oil of the Arctic, when the production in the North Sea peaked in 1 , we were producing 2 billion barrels a year in all of the North Sea. It is really our future energy supply which could come from this area. He also point out that when you are to develop the Arctic oil and gas resources and the mining industry, a lot of labour, supplies etc. is needed. This calls for an increasing number of ships of all kinds to supply Arctic areas. Just when you look at reenland, if you want to develop one third of the licenses existing today in reenland, you have to take 15,000 people to reenland, at the same time as the total local population is 15,000 to 1 ,000 people. This would mean a huge market, also for Danish shipowners.

Bunker 1 Petrobras Targeting Bio-Fuel to Bunker

To study solutions to diesel engine emissions, Petrobras invests in its own Research Facilities and Projects.

By C a di Pa a in Ri re r

As the world looks at reducing emissions, the pollution caused by commercial ships tops the list. uality of fuel, in particular, is an increasing concern and target of regulators, as it releases substantial quantities of pollutants during ignition. Petrobras s Bio-fuel Bunker mix, may prove to be an important contribution to decrease the amount of pollutant released from bunker fuel combustion, while at the same time increasing the efficiency of this same combustion process, thus making the huge maritime motors "go green" while potentially becoming more efficient. There are a range of possibilities that are being pursued in order to decrease the amount of pollutants from commercial ships, from the addition of modern sails to the increased use of electric and dual-fuel propulsion systems. The program headed by Petrobras is looking at mixing bio-fuels in the bunker fuel composition in order to decrease emissions.

The program, named Bunker 1 is being run at the Petrobras Research Center (CENPES), which is located at the Technology Park of UFRJ (Federal University of Rio de Janeiro), at Fund o Island. The Bunker 1 program, which has been ongoing since March 2010 at the Thermal Machine Laboratory (LMT) located within CENPES and run by Coppe UFRJ proposes to introduce bio-fuels in the heavy bunker fuel composition, used solely in low revolution motors, develop new technologies for bunker production, focusing on efficient fuel ignition and combustion, and decreasing the release of gases bearing pollutants. The program was launched with an initial investment of around 4 million and a second investment of around .5 million has been approved. The first investment targeted the acquisition of a MAN diesel 500 kW test-bench motor the second investment will mainly be used toward acquiring a second MAN diesel engine in order to experiment further with fuel ignition and combustion tests.

According to Albino Leiroz, LMT coordinator, the final objective of the Bunker 1 project is to increase the efficiency of bunker oil produced by Brazilian refineries for the growing Brazilian shipping industry.

Brazil is now a world leader in bio-fuel development and production, with this scene in mind, the optimization of bunker fuels, with a fine tuned mix of bio-fuels is expected to make important inroads towards reaching a more environmentally friendly profile of gas emission from bunker fuel combustion emanating from cargo ships produced in Brazil and eventually reach maritime motors worldwide.

- (Photo Petrobras News Agency)

Researchers and Managers from Cenpes and UFRJ launch Bunker 1 project.

At the LMT lab, there are specialized groups of researchers working on specific studies related to bio-fuels for automobiles and motorcycles but it was felt that there was little information directly related to the use of bio-fuels for increasing bunker oil ignition and combustion efficiency and lowering the resultant pollutants released during bunker combustion. The effort being sponsored by Petrobras is of strategic importance, as the O market in Brazil is undergoing an intense growth phase, propelled my massive deepwater pre-salt light-oil reservoirs, which has already reflected in a unprecedented growth of the local shipbuilding industry.

In the space of less than three years, it has risen from a low of 2,000 employees to more than 50,000 employees today, and rising. Shipyards of varying sizes are being built all around Brazil, all prompted by the demand for a wide variety of oil and gas tankers and support vessels emanating from the O industry, namely by the huge ship orders from Petrobras and its transport ship branch, Transpetro.

iven the intense rate of O exploration in Brazil, a timely solution to the pollution caused by bunker oil ignition and combustion is a necessity and it bodes well for Petrobras to have taken the initiative in establishing the Bunker 1 project. "The Brazilian tanker fleet is growing a lot with the orders from Transpetro", said Tadeu Cordeiro from CENPES. Resources for these investments have been coming in part from the special participation fee, charged from operators of large production O fields. By law 1 of this income must be set aside for research and development. A direct consequence of this law is that numerous modern, state of the art research centers and laboratories are popping up in all parts of Brazil, including the large UFRJ Technology Park in Rio de Janeiro. The Bunker 1 project started off with a researcher complement of two Professors, three Engineers, six Technicians and between six and ten post-grad students, today it is considered to be one of Petrobras s main partners in developing new technologies and environmentally friendly solutions for the growing Brazilian shipbuilding industry and consequently for the O industry in general. The new LMT laboratory will reduce Petrobras s research costs significantly, as until recently Petrobras was obliged to go through a Norwegian research institute in order to test its products. "With these test being done at Coppe UFRJ, the company will obtain the research results and recommendations much more quickly. Just to have an idea, the MAN motor at the LMT laboratory has three independent circuits for analyses of lube oils which permit greater test agility, reducing by 50 the time required for final research results", said Carlos Rodrigues Belchior, Engineering Professor at Coppe and also Professor of Naval Engineering at UFRJ.

(Photo Petrobras)

Refinaries will introduce the bio-fuel into the bunker.

UPGRADING BUN ER FUEL TEC NOLOG

The quality of bunker fuel ignition and combustion in the maritime industry has become a major headache for bunker fuel suppliers and for shipowners as more stringent and environmentally conscious rules are being applied on fuel combustion around the world.

Marine Fuel (MF) is the formal name for bunker fuel is used in low rev internal combustion marine motors. It is normally obtained from dilution of vacuum or asphaltic residues mixed with diesel oil, aviation kerosene or light oil.

Bunker fuel production is specific to each refinery, depending on the raw materials the refinery has available and on what market it is supplying. Since it is a complex mixture of products of petroleum refining processes, MF is classified by a number that represents its viscosity in cSt (mm s) at 50 C.

The methodology most commonly used to characterize the bunker quality in terms of combustion characteristics is a correlation by CCAI (Calculated Carbon Aromaticity Index), however this does not guarantee a total representation of the real combustion process. The equation that originates the CCAI value is a function of the viscosity of the product in cSt (mm s) at 50 C and its specific mass at 15 C. Combustion however is also strongly influenced by the kind of motor and the motor s operating condition, along with factors such as asphaltic content, carbon residues, among others not represented in the stated equation. The LMT laboratory uses a methodology that presents a more accurate evaluation of bunker combustion characteristics through the use of a Fuel Ignition Analyzer (FIA).

(Photo Petrobras)

Cenpes-Petrobras research center in Rio de Janeiro.

The FIA has the objective of simulating the operational conditions found in diesel cycle motors, used by ships, (normally 500 C temperature and pressure of 45 bar), verifying the ignition characteristics of heavy residue oils, such as bunker. The software that controls the test bench motors allows these temperature and pressure conditions to be modified for different kinds of research, such as identifying the optimum operational conditions of varying bunker formulations or mixtures or the effect of different temperatures and pressures on the ignition cycle. The software allows for monitoring and control of all operational variables involved in any given research parameter, such as heating temperature, cooling fluid temperature, chamber pressure etc..

This is just an example of one of the many in depth motor and fuel tests being used for research at the LMT laboratory. There is no doubt the this research effort is bearing results and is vital for the marine motor industry to reach a more efficient and environmentally friendly motor through the use of bio-fuels in the bunker mixture.

The issue of marine engine emissions in and around Brazil is particularly keen now, as the country is experiencing a major growth in its industrial infrastructure due to the massive O discoveries, and this industrial growth is expected to last for at least two decades. This initiative by Petrobras to look for alternatives to the normally high pollutant output related to marine motors is very important to the future of Brazil, and in fact the world.

Denmark's Green Ship of the Future Program

(Photo Courtesy Norden)

By enrik Se er ran

In 200 Danish Shipowners together with related research institutes and supplier companies established the reen Ship of the Future (SF) project, with a number of projects aiming at developing methods to reduce particulate CO2, SOx and NOx emissions from ships by 0 , 0 and 0 respectively, from the average emissions of the world fleet in 2007. Some twenty different projects were initiated with a total of some forty ships involved in testing new equipment and methods.

This Danish initiative was when initiated inspired by the upcoming COP15 global environmental conference in Copenhagen, is an excellent example of the additional value that can be achieved through joint efforts, despite the fact that the meeting in the end did not include shipping at all.

The Danish Shipowners Association is gathering bunker reports from its members as part of their environmental policy program to increase the fuel efficiency, and cut CO2, by 25 by 2020. Since 200 , the fuel consumption and emissions respectively have reduced significantly, in absolute terms. We thought we would get 15 from technical improvements and 10 from slow steaming , says Arne C. Mikkelsen at the Danish Shipowners Association. This is quite a substantial reduction, almost too good to be true. It is so substantial that we wanted to go back to the shipowners and asked them to check their numbers, he said, showing a graph with emission reduction of nearly 0 in the three years period, although the fleet of ships has not decreased.

We do not think that absolute (emission) reductions will be realistic because shipping will grow, he said, talking about the longer term effects. Mikkelsen also stresses the importance of a successful adoption of the Energy Efficiency Design Index at IMO s MEPC 62 meeting next summer along with the Ship Energy Management Plan.

Christian Schack at Force Technology informs there are at present 2 ongoing projects aiming at reaching the set reduction targets, including projects in areas such as scrubber development, LN powered ferries, exhaust gas recirculation and various projects on machinery system optimisation.

Other topics include optimization of trim and performance monitoring, propulsion and operations.

Two examples of ships, a 5,000dwt SeaHorse 5 bulk carrier designed by rontmij Carl Bro and an A-Class ,500TEU container ship, of the latest type built in Denmark, for Maersk Line, were picked to be evaluated regarding the fuel efficiency improvement possible to be achieved when fitted with latest developed technology.

The extra cost for fitting a range of systems onboard would be up to some 2 m, an approximately 20 increase compared to a standard ship without green technologies. The technologies in this case were applying a speed nozzle, an optimized propeller, a twisted spade rudder with a s.k. Costa bulb, a water in fuel WIF system, exhaust gas recirculation E R, waste heat recovery WHR, exhaust gas scrubber, ducted direct air intake for main engine, optimized coolers and cooling pumps, auxiliary engine operation on marine diesel oil, and high capacity fresh water generator. In order to achieve the target of a 0 reduction in CO2 we need to reduce the speed of the bulk carrier by approximately 2 knots, Schack though points out.

The container vessel was fitted with WIF, E R, waste heat recovery exhaust boilers, power and steam turbine technology and an exhaust gas scrubber. In order to achieve the target of a 0 reduction in CO2 we need to reduce the speed of the vessel by approximately 1.5 knots, Schack informs, noting the program continues, with new projects looking at various solutions for a MR tanker operating in ECA areas and a low emission ferry project.

Norden A S is one shipping company that has benefitted from and active fuel saving policy. Last year we reduced CO2 emissions from our own vessels by an approximate 4.7 , said Lars Lundegaard, Senior ice President in charge of the company s Technical Department. This has been achieved by many means, such as slide valves for better combustion when slow steaming, energy monitoring system, increased overhauls of turbochargers, scavenging air coolers and fuel oil pumps and injectors, trim optimization and electric heater and propeller and hull cleaning and hull antifouling painting.

We use Silyl Acrolyte. This provides an immediate gain on fuel consumption, he notes. Propeller polishing is maybe the single most important thing to do, with a short payback time.

Hempasil X3

Hempel Guarantees Fuel Savings

According to Hempel, a marine coatings manufacturer and a member of the reen Ship of the Future (SF) project, the shipping industry can save time and money in the drydock, as well as at sea with the Hempasil package, the third generation of Hempel's fouling release coating technology. Hempel does not simply state it, the company guarantees that shipowners will save fuel, and thus reduce its CO2 emissions.

For many shipowners, fossil fuel costs not only place a huge strain on operating budgets, they also make up a substantial part of their ecological footprint. Slow steaming may be a viable solution for some vessels and help operators reduce costs and CO2 emissions. However despite slow steaming, container operators for example, still spend up to 0 percent of their total operating costs on fuel.

The shipping industry is also facing increasing pressure from governments and legislative authorities to reduce its greenhouse gas emissions. In response, many shipowners have set their own environmental targets in order to reduce their CO2 emissions, but finding effective ways to meet these targets can be a challenge.

Hempel has developed what it touts as the most effective antifouling coating system available. Based on hydrogel technology, Hempasil is designed to fool fouling organisms (from biological slime and seaweed to barnacles) into thinking a ship's hull is liquid, essentially rendering the hull invisible so the organisms don't attach. The result a smooth hull that sails smoothly through the water meaning less fuel is needed to propel the vessel because there is less friction.

The company guarantees fuel consumption will decrease, and with reduced fuel consumption comes less CO2 emissions. Hempasil 's biocide-free composition and minimal OC level strengthen its environmental credentials and also ensure that solvent emissions are kept to an absolute minimum.

Although fouling release coatings have been around for years, the hydrogel in Hempasil makes it unique, according to the manufacturer. Containing non-reactive polymers, Hempasil can offer active protection from fouling organisms for up to seven-and-a-half-years and is still effective if the vessel operates at low speeds or activity levels.

"There are already self-cleaning antifouling products that work at speeds above 15 knots," said Peter Thorlaksen, part of the R D team at Hempel that developed Hempasil . "But when a ship moves slower, there's not enough friction to clean off the organisms. We deliberately created Hempasil to maintain its self-cleaning ability at low speeds and to

ensure that fewer organisms settle on the hull in idle periods."

The longer the vessel is slime-free, the better its performance and operating budget. Now in its third generation, the proven Hempasil formula provides a good return on investment and typically saves vessel operators between four and eight per cent in fuel costs within the first year of application.

To back up Hempel's fuel savings guarantee, the Hempasil package also includes SeaTrend software, which is an onboard reporting tool, designed to help shipowners monitor Hempasil 's fuel saving effects for themselves.

"Hempasil has already been applied to several container vessels, bulk carriers, tankers, very large crude carriers, navy vessels, fast ferries and cruise ships," said Torben Rasmussen, roup Product Manager at Hempel. "Shipowners are using SeaTrend to track their results and so far the feedback has been extremely positive. To date, Hempasil has saved our customers probably more than 0m in fuel bills and reduced global CO2 emissions by 200,000 tons. But potentially, it could do a lot more. If applied to the entire world fleet, it could save the world from 0 million tons of CO2 a year, the same amount of CO2 emitted from reece."

E TENDED DR DOC ING

With Hempasil , it's now possible for owners of container vessels, dry cargo vessels and MP 's to keep their vessels out of dock for seven-and-a-half-years. All major classification societies now have survey schemes for Extended Dry Docking (EDD), which gives shipowners the opportunity to save money now by reducing their dry docking costs and keeping their vessels in operation for longer periods of time. When it first came to market, the Hempasil package included the Nexus tiecoat for fully blasted hulls. Hempel has since introduced two new tiecoats to the Nexus range.

To date, Hempasil X3 has saved probably $30m+ in fuel bills – and reduced global CO2 emissions by 200,000 tons, the company estimates

The patented Nexus -Seal tiecoat eliminates the need for full-blasting and makes it possible to seal existing conventional antifoulings before applying Hempasil . Intended for situations where the anticorrosive system is still intact, such as relatively new ships docking for the first or second time after newbuilding, this solution can save shipowners between 40 to 45 per cent compared to the cost of full-blasting and applying Hempasil from scratch.

Nexus -Seal is a one coat solution, which helps to reduce the time and costs involved in dry docking, and makes the conversion from a conventional antifouling system to a fouling release system smooth. " ou can say that our R D team has succeeded in combining a linkcoat and a tiecoat into one single coat, which means big savings on application costs," said Rasmussen.

A tiecoat created specifically for repair and touch-up procedures, Hempasil Nexus -Tend is used when applying a new coat of Hempasil to an existing fouling release coating.

Hempasil Nexus -Tend increases drydock efficiency by reducing the number of steps a vessel goes through in the dock.

"Nexus -Tend makes using Hempasil as simple as using a conventional antifouling coating," said Rasmussen. "In the past, spot repair was time consuming and complex and often led to substandard results, such as poor adhesion between coats. But Nexus -Tend reduces the number of steps in the repair and touch-up process of damaged areas, making it easier to paint over an old fouling release coating and thereby speed up the drydock process."

Hempel estimates that Hempasil Nexus -Tend could save customers up to 100,000 on dock rent, surface preparation time and vessel inactivity when a vessel is undergoing drydock maintenance.

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Canfornav discovers

It is Easy Being "Green"

Headquartered in Montreal, Canada, Canfornav is a company which operates a fleet of more than 0 vessels, ranging in size from 27,000 to 7,000 DWT, carrying 12 million tons annually and performing more than 400 voyages per year. Much like its shipowning brethren across the globe, the company is consistently under siege to make its operations not only more efficient, but more environmentally benign, in line with new and emerging regulations regarding the types and amounts of pollutants working vessels can emit in to the air and water. A testament to the company's commitment to the environment is its voluntary participation in reen Marine, a joint Canada-U.S. initiative aimed at implementing a marine industry environmental program throughout North America. "We are motivated by our corporate responsibility you don't want to destroy your own backyard," said Jason Crooks, operations, Canfornav. "But beyond that, if you look at increasing your fleet's environmental performance, you are in most instances also improving the overall performance of your fleet, so we see it as a win-win." Further testament is Canfornav's commitment to the environment is the adoption of ShipDecision's comprehensive Emissions Performance Reporting program, a system which delivers to the company the capability to automatically update and instantaneously monitor the fleetwide environmental footprint of its vessels, in compliance with the reen Marine Emissions Reporting requirements.

Jason Crooks, Canfornav

Al Carbone, ShipDecision

"One of my tasks in the Operation's roup is to manage Canfornav's compliance, and we did so initially with a manual system," said Crooks. In essence, Crooks and his team were receiving a daily deluge of reports and information, their Noon Reports, from each ship. Some via text message, others in a spreadsheet format. "Canfornav approached Stelvio, providers of the ShipDecision system, to explore ways to standardize the collection of information used to compile the reen Marine reports. The new module basically lets us monitor the heartbeat of each vessel's performance on a live, day-to-day basis."

"We saw an opportunity to build a module that would not only permit Canfornav to meet their annual reen Marine reporting requirements, but that could also give them a daily snapshot of their reen Position," said Albert R. Carbone, President, ShipDecision. "At the beginning of the voyage, Canfornav Operations sends an email to the Master that contains the specially formatted off-line report for the voyage. The Master fills in the data fields and presses the submit button."

Not only does Canfornav's Operations department receive a consistent and uniform daily report, the information is run to and through the ShipDecision servers, providing the shipowner with up to the minute reporting of ship performance. The following day, the Master opens the report and modifies only the data that has changed. "Data received by the ShipDecision server is automatically tabulated on a per-vessel, per-voyage basis," said Carbone.

Emissions monitoring is a hot topic, and there are a number of potential solutions available, including the installation of specialty emissions monitoring equipment. "There are several different ways to do this (emissions monitoring) you can put all types of fancy gizmos to measure the gases coming out," said Carbone. But he reasons that for a fraction of that investment cost, his "soft" solution can provide a reasonably accurate measurement in a format that stands up to the scrutiny of government audit. "If people are accurately reporting the type and quantity of fuel they are burning, you can get an accuracy of 4 to 5 of the actual emission number," said Carbone." This is a Soft Solution that can help save hundreds of thousands of dollars." The weakness is, and always will be, the integrity of the data at point of entry. "If garbage data is put in garbage data is put out."

DNV & Marine Environmental Stewardship

When it comes to environmental initiatives, Norwegian classification society et Nors e eritas maintains Norwegian tradition in applying technology and care to protect natural resources. Maritime Reporter *recently caught up with Elisabeth H Tørstad, ecutive and , ivision Americas and ub- aharan Africa , N , to discuss her organi ation s commitment to the maritime environment.*

Pea e e ain ei r an e en ir n- en a i e in re a i n DN era i in ari i e and re

T r ad Understanding environmental issues and supporting our customers with the associated risks and opportunities is fundamental to our objective of, safeguarding life, property and the environment.

Dealing efficiently with environmental risks is imperative for the longer term sustainability of an organization or industry, and a key part of being prepared for changing frame conditions in terms of costs of fuel, technology and other elements, incentive structure, regulations, technology development and stakeholder expectations.

As an international risk management company, it is essential that we can help our customers to understand the critical risks and to manage them professionally. For environmental risks, DN has taken a holistic approach that looks at emissions, waste, and resource depletion. We have developed a methodology that support decision making on short and long term cost efficient environmental measures for a specific ship or fleet.

For us, there is no doubt that environmental issues are important, and that the frame conditions in this area are changing rapidly, as evidenced by the ballast water convention, anti-fouling coating and the MARPOL convention for air emissions.

Can y are i e r de e en r DN a y ink a e e e an e dra a i a y red e e ar n rin i

T r ad The DN concept ships, uantum for container ships and Triality for LCCs show real innovation to dramatically reduce the carbon footprint of ships. They promise improved environmental performance, technically advanced designs and solid economic performance. The hull design allows for a ballast free ship, the propellers remain submerged when the ship is empty and liquefied natural gas, rather than heavy oil is used for fuel. LN fuel will significantly reduce air emissions and, in the case of Triality, volatile organic compounds are condensed and used as fuel for the auxiliary boilers. Second, DN 's Environmental and Energy Efficiency Rating System, Triple E, has been developed to provide ship operators with a tool to improve organizational performance, identify ways to minimize the environmental impact and, ultimately, optimize fuel consumption and reduce costs.

Also, DN has more than 40 years of experience with LN ship operations and was an early pioneer for using LN fuel for ship propulsion in 2001. Today, there are over 20 LN fueled ships in operation. A LN fuelled ship reduces the emissions of NOx by 5 0 , and SOx and particles by close to 100 compared to today's fuel. In addition LN fuelled ships provide a 15 20 reduction in net greenhouse gas emissions.

LNG a F e T e n e ee e ainin ra in a a en e d y ee a e er e ake LNG ered i re ain rea

T r ad One challenge is that the infrastructure is not in place today. e er e re ere ere n a ine a- i n in e US S I e ie e a a e de and r LNG e in rea e e- an i n- inded i anie i de- e e in ra r re I ink e e r Fie d Drea i r en i nin I y i d i ey i e In the immediate future, there are very good economic and environmental arguments for using LN fuel in short sea shipping or for offshore support vessels in the ulf of Mexico.

Another challenge is the perceived safety risks of LN fuel, in particular related to infrastructure and terminals. Many of the concerns and opinions raised don't reflect past and current experience with LN . Natural gas is already used widely in North America for electrical power generation, heating and cooking. An extensive pipeline grid across the entire country distributes natural gas to consumers, and hundreds of LN tanker trucks are already delivering natural gas in the form of LN across North America. The industry does need to demonstrate to the public that all of the risks have been fully assessed and that there are safety regulations and other systems in place to manage those risks.

W a D Say a i ner ay I rea i

T r ad In our paper, *reener hipping in North America*, we described our economic models for the three alternatives to meet emission control area requirements: Switch to low sulfur fuel, install an exhaust gas scrubber, or switch to LN fuel. Today, we estimate that new ships with LN propulsion may cost 10-20 more, mainly due to the LN storage tanks, the fuel piping and, in some cases, a slightly larger ship. Of course, this cost differential will diminish as we gain experience in design and constructing LN fuelled ships. However, with projected fuel pricing over a 20 year operating period, our economic calculations show that LN is a clear winner. The LN fuel option has lowest present value of costs. It is 4 million less than the scrubber option and 12 million less than a marine gas oil option.

W a de e en d y e ie e e e ner d ay e a en i n a a in an i a n eir ine in e in de ade

T r ad On the regulatory agenda, air

emissions, which must also consider propulsion options, and ballast water are the most critical. This does, of course, mean that the operational cost structure might change with new regulations in these areas and also that these are areas where implementation of new technology or operative procedures should be considered.

The other key element is of course fuel prices. We know that prediction of different fuel prices over the lifetime of a vessel has significant uncertainty, and at the same time it provides the background for decisions with significant long term bottom line impact. essel owners in particular should pay close attention to predictions on energy pricing and availability in an investment phase.

W a d y n a e r e - n ie r ini ia i e a a e dra- a i a y e ed ake i era i n re en ir n en a y nd

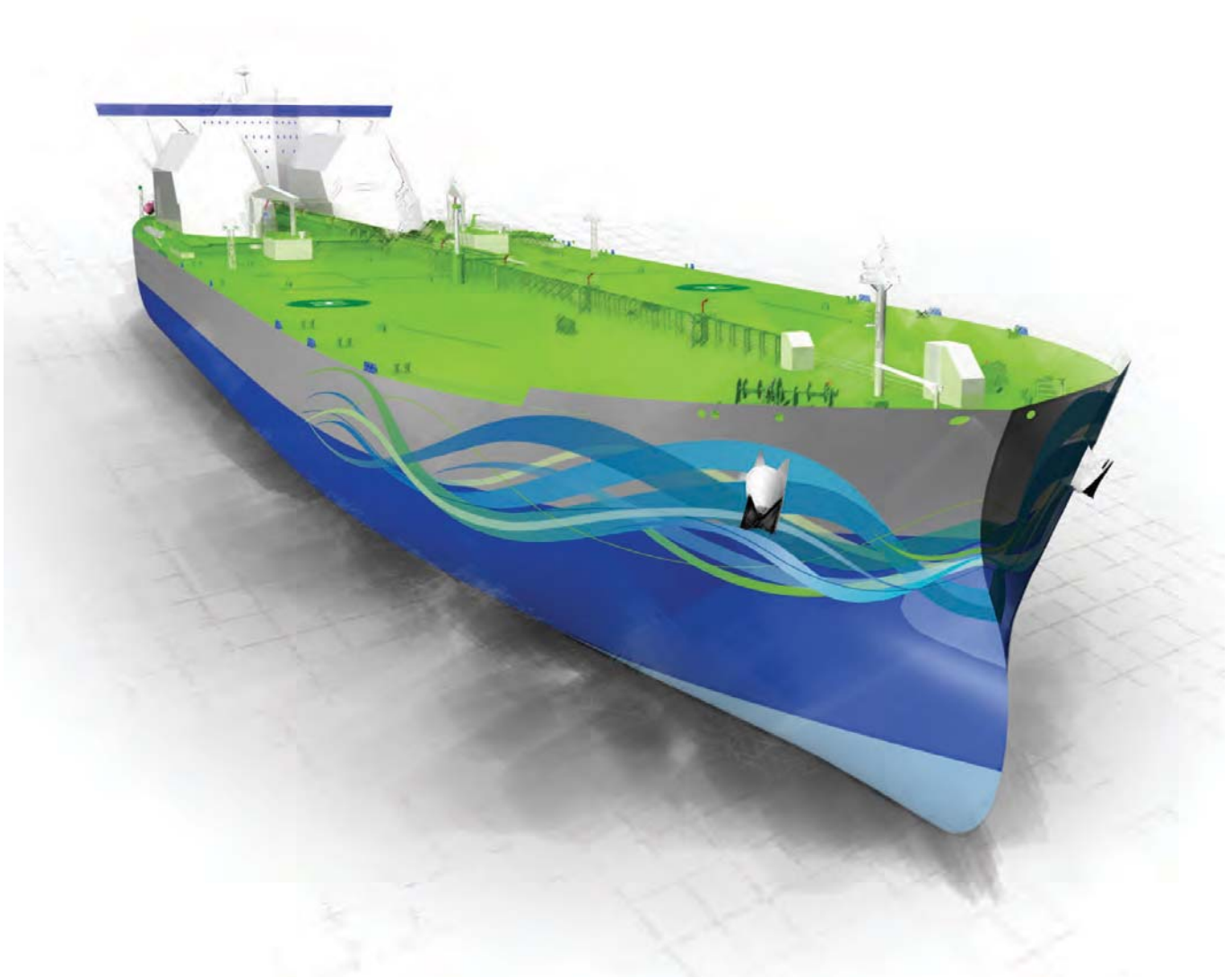
T r ad The MARPOL convention is the biggest initiative as it addressed pollution, segregated ballast and air emissions. Recently, the industry's move to slow steaming and virtual arrivals at ports and canals can greatly reduce fuel consumption and emissions. On e e - n y ide I d ay a an i- in a in e n y i red ed e i an i- in e i- a a in and a de rea ed e n i n i ne e n y a a een ide y i e en ed I think that we are just on the leading edge of using LN fuel for propulsion. LN was first used as fuel in 2001, there are over 20 LN fuelled ships operating today, and many more in the consideration, planning or design stage.

In ne en en e ea e e e i a e en e e ner era r S ayin in r n n en ir n en a ini ia- i e i r ia e ea r i- ne e a e

T r ad Public expectations are higher than ever and new environmental regulations will drive innovation in design, materials and fuel. Scenarios for the future demonstrate that the biggest changes will be in availability and costs of different energy sources as well as in technology, regulations and costs that are directly associated with environmental issues. Staying in front on environmental initiatives is thus one of the most efficient ways to understand and manage the long term risks and sustainability of a company

The DNV concept ships, Quantum for container ships and Triality for VLCCs (pictured below) show real innovation to dramatically reduce the carbon footprint of ships. They promise improved environmental performance, technically advanced designs and solid economic performance. The hull design allows for a ballast free ship, the propellers remain submerged when the ship is empty and liquefied natural gas, rather than heavy oil is used for fuel.

Elisabeth Tørstad



WQIS A *Mandate to Cover Shipowners*

erhaps no other maritime organi ation has its finger closer to the pulse of marine environmental protection than the Water uality Insurance yndicate W I , the syndicate formed by ma or insurance companies to speciali e in marine pollution insurance coverage for ships. reg Trauthwein visited i hard H bbie , resident , W I , at his Manhattan office for his uni ue insights.

To understand the present it is helpful to know the past, and Richard Hobbie is a treasure-trove of maritime history in regards to water quality and pollution matters. According to Hobbie, the history of W IS far transcends its founding in 1 71, and in fact dates back to the mid 1 40s, the end of World War II and the return of soldiers to the United States.

"The growing economy gave rise to a new awareness of our environment," Hobbie said. " ou had, in that decade, the first smog in Los Angeles," and in 1 4 the first Federal Water Pollution Control Act, as families began to rapidly grow, and attention turned to increasing industrial outflows. Fast-forward to the 1 60s, the creation of "Earth Day" and a decided increase in environmental activism, and together you can understand why in 1 70 the U.S. Congress enacted the Water uality Improvement Act of 1 70.

"That (the Water uality Act) did a couple things that were new," said Hobbie. "It caused vessel owners and operators to give up their limitation of liability rights under the Limitation of Liability Statute of 1 51 and it imposed strict liability on them with very limited defenses. The last thing it did was say, in order to navigate a vessel with 00 gross tons, you had to prove that you had the money to clean up. So the insurance industry sat down and said, 'What the hell do we do '."

What they 'did': create the Water uality Insurance Syndicate (W IS), a syndicate tasked to provide this pollution cover and to spread the risk among the members. "W IS is a syndicate it is a pool," said Hobbie. "At the current time of 15 major insurance companies who write ocean-running and marine insurance.

Our mandate from our member companies is to provide the vessel owners and operators a legitimate pollution cover that satisfies their needs and, in effect, allows our member companies not to have to provide the cover and that we're expected to keep up to date with all changes in the law and to price our product accordingly."

T E MORE T INGS C ANGE

It is little secret that matters regarding the environment are a volatile topic throughout the marine industry. While quality owners and operators generally invest in vessels and systems that exceed current regulation in anticipation of future legislation, more than a few companies eye current and pending rules as nothing more than an added expense, a bureaucratic hurdle to leap.

Regardless, tightening environmental regulations are here to stay, raising the barrier of entry to the maritime industry further, and in some cases perhaps providing a detriment to bolstering an aging and dwindling employee base.

"The greatest change I've seen in my career is the vilification of the vessel owner and operator," said Hobbie. "When I first got involved in this business, people understood that things happen and accidents occur, and oil spills occur. People got upset, but they didn't think the sheer fact that you spilled oil made you evil. So the biggest change in my career is the general perception in the United States that, if you spill oil, you're evil."

It is, in fact, this perception, and the political ramifications that have helped to foster this public response in the wake of an accident. "(After a spill has happened), for a politician or even a Coast uard officer to say, 'Look, this is just a pure accident, it's not really these people's fault, be nice to them ' this does not really go over well with the public, in my opinion," said Hobbie.

In part, he believes that education of the general public, specifically to the advances and advantages of maritime transportation, as a key plank towards future understanding, and Hobbie applauds the efforts of waterways groups, particularly the American Waterways Operators, in their efforts to clearly illustrate the efficiency and environmental advantages of moving oil, for example, on the water versus via truck or train.

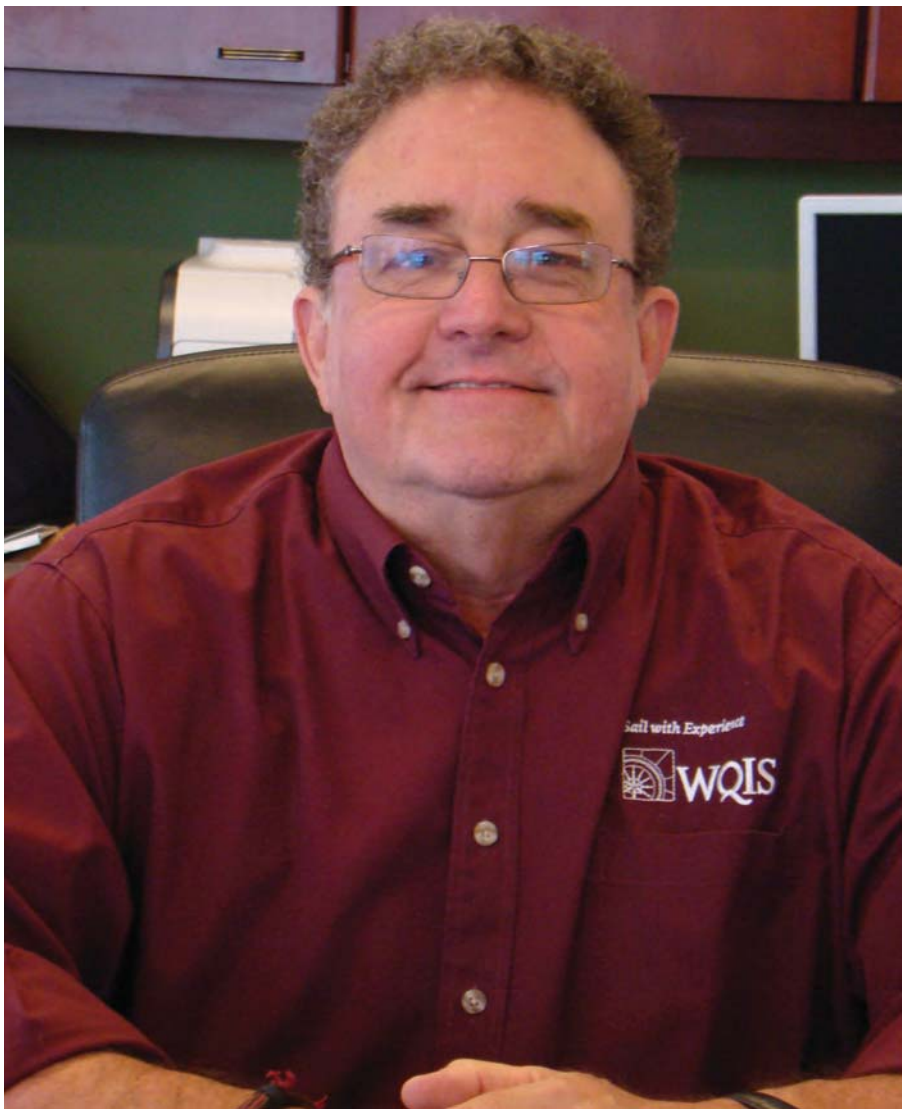
In addition to the vilification of mariners, Hobbie points to the politics surrounding oil spills as making the situation inherently more complicated, costly and ultimately, risky. " ou're dealing with volunteers, dealing with all levels of government, dealing with Native Americans, dealing with the press, the list goes on," said Hobbie. "Oil spills used to be something that were like a building fire if nobody died, nobody knew but today, mishandling a spill is suicide for a company. It then becomes a vicious cycle, as increased political pressure leads to more legislation, which in turn dissuades new recruits from entering the field. Also, in Hobbie's opinion, over-regulation helps to effectively force out the small operators, leaving fewer, larger companies.

"There has been a tradition of small fleet ownership, family ownership, and that has strengthened the maritime industry, in my opinion, for many years, and brought it diversity," said Hobbie. "If we over-regulate and if we make it too difficult for those smaller companies, then there will only be the big companies left, and I'm not so sure that that's in the U.S.'s best interest."

www.wqis.com

"Mishandling a spill is suicide for a company"

Richard H. Hobbie III,
President & CEO, WQIS



New Business Strategy Drives Goltens Greener

Aiming to help shipowners meet the escalating wave of green technology and new regulations, oltens has launched a new business stream to become a reen Technology service provider. In 2010, oltens established a center of excellence in Rotterdam to provide ballast water treatment system installation services for the group's 22 engineering centres worldwide. oltens brought together some of the most advanced ballast water treatment technologies, the most experienced engineers and assembly crews that are available 24 7.

" oltens global independent network makes it an attractive green tech partner for owners and equipment suppliers," says Friedberg, who warns of higher costs for shipowners as they strive to comply with new rules on energy efficiency and curtailing or reducing the emission of greenhouse gases and other pollutants. Upcoming rules will govern how existing vessels will be operated. Just-in-time berthing, slow steaming to save on fuel, and voyage planning and routing might all be encouraged by new international rules. Changes in propeller design and hull coatings might also be required. Regulations on tanker emissions of sulphur dioxide (SO2) and other pollutants will be increasingly expensive. "SECA, the International Ballast Water Convention, Coatings Legislation, Helcom and Marpol 7 7 represent major green challenges to shipowners and require major investments. The cost of installing a BWT system on, for example, an existing chemical tanker could reach 200,000 for installaton costs and 600,000 for the equipment, not including operating costs, and as much as 2m for a crude oil carrier," says Friedberg.

Shipowners face considerable green challenges ahead. Major work is still needed to meet a 0 reduction in CO2. This can only be obtained through continued efforts to reduce vessel resistance, optimised operation (slow steaming, weather routing etc), more effective propulsion systems, more fuel-efficient engines, alternative fuel (LN , Biofuel etc) and addition of alternative green means of propulsion (fuel cells, wind, solar etc).

"Establishing a oltens reen Technology competency center is paramount to meeting the needs of shipyards, shipowners and system suppliers," said Friedberg.

www.goltens.com

EPD Explores Battery Power via

The Hummer Dragster

What does the creation of an all-electric ummer dragster and power for the offshore industry have in common More than you thin .

By Gre Tra ein

Marine electric pioneer Electronic Power Design (EPD) explores advanced battery technology in a most unusual way, via the development of an all-electric Hummer dragster.

EPD is an electrical systems integrator that manufacturers and provide engineering, design, programming (Protective Relays, ariable Speed Drives and Programmable Logic Controllers), commissioning, and field service of all types of electronic and electrical power systems equipment.

Contrary to the recent downturn in the global economy, Houston-based EPD has continued to grow, leveraging its experience in supplying equipment for Bourbon's fleet of offshore vessels into a rapid global expansion of its business through the Far East and Brazil.

Part of this is due to the company's penchant for innovation, as embodied in its investment in and development of the all-electric Hummer dragster, among others.

John D. Norwood I , EPD s ice President - Business Development, freely admits that his company s exploration of environmental solutions using a Hummer one of the world's most notorious gas guzzlers as a platform is, in a word, ironic. "We are trying to achieve a tremendous amount of power for a short time," with the Hummer R D project, which is a study in battery technology primarily for the offshore oil and gas market, Norwood said. "The worst thing that can happen to a vessel or drilling rig is losing power."

In the last two years, the company has invested more than 500,000 into the Hummer R D project for battery power and life as it looks to extend its leadership in the development of efficient electrical, environmentally sound solutions for the offshore and maritime markets. The result is impressive, as the Hummer packs a wallop at 1,000 hp, capable to accelerate from 0 to 60 mph in 4 seconds.

E PANDING IN BRA IL

EPD's business flourished in tandem with Bourbon's decision to become a dominant player in the global offshore vessel segment with an enormous fleet of ultra-modern, environmentally sound vessels. EPD was, and remains, a key partner to Bourbon's success, as for Bourbon's AHTS, PS and IMR series of vessels EPD supplied the Engine Control Room (ECR) module, a system EPD revolutionized with uido Perla Associates. Each ECR is outfitted, built and tested at EPD before it is shipped, and then the module is set in the ship. This approach helps the shipyard to streamline its production process, making it faster and more efficient. The integrated testing at EPD also drastically reduces commissioning time in the shipyard. EPD's responsibility is to be the "electrical systems integrator" for its supply, the engines generator sets, the DP MS and thrusters. EPD was also responsible for the vessels electrical system design. Each ECR contains:

600 olt Main generator control and distribution switchgear.

4 0 volt ship distribution switchgear

ariable speed drive systems for main propulsion and bow thrusters

Electric controls for the fire pumps

Low voltage distribution for the ECR

Mounting, interconnection, and interface of the owner-supplied vessel management system (MS)

Motors for the main propulsion, bow thrusters and firefighting pumps

Transformers for harmonic cancellation for the variable speed drives

arious motor control centers for the tank farms and services

Bridge controls related to the EPD supplied power system

The Bourbon contract was pivotal as it enabled EPD to spread its wings beyond its Houston base, opening shops in China and Singapore to supply and service the burgeoning Bourbon fleet. Thus, as opportunities started to manifest in Brazil, the company was very familiar with the ups and downs of setting up shop on foreign soil.

"The Brazilian market is tricky, as the tax situation is tough it's really a tax engineering labyrinth, and the rules can be different from state to state, and even city to city," said Norwood. Other challenges in Brazil include the local content laws (which currently demand 65 content from Brazil for offshore support vessels if the project is financed in the country), as well as the high cost of manufacturing, a situation magnified as the Dollar weakens. But for all of the challenges, the prospect of business from Petrobras which is embarking on a historic new construction program of nearly all maritime assets to capitalize on its massive offshore energy resources makes the investment worthy. So in 200 , the company established EPD do Brazil and the company has spent the last three years establishing key relationships with owners and shipyards. Today EPD do Brasil is supporting EPD's installed base of offshore support vessels and drilling rigs in Brasil. The effort has paid off, as it is currently contracted to supply its systems for four 4,500 dwt Petrobras PS s being built in Brazil at Detroit Shipyards for Starnav.

"We see a lot of good things in Brazil," Norwood said. "The cities are getting cleaned up, investments are pouring in through the oil money, as well as the excitement and money generated from the upcoming World Cup (2014) Olympics (2016)."

H'ONE'-ENV Technical Details

(Hummer on Nothing but Electricity – Electrically Nefarious Vehicles)

HP	1000
0-60 mph	4 seconds
0-132 mph	10 seconds
Maximum speed	150 mph
Weight	6200 pounds
Ampacity	2,400 Amps
Batteries	Lithium Ion
Motors	6 Brushless DC Custom
Charge time	30 min (from 10 to 90%)
	4 hours (from 10 to 100%)

(Source: EPD)

CleanMag Cleans Up ...
Magnetically

CLEANMA (Cleaning Magnetically) is a new material for the clean up of the waterborne oil spills and is based on the magnetic separation method. CLEANMA is an oil sorbing material in the form of granules, which is also magnetic. The material is dispersed over the spill (by aerial or naval means) and can be collected by using boats equipped with 'magnetic drum' conveyor belt systems or fishery nets.

CLEANMA 's oleophillic character help the oil to be quickly sorbed upon contact with it, at weight ratio 1:6- , while the granules are aggregated together due to their magnetic interaction. Therefore, it is designed to eliminate further oil spreading over the water surface by forming 'a floating crust', which can then be easily recollected even after days from the accident.

CLEANMA , has been proved to:

Clean up oil pollution from water down to 10 ppb

Never sinks (good for bad weather)

Is non toxic

Is recyclable (could be regenerated, incinerated in cement kilns-power plants-does not produce fluorocarbons -dioxins, or after extraction of contained oil to be used for road pavement -asphalt mixing)

Cost effective

Environmentally friendly (its action is mechanical -adsorption)

Easy application collection

Protects marine life coast lines

In addition to the above, non magnetic CleanMag is used for manufacturing of oil spill kits, sorbing booms and pillows. It is EPA approved for use in U.S.

www.cleanmag.gr

Response & Readiness to Oil Spills Worldwide

The April 2010 ulf of Mexico massive oil spill needed immediate external support, expertise, solutions and equipment to assist in the containment and clean-up efforts. Finnish based Lamor Corporation immediately set its action plans into motion and within 6 hours, through its global network, the company airlifted its arsenal of equipment and key personnel to the scene. Oil booms and skimmers were sent by Lamor to assist in the clean-up efforts. In all, an estimated 00,000 meters of boom was sent to the ulf.

Lamor's oil containment booms enclose the oil on and below the water surface and its larger skimmers are pitched behind a vessel recovering oil from the ocean surface. Smaller skimmers were used on the beaches to clean-up oil that washed ashore. The company initiated immediate installation of its equipment and trained the contracted oil clean-up vessel operators. Moreover, being a significant and major clean-up and response provider in the ulf, Lamor gave expert consultations to the command center that was set up to engage in the oil spill operations.

During the ulf incident, simultaneously three other oil-spills occurred in China, Singapore and in Michigan (US) and Lamor responded to these incidents.

"We worked at full capacity in all of our facilities worldwide during the ulf of Mexico incident, and continue to do so still," said Fred Larsen, CEO.

Public and government awareness and concern about oil spills was reignited by the ulf of Mexico incident that most certainly made it clear that corporations are taking some risks due to shrinking oil reserves, rising oil prices and offshore oil deposit discoveries in deep waters. The primary source of accidental oil spills into seas is associated with oil transportation by tankers and pipelines. That said, natural non-human generated oil spills also endanger our environment both offshore and inland.

"We continuously invest significantly in safeguards and solutions," says Larsen. "Our entire ecosystem is threatened without having the best available solutions, technology, equipment and expertise in handling oil spill recovery operations under any conditions and in all geographical terrains. This is an ongoing effort, and we need to be ready and prepared to tackle any incidents around the world quickly, strategically and effectively. Moreover, we offer certified training in oil spill recovery and preparedness to authorities and private corporations involved in the oil and chemical industry."

© Lamor Corporation Ab

Fred Larsen inspecting pumps and powerpacks prior to Gulf of Mexico oil spill operations.

www. lamor.com
E-mail: fred.larsen@lamor.com

AMPOL

American Pollution Control Corporation (AMPOL) specializes in inland, near shore and offshore emergency response and hazardous waste remediation for oil and gas operators, industrial companies and government agencies. A full service emergency response contractor, AMPOL services include oil spill and hazardous material response biological waste remediation and cleanup asbestos, lead and mold abatement N.O.R.M. remediation industrial cleaning, demolition and insulation services tank cleaning offshore vessel support construction support and the manufacturing by Oil Stop of pollution control products.

AMPOL complies with all OSHA, Coast uard and DOT regulations that pertain to our scope of operations. AMPOL is HA WOPER DE , EPA and OSHA approved.

The certifications and training, vast inventory of equipment and strategically located response bases make AMPOL the leading contractor in the ulf South for environmental incident response.

www.ampol.net
Email: kirk@ampol.net

MK II Very Shallow Multi-System Skimmer

Trinity Offshore's engineering department was asked to design and engineer a multi-purpose shallow draft skimmer for Marine Spill Response Corporation (MSRC), based on the organization's experience with the oil crisis in the ulf of Mexico in 2010 and the lack of vessels capable of collecting oil in the shallow bays and sounds of the ulf Coast. MSRC is a nonprofit started in 1 0 to offer spill response services and mitigate damage to the environment.

Trinity recently launched the TC-055 57-ft M II ery Shallow Draft Multi-System Skimmer (SMSS) to meet MSRC's needs. The vessel has a maximum transit speeds of 25 mph (light), 12 mph (with two tanks fully loaded), a collection speed of two to three mph and a range (light) of 250 miles at 20 mph. The TC-055, 57-ft M II fully complies with U.S. Coast uard certification as a 46CFR Subchapter "C" vessel as defined by M I Policy Letter 1- 5 as an OSR , Small Skimming essel. As such, she is USC certified to carry class "D" and "E" cargo.

The M II's recovered oil storage capacity is 10,450 gallons 24 bbls in four built-in tanks (including forward sump

www.trinityoffshorellc.com

Self-Inflating NEOBoom

NEOBoom is a containment boom that combines the compactability of an air-inflated boom with the benefits and

strength of conventional foam flotation. The boom features ease of deployment, wave conformity and high buoyancy-to-weight ratios. NEOBoom requires approximately a third of the storage space needed for conventional booms and can be deployed by fewer personnel. There are no internal devices for inflation or deflation. NEO Boom s flotation foam inflates when the air valve is opened and deflates by rolling the boom into a coil or winding it onto a boom reel for compact storage.

www.ciagent.com

Hannay Reels Oil Containment Boom Reels

Hannay Reels Oil Containment Boom Reels are designed for use with flotation, inflatable, collapsible and flexible cylinder booms. Ideal for ships, oil rigs and docks, these reels are built for rugged use and designed with special features that maximize performance and make installation hassle-free. Hannay Reels Oil Containment Boom Reels are manufactured with heavy-duty three-inch square tubing frames that are braced at all stress points with two-inch square tubing. The drum of the reel has an open design with a half-inch inner steel plate for reinforcement and a positive pin-lock to lock the reel in place. All boom reels feature 50 chain and sprocket rewind as well as quality-lubricated bearings.

www.hannay.com

Consilium's Oil Spill Detection Radar

The recently launched Oil Spill Detection Radar by Consilium Marine Safety was tested together with the Norwegian Coastal Administration and the Norwegian Clean Seas Association For Operative Companies (NOFO). The radar is being used on the Finnish Icebreaker ontio, commissioned as stand-by vessel for EMSA (European Maritime Safety Agency), and by customers in Norway, Italy and China. Recently the radar was ordered for an oil spill response vessel in the harbor of Rotterdam. In addition, Consilium Oil Spill Detection Radar has received the 2010 espucci Award for the innovation category. One of the key features of the radar is its ability to integrate a complete oil spill detection function into Consilium's standard type approved IMO Solas Navigational radar. The new advanced radar processing unit is supported by a special Consilium radar sensor and by its capability to increase the rotation speed of the antenna up to 44 revolutions per minute.

www.consilium.se

Marine Salvors Helping to Turn Uncertainty to Success

In the best of conditions, maritime salvage and recovery is arguably one of the marine industry's most dangerous and logistically challenging jobs. *Maritime Reporter* examines a few recent, notable jobs.

DR DOC DOWN

When the 25 ft. dry dock Machinist sank in rough weather at the turn of 2011 in Apra Harbor, uam, Ft. Lauderdale-based Re e was contracted by UAM shipyard to refloat the dry dock. Resolve initially performed a comprehensive casualty assessment to determine structural and watertight conditions of the dry dock and to ascertain the status of its systems. A detailed engineering analysis was undertaken and a salvage plan was developed and implemented, involving extensive preparatory work both topside and underwater. iven the deep submergence of the dry dock well beyond normal operating limits, great care was taken to minimize hydrostatic pressures on tank boundaries during the refloating, and to keep global hull stresses and stability within allowable limits. The U.S. Coast uard and U.S. Navy reviewed and approved the salvage plan.

"Large sunken dry docks are notorious for testing your skill and tenacity, and this was no exception," said Resolve Salvage Master Todd Schauer. "We were fortunate to have the support of an outstanding team including our client uam Shipyard, as well as Heger Drydock and Mako Diving."

Resolve was contracted to salvage the 825 ft. dry dock "Machinist," which sank during rough weather on January 2, 2011 in Guam.

To complicate the project further, prior to the sinking, the dry dock had been undergoing an extensive maintenance program, which left a large portion of its installed pumping system inoperable. To overcome this challenge, RESOL E mobilized and installed 12 high-capacity electric salvage pumps.

In addition to the electric submersible pumps, numerous gauging systems were installed to monitor the tank pressures and conditions throughout the refloat operation.

The dry dock was successfully refloated on March , 2011

TSUNAMI EFFECTS FELT AFAR

When the Japanese tsunami hit earlier this year, residual effects were felt thousands of miles away on the U.S. West Coast. lobal Diving Salvage was activated by the US Coast uard under an existing contract to survey and investigate the damage that the Port of Crescent City, Ca., experienced on March 11, 2011, in the wake of the Japanese tsunami. The tsunami capsized many vessels in the harbor, in several cases landing vessels on top of each other. The survey identified the number of sunken vessels and their position relative to each other. A plan was developed with the Coast uard for the removal of the significant pollution threat on board the damaged vessels. Several of the vessels could be safely accessed, the pollution threat (fuel, oils, and batteries) were removed. Others could not be accessed without the vessel on top being removed. It was determined that the safest way to remove the wrecks was with a crane. A derrick from San Francisco Bay was brought to the site. During transit, a side scan sonar survey of the entire harbor was performed to ensure there were no unknown obstructions and adequate clearance for the derrick to enter and move about the harbor. For the derrick to access the area of the sunken vessels selected piling and dock sections had to be removed. The derrick removed the remaining vessels to an upland facility for dismantling and proper disposal.

BRINGING UP T E DREDGE

On May 20, 2011, Donjon Marine Co., Inc. contracted with the owners of the 42-ft. cutter head suction dredge Robert R. Woodington to recover the cutterhead ladder which was buried to a depth of 100 ft. as a result of an underwater cave-in that occurred while recovering sand from an in-land sand pit. The cutterhead ladder was covered by more than 70 ft. of sand and clay mix.

Donjon's work plan was to mobilize a sectional barge equipped with a crane capable of handling a four cubic yard digging bucket, a 10-person salvage team including five salvage divers, and air-lift and jetting equipment. Through a combination of mechanical dredging, air-lift jetting and external lifting, Donjon was able to recover, free of damage, the cutterhead ladder, ahead of schedule, allowing owners to quickly return the dredge to production activities.

"While not a typical marine environ-

ment, Donjon has again proven its ability to support the needs of the marine community with marine salvage services. Regardless of the situation, Donjon performs well under all conditions," said John A. Witte, Jr., Executive ice President, Donjon Marine Co., Inc.

AGROUND AT CUBIT S GAP

Last month Donjon-SMIT, LLC, was notified that a client vessel was aground in the Mississippi River just above Cubit's ap, about 10 miles below enice, La. Traffic on the Mississippi was not impeded by the grounded vessel. Donjon-SMIT, an OPA- 0 salvage and marine firefighting provider, was placed on standby pending the results of efforts to refloat the vessel with tugs. Approximately midday on June 14, the vessel's salvage response plan was activated, and Donjon-SMIT mobilized its personnel and assets to refloat the vessel.

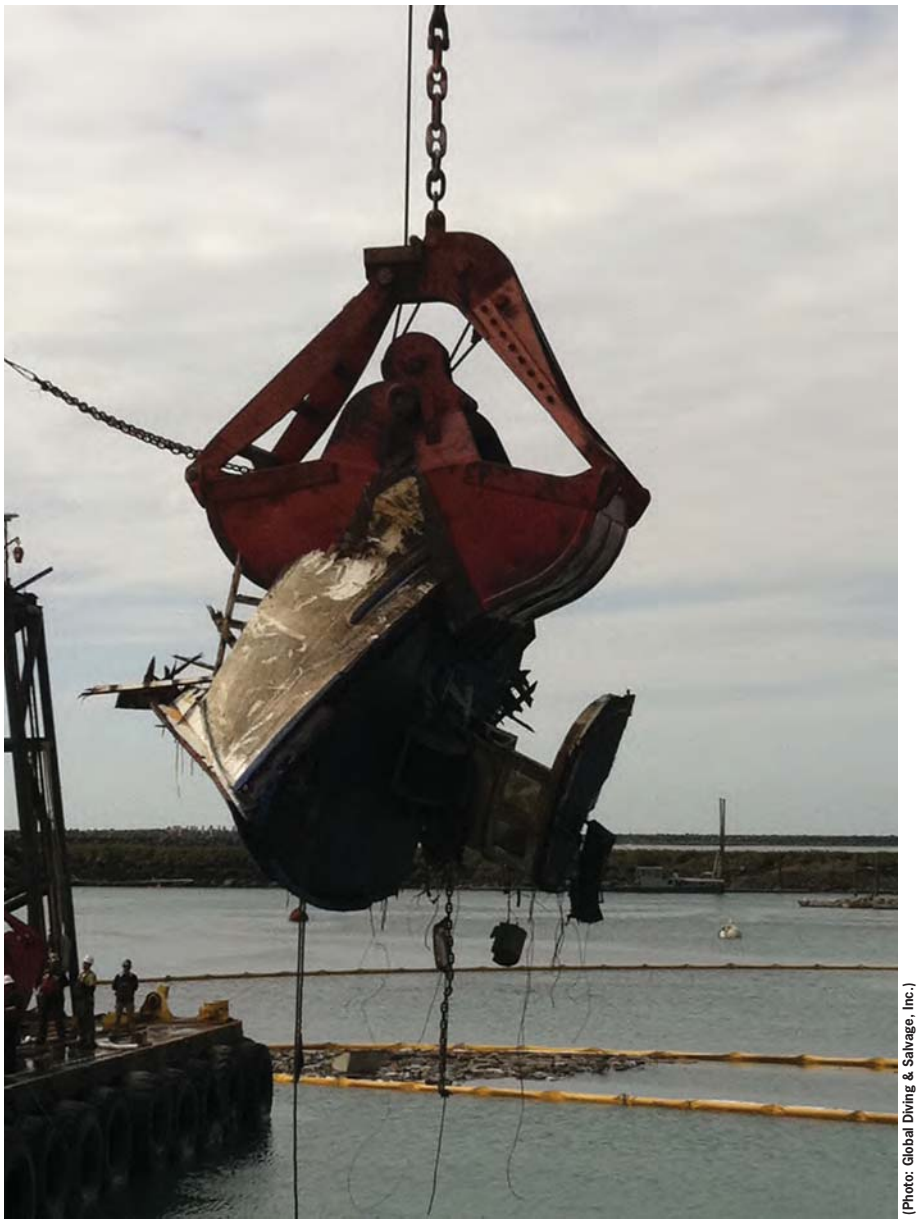
Within a few hours of the activation of the salvage plan, one of Donjon-SMIT's Rapid Response Assessors was on scene to conduct the initial onsite salvage assessment. Donjon-SMIT's salvage team arrived shortly after, and efforts began to conduct a damaged stability assessment and to utilize tugs to refloat the vessel.

"The vessel was broadside into the current, so there was a very real concern that the situation could worsen quickly," said Paul Hankins, President of Donjon-SMIT. "We were also worried about the rapid silting around the vessel."

Overnight on June 14 and into the morning of June 15, four and eventually five tugs were used to scour the buildup of silt around the vessel and to attempt to refloat and maneuver her back into the channel. While these efforts were ongoing, preparations were being made on a lightering plan should the tug efforts prove to be unsuccessful.

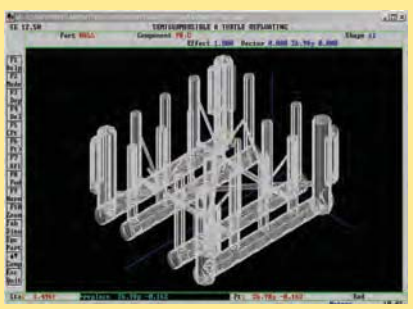
The vessel was refloated and began making significant headway and was eventually maneuvered back into the channel. The vessel was successfully anchored at South West Pass Fairway anchorage. Donjon-SMIT conducted a hull survey of the vessel on the 16th while the vessel was at anchor. Some damage was found on the bilge keel of the vessel, but her hull was intact and she was cleared by the U.S. Coast uard to continue her voyage.

A clam shell bucket was used to remove damaged vessels. Global Diving & Salvage was activated to survey and investigate the damage at the Port of Crescent City, Ca., in the wake of the Japanese tsunami of March 2011



(Photo: Global Diving & Salvage, Inc.)

GHS Software to Simulate Salvage Jobs



Many well-known salvage engineers and salvage-and-recovery operators rely on eneral HydroStatics (HS) software for simulating and planning salvage procedures. The software provides detailed modeling of any vessel in any attitude with intact, flooded and pressurized tanks. It also provides for ground reactions, pull forces and windage effects. Detailed graphics are available to depict the response of the vessel at each step of a salvage operation.

Salvors use HS in combination with: C Condition raphics, LE - Load Editor, LS - Longitudinal Strength, and MB- Multi-Body Optional Modules as a baseline in salvage operations. A unique feature offered by HS is the ability to model interactions between several floating bodies using Optional Module Mult-Body. Depending on the salvage operator s needs, some may additionally use AF Advanced Features, FL Floodable Lengths, LEw Load Editor with Windows, TS Tank Soundings, and NETPlus which allows HS access at remote sites. The powerful command language for which HS is famous gives the salvage engineer the ability to automate complex operations involving many small steps.

Some examples of salvors using HS in their operations are:

London Offshore Consultants contact William Leschaeve,
Marine Response Consultants contact enneth Edgar,
Smit Salvage B contact Alexander orter,
Titan Salvage contact Phil Reed.

BRAND&NAME/ Model Series	Bore	Stroke	Cyl#	kW/cyl	RPM	BMEP
Akasaka				www.akasaka.co.jp		
T26	260.0	440.0	6	104.2	350 - 400	13.4 -15.3
K26/S/SK	260.0	480.0	6	159.2 - 171.5	410 - 420	18.3 - 19.2
U28A (K)	280.0	380.0	6 - 8	230 - 306	720	16.4 - 21.8
K28/B	280.0	480.0	6	172	380	18.3
K28S	280.0	500.0	6	196	410	18.6
A28/A28S	280.0	550.0	6	183.8 - 196	320 - 340	20.3 - 20.4
K31	310.0	530.0	6	220	370	17.9
K31S	310.0	550.0	6	245.2	380	18.6
A31	310.0	600.0	6	220.8	290	20.2
AX33	330.0	620.0	6	270.0	310	19.7
A34C	340.0	620.0	6	270.0	310	18.6
A34S	340.0	660.0	6	294.2	280	21
S35	350.0	640.0	6	318.7	280	22.2
A37	370.0	720.0	6	318.3	250	19.7
A38/S	380.0	740.0	6	343.3 - 367.7	240 - 250	20.4 - 21.0
A41/S	410.0	800.0	6	404.2 - 441.2	230 - 240	20.0 - 20.9
A45/S	450.0	880.0	6	490 - 551.5	210 - 220	20.0 - 21.5
Alaska Diesel Electric - Lugger/Northern Lights				www.northern-lights.com		
L4/6-106	106.0	127.0	4 - 6	16.7 - 33.8	2000 - 2500	8.1 - 15.1
L6125H	125.0	150.0	6	43.5 - 58.3	1800 - 2300	15.7 - 16.5
L6140AL2	140.0	165.0	6	61.7 - 87	1800 - 2100	16.3 - 19.6
L6170	170.0	170.0	6	86 - 111	1800 - 2100	14.9 - 16.4
Anglo Belgian Corp.				www.abcdiesel.be		
DX	242.0	320.0	3 - 8	46 - 110.4	600 - 750	6.0 - 12.5
DZ	256.0	310.0	6 - 16	135 - 250	720 - 1000	16.5 - 18.8
Baudouin				www.moteurs-baudouin.fr		
S108	108.0	120.0	4 - 6	16.0 - 50.3	2100 - 2500	7.9 - 26.2
S111	111.0	145.0	6	34.3	2000	14.7
R120	120.0	145.0	6	29.5 - 41.7	1800 - 2000	12.0 - 15.2
R123	123.0	156.0	6	43.0	1800 - 2000	15.5
M26	150.0	150.0	6 - 12	29.4 - 79.7	1800 - 2000	7.4 - 18.0
C25:33LP	250.0	330.0	6 - 9	240 - 333	720 - 1000	24.7 - 26.3
Bergen				www2.rolls-royce.com		
B32:40	320.0	400.0	6 - 16	500	750	24.9
Caterpillar				www.cat-engines.com		
3000	100.0	127.0	6	15.5 - 25.5	2100 - 2600	7.2 - 13.2
3126	110.0	127.0	6	52.2	2800	18.5
C7 / ACERT	110.0	127.0	6	31.2 - 56.5	2400 - 2800	12.9 - 20.1
C9 ACERT	112.0	149.0	6	62.5 - 70.5	2500	20.4 - 23.0
C12 / ACERT	130.0	150.0	6	42.2 - 87.7	1800 - 2300	14.2 - 23.0
3400C	137.0	152 - 165	6 - 12	31.3 - 72.2	1800 - 2100	8.5 - 16.9
3400E	137.0	152 - 165	6 - 12	26.4 - 87.0	1200 - 2300	11.8 - 20.2
C15 ACERT	137.0	165.0	6	99.5 - 106	2300	21.3 - 22.7
3412D	145.0	162.0	12	33.7 - 54.3	1800 - 2100	8.4 - 13.1
C18 / ACERT	145.0	183.0	6	56.5 - 141.2	1800 - 2300	12.5 - 24.4
C32 / ACERT	145.0	162.0	12	41 - 118	1600 - 2300	10.2 - 23.0
3500	170.0	190.0	8 - 16	56.0 - 108.8	1200 - 1800	12.3 - 17.4
3500B	170.0	190.0	8 - 16	68.3 - 139.9	1200 - 1925	15.8 - 20.2
3500B HD	170.0	215.0	12 - 16	87.4 - 125	1200 - 1600	16.7 - 19.2
3500C	170.0	190.0	8 - 16	72.3 - 102.5	1200 - 1800	15.1 - 21.6
3500C HD	170.0	215.0	12 - 16	112 - 158	1600 - 1800	17.3 - 21.6
C280	280.0	300.0	6 - 16	288.3 - 338.8	900 - 1000	20.7 - 22.8
3600	280.0	300.0	6 - 18	287 - 400	900 - 1050	20.0 - 24.7
CRM				www.crm-spa.it		
ASSO	150.0	180.0	12	83.6 - 122.6	2020 - 2300	15.4 - 20.1
BR	150.0	180.0	18	67.4 - 98.1	2050 - 2080	12.4 - 16.1
Cummins Marine				www.cummins.com/marine		
KTA19/M	159.0	159.0	6	52.7 - 87.0	1500 - 2100	12.9 - 17.8
KTA38/M	159.0	159.0	12	50.8 - 93.3	1500 - 2050	12.9 - 17.3
KTA50/M	159.0	159.0	16	68.6 - 87.4	1500 - 1950	14.9 - 17.0
QSK19-M	159.0	159.0	6	82.0 - 99.5	1800 - 2100	13.1 - 19.7
QSK38-M	159.0	159.0	12	74.6 - 87.0	1800 - 1900	15.7 - 18.4
QSK50-M	159.0	159.0	16	74.6 - 83.9	1800 - 1900	15.7 - 17.7
QSK60-M	159.0	190.0	16	93.3 - 116.5	1600 - 1900	16.5 - 19.5
QSD	94.0	100.0	4 - 6	40.0 - 42.8	3800	15.1 - 19.5
B	102.0	120.0	4 - 6	24.3 - 39.2	2500 - 2800	10.6 - 17.1
QSB5.9	102.0	120.0	6	28.2 - 58.8	2600 - 3000	13.3 - 24.0
Cummins MerCruiser				www.cmdmarine.com		
QSC8.3	114.0	135.0	6	58.8 - 60.2	2500 - 3000	17.1 - 21.0
C	114.0	135.0	6	31.7 - 53.5	1800 - 2600	15.3 - 17.9
QSL	114.0	145.0	6	17.7 - 49.7	1400 - 2100	10.2 - 19.2
QSM11	125.0	147.0	6	36.7 - 87.7	1800 - 2300	13.5 - 25.3
Daihatsu Diesel				www.dhtd.co.jp/index.html		
DKM-20	200.0	300.0	6 - 8	156 - 159	900	22.1 - 22.5
6DKMS-25	250.0	360.0	6	245	750	22.2
6DKM-26	260.0	380.0	6	269.7	750	21.4
6DKMS-28	280.0	385.0	6	306.4	750	20.7
DKM-28	280.0	390.0	6 - 8	313 - 319	720 - 750	20.8 - 22.1
DKM-36	360.0	480.0	6 - 8	551.5	600	22.6
913	102.0	125.0	6	16.0 - 18.7	2150	8.7 - 10.2
FM 1013	108.0	130.0	4 - 6	18.0 - 32.5	1900 - 2300	8.9 - 16.8
DEUTZ				www.deutz.de		
FM 1015	132.0	145.0	6 - 8	33.8 - 50.0	1800 - 2100	10.3 - 16.0
TCD 2015	132.0	145.0	8	45.0 - 62.5	1900 - 2100	14.3 - 18.0
710	230.0	280.0	8 - 20	155 - 186.5	720 - 900	10.6 - 11.2
38TD8-1/8	206.4	254.0	6 - 12	261.1 - 217.6	750 - 900	20.5

Electro-Motive Diesel, Inc. www.emdpowerproducts.com

Model	Bore	Stroke	Cyl#	Displ. (cu. in./cyl.)	Weight (lb)	High Output (bhp@rpm)
8-710 G7C-T2	9 1/16	11	8	710	26000	2200@900
12-711 G7C-T2	9 1/16	11	12	711	33000	3300@900
16-712 G7C-T2	9 1/16	11	16	712	40500	4400@900
20-713 G7C-T2	9 1/16	11	20	713	46700	5500@900

Fairbanks Morse				www.fairbanksmorse.com		
ALCO 251	228.0	267.0	6 - 18	127.3 - 191.4	900 - 1200	17.5 - 18.9
GE Diesel				www.getransportation.com		
V228	229.0	267.0	8 - 16	149.1 - 210	900 - 1050	18.2 - 21.9
V250	250.0	320.0	12 - 16	227 - 291	900 - 1050	19.3 - 21.2
GUASCOR				www.guascor.com		
F180	152.0	165.0	6	30.7 - 79.3	1500 - 2000	6.8 - 17.7
F240	152.0	165.0	8	53.3 - 79.4	1500 - 1800	12.3 - 17.7
F360	152.0	165.0	12	49.0 - 79.4	1500 - 2000	12.3 - 17.7
F480	152.0	165.0	16	58.4 - 79.5	1500 - 1800	13 - 17.7
HANSHIN				www.hanshin-dw.co.jp		
6L24GSH	240.0	400.0	6	79.7	400	13.2
LH26	260.0	440.0	6	147.0	420	18.0
LH26/A	260.0	440.0	6	171.5	450	19.6
LC26	260.0	440.0	6	104.2	400	13.4
MUH	280.0	340.0	6	294.2	780	21.6
MX	280.0	380.0	6 - 8	303.4 - 306.5	730	21.3 - 21.5
LH28	280.0	460.0	6	171.5	395	18.4
LH30L	300.0	600.0	6	220.5	300	20.8
LH31	310.0	530.0	6	220.5	370	17.9
LH32L	320.0	640.0	6	245.2	280	20.4
LH34LA	340.0	640.0	6	269.7	280	19.9
LA34	340.0	720.0	6	294.2 - 306.5	260 - 265	21.2 - 21.7
LH36L/LA	360.0	670.0	6	294.2 - 367.8	240 - 270	20.7 - 21.3
LH41L/LA	410.0	800.0	6	404.5 - 441.3	225 - 240	20.4 - 20.9
LH46L/LA	460.0	880.0	6	490.3 - 551.5	200 - 220	20.1 - 20.6
ISOTTA FRASCHINI				www.isottafraschini.it		
1300	130.0	126 / 142	6 - 12	36.7 - 116.7	1800 - 2800	13 - 26.5
1700	170.0	170.0	8 - 16	87.5 - 146.9	1800 - 2000	15.1 - 21.8
VL 1716 T2	170.0	185.0	16	122.5 - 168.8	1800 - 2000	19.4 - 24.1
VL 1716 HPCR	170.0	185.0	16	147.5 - 162.5	2030 - 2100	20.8 - 22.1
FPT				www.ivecomotors.com		
N40 250	102.0	120.0	4	31.3 - 46.0	2800	13.7 - 20.1
N60 370	102.0	120.0	6	33.2 - 45.3	2800	14.5 - 19.8
NEF	104.0	132.0	4 - 6	15.3 - 68.7	2500 - 3000	5.9 - 24.5
CURSOR C78	115.0	125.0	6	24.5 - 67.5	2000 - 2600	11.3 - 24.0
C90	117.0	135.0	6	55.2 - 76.0	2500	18.2 - 25.1
CURSOR C13	135.0	150.0	6	40.5 - 101.2	1800 - 2400	12.6 - 23.5
VECTOR	145.0	152.0	8	62.5 - 110.4	1800 - 2300	16.6 - 22.9

Isuzu Motors America www.isuzuengines.com

Model	Bore	Stroke (cu. in.)	Cyl.	Displacement (in.)	Weight
UM6HK1WMAB2H	4.52	4.92	6	7.8 L (476)	1676
UM6HK1WMAB3H	4.52	4.92	6	7.8L (476)	1676
UM6WG1TCAA1K	5.79	6.06	6	15.7L (958)	3219
UM6WG1TCAA2K	5.79	6.06	6	15.7L (958)	3220
UM6WG1WMAB1K	5.79	6.06	6	15.7L (958)	3220
UM6WG1WMAB2K	5.79	6.06	6	15.7L (958)	3220
UM6WG1WMAB3K	5.79	6.06	6	15.7L (958)	3220
Export Models					
UM4JB1TCX	3.66	4.02	4	2.8L (169)	650
UM4JG1TCX	3.66	4.02	4	2.8 L (169)	738
UM4BG1TCX	3.94	4.13	4	4.3 L (262)	1160
UM6BG1TCX	4.13	4.92	6	5.8L (305)	1521
UM6HE1TCX	4.33	4.92	6	7.2L (439)	1598
UM6SD1TCX	4.63	5.71	6	9.5L (579)	2283

JOHN DEERE				www.johndeere.com/marine		
POWERTECH	4.5L	106.0	127.0	4	19.5 - 28	2300 - 2600	8.9 - 11.5
POWERTECH	6.8L	106.0	127.0	6	19.7 - 37.3	2200 - 2600	8.8 - 15.4
POWERTECH	9.0L	118.0	127.0	6	40.3 - 62.2	2100 - 2400	16.6 - 22.4
POWERTECH	13.5L	132.0	165.0	6	51.0 - 93.2	1800 - 2200	15.1 - 22.5
KELVIN				www.britishpolarengines.co.uk		
6137	137.0	156.0	6	27.0 - 40.3	1800 - 2200	6.4 - 11.7
KEL140-6M	140.0	165.0	6	59.0	1800	15.1
140-6	140.0	165.0	6	59.0	1800	15.1
TBSC8	165.0	184.0	8	49.9	1350	11.5
TA	165.0	184.0	6 - 8	28.0 - 41.7	1200	7.2 - 10.8
KEL170-6M	170.0	170.0	6	93.3	1800	15.2
MAK				www.mak-global.com		
M20C	200.0	300.0	6 - 9	170 - 190	900 - 1000	24.0 - 24.2
M25C	255.0	400.0	6 - 9	290 - 333	720 - 750	23.5 - 26.1
M32C	320.0	480.0	6 - 9	480 - 500	600	24.9 - 25.9
VM32C V	320.0	420.0	12 - 16	480 - 500	720 - 750	23.7
M43C	430.0	610.0	6 - 9	900 - 1000	500 - 514	23.7 - 27.1
VM43C	430.0	610.0	12 - 16	900 - 1000	500 - 514	23.7 - 27.1
MAN DIESEL & Turbo				www.mandieselturbo.com		
S35MC-C9	350	1550	5, 6, 7, 8	595 - 870	142 - 167	16.7 - 21.0
S35ME-B9	350	1550	5, 6, 7, 8	595 - 870	142 - 167	16.7 - 21.0
S40MC-C9	400	1770	5, 6, 7, 8	770 - 1135	124 - 146	16.8 - 21.0
S40ME-B9	400	1770	5, 6, 7, 8	770 - 1135	124 - 146	16.8 - 21.0
S46MC-C8	460	1932	5, 6, 7, 8	940 - 1380	110 - 129	16.0 - 20.0
S46ME-B8	460	1932	5, 6, 7, 8	940 - 1380	110 - 129	16.0 - 20.0
S50MC-C8	500	2000	5, 6, 7, 8, 9	1130 - 1660	108 - 127	16.0 - 20.0
S50ME-C8	500	2000	5, 6, 7, 8, 9	1130 - 1660	108 - 127	16.0 - 20.0
S50ME-B8	500	2000	5, 6, 7, 8, 9	1130 - 1660	108 - 127	16.0 - 20.0
S50ME-B9	500	2214	5, 6, 7, 8, 9	1210 - 1780	99 - 117	16.8 - 21.0
G50ME-B9	500	2500	5, 6, 7, 8, 9	1170 - 1720	85 - 100	16.8 - 21.0
L60MC-C8	600	2022	5, 6, 7, 8, 9	1600 - 2340	105 - 123	16.0 - 20.0
L60ME-C8	600	2022	5, 6, 7, 8, 9	1600 - 2340	105 - 123	16.0 - 20.0
S60MC-C8	600	2400	5, 6, 7, 8	1610 - 2380	89 - 105	16.0 - 20.0
S60ME-C8	600	2400	5, 6, 7, 8	1610 - 2380	89 - 105	16.0 - 20.0
S60ME-B8	600	2400	5, 6, 7, 8	1610 - 2380	89 - 105	16.0 - 20.0
G60ME-C9	600	2790	5, 6, 7, 8	1700 - 2680	77 - 97	16.8 - 21.0
S65MC-C8	650	2730	5, 6, 7, 8	1960 - 2870	81 - 95	16.0 - 20.0
S65ME-C8	650	2730	5, 6, 7, 8	1960 - 2870	81 - 95	16.0 - 20.0
L70MC-C8	700	2360	5, 6, 7, 8	2200 - 3270	91 - 108	16.0 - 20.0
L70ME-C8	700	2360	5, 6, 7, 8	2200 - 3270	91 - 108	16.0 - 20.0
S70MC-C8	700	2800	5, 6, 7, 8	2210 - 3270	77 - 91	16.0 - 20.0
S70ME-C8	700	2800	5, 6, 7, 8	2210 - 3270	77 - 91	16.0 - 20.0
G70ME-C9	700	3256	5,, 6, 7, 8	2310 - 3640	66 - 83	16.8 - 21.0
K80ME-C9	800	2600	6,7, 8, 9,10,11,12	3280 - 4530	94 - 104	16.0 - 20.0
S80ME-C8	800	3200	6, 7, 8	3090 - 4500	72 - 84	16.0 - 20.0
S80ME-C9	800	3450	6, 7, 8, 9	3330 - 4510	72 - 78	16.0 - 20.0
G80ME-C9	800	3720	6, 7, 8, 9	3040 - 4450	58 - 68	16.8 - 21.0
S90ME-C8	900	3188	6, 7, 8, 9	3890 - 5270	72 - 78	16.0 - 20.0
S90ME-C9	900	3260	5, 6, 7, 8, 9, 10, 11, 12, 14	4200 - 5810	76 - 84	16.0 - 20.0
K98ME-C7	980	2400	6, 7, 8, 9, 10, 11, 12, 14	4510 - 6020	97 - 104	15.4 - 19.2
K98ME7	980	2660	6, 7, 8, 9, 10, 11, 12, 14	4630 - 6230	90 - 97	15.4 - 19.2
MAN DIESEL						
L16/24	160	240	5, 6, 7, 8, 9 L	90 - 110	1000 - 1200	20,7- 23,6
L23/30H	230	300	5,6,7,8 L	130-160	720 - 900	17.1 - 17.4
L21/31	210	310	5, 6, 7, 8, 9 L	200-220	900 - 1000	22,4-27,3
L28/32H	280	320	5, 6, 7, 8, 9 L	210 - 220	720 - 750	17.8 - 17.9
L27/38	270	380	5, 6, 7, 8, 9 L	300 - 340	720 - 800	23.0 - 25.3
L27/38/GO (DMA fuel)	270	380	6, 7, 8, 9 L	350 - 365	720 - 800	25.2 - 26.8
L+V32/40	320	400	6, 7, 8, 9 L, 12, 14, 16, 18 V	450-500	720 - 750	22,4-25,9
L+V32/44CR	320	440	6, 7, 8, 9, 10 L, 12, 14, 16, 18, 20V	510-560	720 - 750	24,0-26,4
V28/33D	280	330	12, 16, 20 V	455-500	1000-1032	26,9-28,6
V28/33D STC	280	330	12, 16, 20 V	455 - 500	1000 -1032	26.9 - 28.6
L+V48/60 CR	480	600	6, 7, 8, 9 L, 12, 14, 16, 18V	1200	500 - 514	25.8 - 26.5
L58/64	580	640	6, 7, 8, 9 L	1400	428	23.2
Diesel Gas Engines						
L+V51/60 DF	510	600	6, 7, 8, 9 L, 12, 14, 16, 18V	975 - 1000	500 - 514	19.1
MATSUI DIESEL				www.matsui-j.co.jp		
MU323	230.0	380.0	3	24.5 - 99.4	420	9.1 - 19.7
ML624G/A/H/S/C	240.0	400.0	6	42.9 - 110.3	420 - 420	6.9 - 17.7
ML624	240.0	400.0	6	42.9 - 61.3	420	6.9 - 13.1
ML626GSC	260.0	480.0	6	61.3 - 161.6	310 - 410	10.8 - 18.6
ML627GSC	270.0	480.0	6	73.6 - 186.4	300 - 410	10.7 - 19.9
MS28BGFC	280.0	500.0	6	184	390	18.4
MA28GSC	280.0	540.0	6	85.8 - 183.9	290 - 365	10.7 - 18.0
MA29GSC	290.0	540.0	6	85.8 - 208.4	290 - 375	10.0 - 19.0
MA31GSC	310.0	600.0	6	122.6 - 220.7	260 - 320	12.5 - 19.5
MA32GSC	320.0	600.0	6	122.6 - 245.2	270 - 320	11.3 - 19
MA33GSC	330.0	600.0	6	269.7 - 281.8	330 - 340	19.1 - 19.4
MEGATECH				www.megatechpower.com.br		
MWM	93.0	103.0	4 - 6	29.2 - 35.4	3200 - 3900	13.9 - 19
OM364/6	97.5	133.0	4 - 6	15.9 - 49.0	2600 - 2900	7.4 - 20.4
OM906 LA EUI	102.5	130.0	6	53.9	2600	23.2
OM926 LA EUI	106.0	136.0	6	61.3	2900	21.1
MB 447LA	128.0	155.0	6	46.6 - 73.6	1800 - 2300	15.6 - 19.2
MB 447PE	128.0	155.0	6	88.3	2400	22.1
OM447	128.0	155.0	6	27 - 42.9	1800 - 2200	7.4 - 13.5
MB 457PE	132.5	155.0	6	98.1	2400	22.9
MERMAID				www.mermaid-marine.co.uk		
J444TA	102.0	132.0	4	23.3	2200	11.8
MITSUBISHI				www.mhi.co.jp/index.html		
S6M	117.0	135.0	6	61.3	2550	19.9
S6B	135.0	150.0	6	38.5 - 53.5	2000 - 2200	10.8 - 13.6
S6N	160.0	180.0	6	36.8	1430	8.5
SA2	150.0	160.0	12	52.8 - 71.5	1940 - 2100	11.6 - 14.4
SA3	150.0	175.0	6	60 - 81.7	1800 - 1960	12.6 - 16.2
SR	170.0	180.0	6 - 16	73.1 - 100.8	1600 - 1800	13.5 - 16.4
SR2	170.0	220.0	6	74.2 - 94.2	1350 - 1500	13.2 - 15.1
SU	240.0	260.0	6 - 16	165 - 202.3	1060 - 1200	15.9 - 17.2
Mitsubishi Heavy Industries www.mhi.co.jp/index.html						
UE33LSII	330.0	1050.0	4 - 8	306.7 - 567.5	162 - 215	12.5 - 17.3
UEC35LSE	350.0	1550.0	5 - 8	695 - 870	142 - 167	16.7 - 21.0
UEC40LSE	400.0	1770.0	5 - 8	910 - 1135	124 - 146	16.8 - 21.0
UE37LA	370.0	880.0	4 - 8	280 - 520	158 - 210	11.4 - 15.7
UE37LSII	370.0	1290.0	5 - 8	420 - 772	158 - 210	12.5 - 17.3
UE43LSII	430.0	1500.0	4 - 8	570 - 1050	120 - 160	12.5 - 18.1
UE45LA	450.0	1350.0	4 - 8	477.5 - 889	119 - 158	11.5 - 15.7
UE50LSII	500.0	1950.0	4 - 8	144.5 - 1445.1	95 - 127	12.5 - 17.3
UE50LSE	500.0	2050.0	5 - 8	1160 - 1660	99 - 124	13.9 - 20.0
UE52LA	520.0	1600.0	4 - 8	640 - 1180	100 - 133	11.3 - 15.7
UE52LS	520.0	1850.0	4 - 8	720 - 1320	90 - 120	12.2 - 16.9
UE52LSE	520.0	2000.0	4 - 12	930 - 1700	95 - 127	13.8 - 19.4
UE60LA	600.0	1900.0	4 - 8	840 - 1550	83 - 110	11.3 - 15.7
UE60LS	600.0	2200.0	4 - 8	950 - 1770	75 - 100	12.2 - 17.1
UE60LSII	600.0	2300.0	4 - 8	1075 - 1986	79 - 105	12.5 - 17.3
UE60LSE	600.0	2400.0	5 - 8	1530 - 2255	90 - 105	15.0 - 19.0
UE68LSE	680.0	2690.0	5 - 8	2010 - 2940	81 - 95	15.2 - 19.0
UE75LSII	750.0	2800.0	4 - 9	1595 - 2940	63 - 84	12.5 - 17.0
UE85LSC	850.0	2360.0	5 - 12	2115 - 3900	76 - 102	12.5 - 17.1
UE85LSII	850.0	3150.0	4 - 9	1980 - 3860	54 - 76	12.6 - 17.0
MTU				www.mtu-online.com		
2000	130.0	150.0	8 - 16	50 - 93.2	1800 - 2350	15.9 - 23.6
SERIES 60	133.0	168.0	6	43.5 - 102.5	1800 - 2300	12.4 - 22.9
2000CR	135.0	156.0	8 - 16	50 - 112	1800 - 2450	14.9 - 25.5
4000 "00/01"	165.0	190.0	8 - 16	87.5 - 170	1600 - 2100	16.1 - 23.9
4000 "03"	170.0	190.0	8 -20	145 - 215	1500 - 2170	20.2 - 28.5
4000 "03"	170.0	210.0	8 - 16	93 - 140	1600 - 1800	14.7 - 19.6
1163	230.0	280.0	12 - 20	300 - 370	1200 - 1300	25.8 - 29.3
8000	265.0	315.0	20	360 - 455	1150 - 1200	21.6 - 27.3
SCANIA				www.scania.com		
DI 12M	127.0	154.0	6	49 - 85.8	1800 - 2300	15.4 - 23.3
DI 16M	127.0	154.0	8	48.3 - 73.6	1800 - 2200	15.5 - 20.1
SEATEK				www.seatek-spa.com		
620 PLUS	127.0	135.0	6	76.0	2600	20.5
660 PLUS	127.0	135.0	6	80.8	3100	18.3
725 PLUS	127.0	135.0	6	88.8	3100	20.1
820 PLUS	127.0	135.0	6	100.5	3100	22.7
850+ ELETTRONICO 23.6	127.0	135.0	6	104.2	3100	
880CR	127.0	135.0	6	107.9	3100	24.4
950+ BiTurbo	127.0	135.0	6	93.3 - 116.3	2800 - 3200	23.4 - 25.5
STEYR				www.steyr-motors.com		
M1	85.1	94.0	4 - 6	15.0 - 31.8	2600 - 4500	12.2 - 17.7

BRAND/NAME/ Model Series	Bore	Stroke	Cyl#	kW/cyl	RPM	BMEP
VOLVO PENTA				www.penta.volvo.se		
D3	81.0	93.2	5	16.2 - 32.4	3000 - 4000	12 - 20.2
D4	103.0	110.0	4	33.0 - 55.3	2800 - 3500	15.4 - 20.7
D5	108.0	130.0	4	18.0 - 29.5	1900 - 2300	8.9 - 12.9
D6	103.0	110.0	6	34.3 - 53.3	3500	12.8 - 19.9
D7	108.0	130.0	6	18.0 - 32.5	1900 - 2300	9.0 - 14.5
D9	120.0	138.0	6	36.8 - 70.9	1800 - 2600	15.7 - 20.9
D11	123.0	152.0	6	82.2	2300	23.7
D12	131.0	150.0	6	49 - 95	1800 - 2300	16.2 - 24.5
D13	131.0	158.0	6	110.3	2300	27
Wärtsilä				www.wartsila.com		
20	200.0	280.0	4 - 9	180 - 200	1000	24.6 - 28.0
26	260.0	320.0	6 - 16	310 - 340	900 - 1000	22.9 - 25.5
32	320.0	400.0	6 - 18	500.0	750	24.9
38B	380.0	475.0	6 - 16	725.0	600	27
46	460.0	580.0	6 - 16	1000	500 - 514	24.2 - 24.9
46F	460.0	580.0	6 - 12	1200.0	600	24.9
64	640.0	900.0	6 - 8	2150	327 - 333	26.7 - 27.2
RTA/RT-flex35	350.0	1550.0	5 - 8	695 - 870	142 - 167	16.7 - 21.0
RTA/RT-flex40	400.0	1770.0	5 - 8	910 - 1135	124 - 146	16.8 - 21.0
RTA48T	480.0	2000.0	5 - 8	820 - 1360	99 - 124	11 - 18.2
RTA/RT-flex48TD	480.0	2000.0	5 - 8	1020 - 1455	102 - 127	13.3 - 19
RTA/RT-flex50(B)	500.0	2050.0	5 - 8	1160 - 1660	99 - 124	13.9 - 20.0
RTA/RT-flex50(D)	500.0	2050.0	5 - 8	1220 - 1745	99 - 124	14.7 - 21.0
RTA52UB	520.0	1800.0	5 - 8	1120 - 1600	110 - 137	12.8 - 18.3
RTA58T	580.0	2416.0	5 - 8	1200 - 2000	84 - 115	10.9 - 18.3
RTA/RT-flex58TB	580.0	2416.0	5 - 8	1530 - 2180	84 - 105	13.7 - 19.5
RTA/RT-flex60CB	600.0	2250.0	5 - 8	1690 - 2420	91 - 114	14.0 - 20.0
RTA62U	620.0	2150.0	5 - 8	1165 - 2220	82 - 113	10 - 18.2
RTA62UB	620.0	2150.0	5 - 8	1600 - 2285	92 - 115	12.9 - 18.4
RTA/RT-flex68TB	680.0	2720.0	5 - 8	2150 - 3070	76 - 95	13.7 - 19.6
RTA/RT-flex68TD	680.0	2720.0	5 - 8	2190 - 3130	76 - 95	14.0 - 20.0
RTA72U	720.0	2500.0	5 - 8	1640 - 2990	70 - 97	10 - 18.3
RTA72UB	720.0	2500.0	5 - 8	2155 - 3080	79 - 99	12.8 - 18.3
RTA/RT-flex82C	820.0	2646.0	6 - 12	3620 - 4520	87 - 102	15.2 - 20.0
RTA/RT-flex82T	820.0	3375.0	6 - 9	3620 - 4520	68 - 80	15.2 - 20.0
RTA84C	840.0	2400.0	6 - 12	2840 - 4050	82 - 102	12.6 - 17.9
RTA84TB	840.0	3150.0	5 - 9	2130 - 3880	54 - 74	9.9 - 18.0
RTA/RT-flex84TD	840.0	3150.0	5 - 9	2940 - 4200	61 - 76	13.3 - 19.0
RTA/RT-flex96C	960.0	2500.0	6 - 14	4000 - 5720	92 - 102	13 - 18.6
WEICHAI				www.weifang-diesel.com		
226	105.0	120.0	4 - 6	18.4 - 22.6	1500 - 2100	10.3 - 14.1
WD615	126.0	130.0	6	14.7 - 34.5	1500 - 2350	7.2 - 12.8
WESTERBEKE				www.westerbeke.com		
108C-6	91.9	101.6	6	13.3	3600	6.6
Century	105.0	125.0	6	15.5 - 21.5	2200 - 2400	7.2 - 10.8
YAMAHA						
ME420	94.0	100.0	6	31.1	3700	14.5
ME580	104.0	113.0	6	26.7	3000	11.1
YANMAR				www.yanmar.com		
BY	84.0	90.0	4 - 6	20.7 - 33.0	3600 - 4000	13.8 - 19.8
JH3	84.0	90.0	4	17.5 - 23.0	3400 - 3800	12.4 - 14.5
6LP	94.0	100.0	6	31.1 - 39.0	3800	14.1 - 17.7
4LH	100.0	110.0	4	20.5 - 42.9	3100 - 3300	11.0 - 18.1
6LY	100.0	110.0	6	35.5 - 45.4	3100 - 3300	15.9 - 19.1
6CH	105.0	125.0	6	16.2 - 34.8	2600	6.9 - 14.8
6LY	106.0	110.0	6	42.8 - 58.9	3100 - 3300	17.1 - 22
6CX	110.0	130.0	6	53.9 - 65.2	2750 - 2900	17.9 - 21.8
6GH	117.9	140.0	6	46.7 - 54.7	2300	15.9 - 18.7
SY	127.0	154.0	6 - 8	82.8 - 88.3	2300	22.1 - 23.6
6HA	130.0	150.0	6	25.6 - 44.7	2100	7.3 - 12.8
6HY	132.9	165.0	6	61.3 - 85.8	1950 - 2200	16.5 - 20.4
LA	148.0	165.0	6 - 12	51.3 - 74.6	1800 - 1900	12 - 16.6
L	150.0	165.0	6 - 16	67.4 - 83.4	1650 - 1950	14.9 - 17.6
6AY	155.0	180.0	6	101.7	1900	18.9
N	160.0	200.0	6	55.2	1350	12.2
S	165.0	210.0	6	24.5 - 55.2	1200 - 1300	5.5 - 11.3
GL	240.0	290.0	6 - 12	147.0	750	17.9
6G250L	250.0	290.0	6	162.0	750	18.2
6T260L	260.0	330.0	6	184.0	750	16.8
N260	260.0	360.0	6	245.2	750	20.5
EY	260.0	385.0	5 - 6	233 - 368	720 - 750	18.3 - 28.3
ZL	280.0	340.0	6 - 12	221.0	750	16.9
N280	280.0	380.0	6 - 8	239 - 306.5	1720	7.1 - 9.1
N330	330.0	440.0	6 - 8	367.8 - 413.8	1620	7.2 - 8.4
MF33	330.0	620.0	6	196.2 - 269.7	300	14.8 - 20.3

About the Diesel Engine Directory

Printed here is a sampling of the Marine Diesel Engine ratings at MaritimePropulsion.com

* **Output ratings vary according to emission requirements.**

** **Every care has been taken in the preparation of this data. The publisher cannot be held responsible for any errors or omissions.**

*** **Manufacturers can update their listings with complete model information. For details, Email: intern@marinelink.com**

Michel Sirat Appointed CFO of CMA CGM Group


Copyright CMA CGM

CMA C M roup has appointed Michel Sirat to the position of roup Chief Financial Officer. After eleven years at the French Ministry of Finance, Sirat joined the Suez roup where he became roup Senior ice President Finance, Tax, Treasury, Senior Executive ice President of Suez Energy NA (Houston, Texas) CEO of Suez Energy NA.

Ellis Appointed at Faststream

Faststream has appointed a new ice President to manage its team of recruitment specialists in the USA. Tamara Ellis, a former senior employee with Ranstad, will be responsible for developing Faststream's growing presence in the Maritime, Oil as and Logistics markets throughout the Americas. Based in Fort Lauderdale, Ellis has both management and hands-on recruiting experience within US and global staffing organizations.

Horizon Lines Appoints Nikkhoo

Horizon Lines, Inc. has named Ali Behruz Nikkhoo ice President and eneral Manager, Hawaii, for the company s Horizon Lines, LLC operating subsidiary. Nikkhoo will report to Brian Taylor, Executive ice President, COO and CCO of Horizon Lines, Inc.

Rickmers-Linie Appoints Nagel, Carney

After eight years at the helm of Rickmers in the United States, Jerry Nagel has been appointed Chairman of the Board of Rickmers-Linie (America) Inc. Nagel s former position as President CEO of Rickmers-Linie (America) Inc has been assumed by Sean Carney, effective June 1, 2011.

Howell Labs Appoints Roberts

Howell Laboratories appointed David T. Roberts as Director of Commercial Engineering, Marine Products. Roberts joins Howell from Bath Iron Works, where he was responsible for hull outfit systems for the umwalt destroyers.

EIVA CEO Hansen Resigns

The board of directors of maritime and offshore software provider EI A has accepted Lars Hansen's resignation as CEO. Hansen has accepted a new management position in the United States and will relocate to the US with his family towards the end of the year. The board of directors has initiated the process of recruiting a new CEO.

Keppel O&M Appoints Chow

The Board and Management of eppel Offshore Marine Ltd (eppel O M) announced that Chow ew uen was appointed Managing Director of eppel O M with effect from June 2011, reporting directly to Tong Chong Heong, CEO of eppel O M. Chow will be based in Singapore, where he will assist the CEO in all aspects of eppel O M.

Offshore Solutions Welcomes Waterstreet

Offshore Solutions B. . (OSB) has appointed Andy Waterstreet as engineering and projects manager.

Gene Rice Joins McDermott

McDermott, International, Inc. announced that ene Rice has joined one of its subsidiaries as Technical Director-Rig Repairs. In this role, Rice is responsible for the engineering development of Rig Repair Upgrade services at the company's Altamira, Mexico, facility.

Polk Appointed Commander of MPS Squadron One

Military Sealift Command Maritime Prepositioning Ship Squadron One changed leadership June 16 when Navy Capt. Ricks W. Polk relieved Navy Capt. Michael F. Ott in a ceremony aboard squadron flagship USNS 2ND LT John P. Bobo.

Ship Equip Shanghai Office Receives First Contract

The opening of the Ship Equip Shanghai Office in 2010 has proved successful with the first contract signed on May 10 with Ningbo Hai hi ing Ocean Fishery.

Navy Approves International Paint Product

International Paint's copper free antifouling has received U.S. Navy approval to MIL-PRF-24647 Type I Classes 1 2, rades A B, Applications 1 4.

Hempel Expands in India

Hempel is expanding its operations in the Indian subcontinent. The company has opened a new manufacturing unit in Nashik, Maharashtra, and plans to invest approximately 15-20 million Euros in a -year reenfield project.

Kittiwake Acquires Halroyd

ittiwake Developments announced the acquisition of Holroyd Instruments, an acoustic emission technology manufacturer. ittiwake Holroyd supplies acoustic emission instruments for the early detection of problems in a wide range of applications, all relating to monitoring the condition of rotating machinery.

Vizada, Thrane & Thrane Announce Partnership

izada and Thrane Thrane have signed a partnership agreement to launch a new broadband system. ia their shared distribution channels, the partnership will offer a maritime mobile broadband package that combines Thrane Thrane hardware with izada SAT and MSS services and solutions.

SpecTec Launches AMOS Mobile

SpecTec has launched AMOS Mobile, a handheld device software designed to remotely record and upload transactions. AMOS Mobile users can record inventory updates, create work requests, and update values for counter readings and measurement points during their normal rounds.

LR Consolidates, Moves Regional Headquarters

Lloyd's Register Americas, Inc. has moved its Houston-area operations to a new regional headquarters to capitalize on the growing opportunities arising from the new regulatory regime in the ulf, a thriving merchant marine business and concerns about global warming.

Volvo Penta Launches New Diesel Engine

olvo Penta launched its D1 MH for medium- and heavy-duty marine commercial applications. According to the company, this 1 -liter diesel engine combines exceptional durability, low fuel consumption and minimal emissions. D1 MH is available in five models with outputs from 400 to 600 hp. The engine is designed for high torque to facilitate maneuvering and features a rigid block design, wet liners, rear-end transmission, ladder frame, and single cylinder head with overhead camshaft.

www.volvo.com

Bunker Measurement Solution

Emerson's Micro Motion Certified Marine Bunker Measurement Solution for measuring heavy fuel oil (HFO) bunker deliveries is being installed on Maersk vessels. The measurement solution meets international standards for custody transfer and enables accurate, transparent and traceable HFO measurements that are accepted by fuel suppliers to Maersk. It provides real-time HFO bunker measurements that increase operational efficiency, minimize disputes, and provide automated electronic Bunker Delivery Tickets. In December 2010, the Maersk Bulan became the world's first cargo vessel equipped with a Micro Motion Certified Marine Bunker Measurement Solution. "Emerson's Micro Motion Certified Bunker Solution allows us to remove uncertainty and improve transparency on custody transfer of fuel oil, which is our largest cost item, while at the same time increasing our operational efficiency," said Jesper Rosenkrans, Maersk. "This makes our investment in Emerson's Micro Motion solution an attractive proposition. The Certified Marine Bunker Measurement Solution includes a Micro Motion ELITE Coriolis meter, Series 000 transmitter with Marine Bunker Transfer Package, and bunker delivery ticket printer.

www.Emerson.com

Digital Pressure Gage

Omega's new DP 40 series of high accuracy digital pressure gages feature a large backlit display makes it possible for the user to read digits from over 10.7m (5 ft). This DP 40 has also been tested to Industrial CE specifications. Ranges from acuum to 5000 psi are available and all units included setup software which allows for fast installation and calibration via a USB connection. The Wireless Transmitter Option sends readings to remote locations and allows for PC-based chart recording and data logging. Price starts at 6 5.

http://www.omega.com/pptst/DPG409.html

JRC 10.4-in. LCD Radar

Japan Radio Co., Ltd. (JRC) introduced the JMA- 00 series radar, an all-in-one radar featuring a bonded, ultra bright LCD. It is backlit by white LED's giving 1000 candelas of brightness. JRC engineers custom designed the System-on-Chip inside the new JMA- 00 series to be an extremely powerful tool, boasting many of the features found on larger radars. JRC's second generation automatic radar plotting aid, MARPA , is included as standard, as is the company's own 50 vessel AIS search function DirecTrak.

www.jrcamerica.com

GE to Power U.S. Navy's USS Montgomery

E Marine will provide Austal USA with two LM2500 aeroderivative gas turbines to power the United States Navy's fourth LCS-Class-Independence variant. The new LCS will be named USS Montgomery, and will be powered by the LM2500s arranged in a COmbined Diesel and as turbine (CODA) configuration with two diesel engines. Austal USA plans to launch the second LCS-Class-Independence variant USS Coronado in Austal USA in October 2012.

Readily Biodegradable Hydraulic Fluid

Terresolve Technologies offers a readily biodegradable hydraulic fluid, EnviroLogic 06 , which reportedly has passed the requirements of the Blohm oss Industries' Stabilizer roup and won approval from the erman shipping manufacturer. After significant testing, both dry and with 5 water added, Blohm oss reported Terresolve's non-toxic high-performance product has met the requirements for its Simplex-Compact S-type, -type and F-type stabilizers. These three stabilizer types cover the vast majority of marine applications performing at zero, slow and high speeds.

Intellian Develops New Comms System

Intellian Technologies launched the v60 SAT communications antenna system, which features gyro-free operation. The 60 cm, -axis system is designed for smaller vessels with space constraints, and is intended for use in mission critical operations, such as surveillance, vessel monitoring, and oice Over Internet Protocol (OIP) communication. All these applications require uninterrupted broadband connectivity, which Intellian aims to provide.

www.intelliantech.com

Marlink Vessel Tracking Service

Marlink unveiled at NorShipping a new vessel tracking service for WaveCall SAT solution customers. Available as part of Marlink's Customer Portal service, vessel tracking is designed to allow WaveCall customers to locate active vessels in real-time and improve fleet management. The service is also intended to provide users with access to bandwidth usage, terminal management, and support inquiries data.

www.marlink.com

Thordon Bearings

Canadian manufacturer Thordon Bearings' seawater lubricated propeller shaft bearings have been shortlisted for the Ocean Environmental Protection Award at the 2011 Sustainable Shipping Awards to be held in London, England, July 7, 2011.

Thordon's bearing system was designed to eliminate oil from the ship stern tube by using seawater as the lubrication medium and Thordon non-metallic bearings in place of the metal bearings. The seawater is taken from the sea, pumped through the bearing positions and out into the sea. **www.thordonbearings.com**

New Data Analytics Tool

DN Petroleum Services has released Fuel Insight, a new data analytics product for bunker fuel designed to provide real-time information on worldwide deliveries. Launched at Nor-Shipping 2011, Fuel Insight is a subscription-based web application developed to tap into the shipping industry's extensive DN PS 'live' bunker quality database. According to the company, Fuel Insight can "distil complex data on fuel prices, *ISO 217 quality parameters and regulatory compliance into accurate insights for supplier evaluation and purchase decision-making, helping ship charterers, operators and owners optimize costs and reduce risks."

www.dnv.com

Sewage Treatment

The MarineFAST sewage treatment systems, commonly referred to as a Type II (two) MSD biological (aerobic digestion) treatment system, meets the needs of commercial and leisure vessels. Available in flows of 200-1500 PD (00-5700 LPD), MarineFAST M- M -Series are ideal where access can be extremely limited. Providing years of reliable, trouble-free treatment without adjustments or the need of a skilled operator, the MarineFAST self-regulates, handling surges, overloads and light loads without problems.

www.sciencofast.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

ALUMINUM

Mandel Metals, 147 Main Street, Chardon, OH

ATTORNEYS

Blank Rome, 600 New Hampshire Avenue, NW Washington, DC 20037, Washington, DC , Germany , tel:(202) 944-3565, fax:(202) 772-5858 , www.blohmvoss.com

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

BALLAST

HF Sceintific- Watts Water, 3170 Metro Parkway, Ft. Myers, FL

BOATBUILDING AND DESIGN

Brunswick Commercial and Government Products, 420 Megan Z Avenue, Edgewater, FL Molde, Norway , tel:(386) 423 - 2900, fax:386-423-9187, BCGPinfo@brunswick.com

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

CAPSTANS

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

COATINGS/ CORROSION CONTROL/ PAINT

Eureka Chemical Company, 234 Lawrence Ave., South San Francisco, CA , tel:888-387-3522, sales@fluid-film.com

International MetalFusion Corp., PO Box 23279, Houston, TX 08003, USA , tel:409 515-0532, fax:409 419-0762, sales@metalize.net contact: Abad Rebollar, www.metalize.net

COMMUNICATIONS

Japan Radio, 1011 SW Klickitat Way, Bldg B Suite 100, Seattle, WA 98134, USA

COMMUNICATIONS SERVICE

David Clark, PO Box 15054, Worcester, MA 01615, USA , tel:1-800-298-6235, Sales@davidclark.com contact: Sales Department, www.davidclark.com

COMPOSITE SHAFTS

Centa Corp., 2570 Beverly Drive #128, Aurora, IL 60559, USA , tel:630-236-3500, fax:630-236-3565, bobl@centacorp.com

CORDAGE

Helkama Bica Oy, Lakimiehenkatu 4, KAARINA FI-20780, Finland , tel:+358-2-410 8700, sales@helkamabica.fi

CORROSION CONTROL

International MetalFusion Corp., PO Box 23279, HOUSTON, TX , tel:409 515-0532, fax:409 419-0762, sales@metalize.net contact: Abad Rebollar, www.metalize.net

COUPLINGS

Centa Corp., 2570 Beverly Drive #128, Aurora, IL 60559, USA

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

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

Smith Berger Marine, 7915 10th Ave. S., Seattle, WA 98108, USA

DIESEL ENGINE- SPARE PARTS & REPAIR

Motor-Services Hugo Stamp, 3190 SW 4th Avenue, Ft. Lauderdale, FL 33315, USA , tel:954 763-3660, fax:954 763-2872 , www.mshs.com

DRIVES

Konrad Marine-, 1421 Hanley Road Hudson, WI 54016 USA

ELECTRIC PROPULSION

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

ELECTRICAL SERVICES

Ward's Marine Electric, 617 SW 3rd Avenue Fort Lauderdale, Fort Lauderdale, FL , tel:(954) 523-2815 x124, fax:(954) 523-1967, sales@wardsmarine.com

ELECTRONICS/NAVIGATION COMMUNICATIONS SERVICE AND

Japan Radio, 1011 SW Klickitat Way, Bldg B Suite 100, Seattle, WA 98134, USA

ENGINE AND COMPONENT ALIGNMENT

Dynamold, Inc., 2905 Shamrock Ave., Fort Worth, TX 76107, USA , tel:817-335-0862, fax:817-877-5203, pmpeck@dynamold.com contact: Michael Peck, www.dynamold.com

GALLEY EQUIPMENT

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

LOIPART AB, P.O.Box 694/Metallgatan 2-4, ALINGS?S , tel:+46 322 668 360, fax:+46 322 637 747, loipart@loipart.se

GOVERNORS

New York State Canal Corporation, Interchange 23, Rt 9w, Albany, NY

GYROCOMPASS

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

HOISTS

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

HVAC

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

HYDRAULIC MANUFACTURING AND SALES

Pennecon Energy, 2 Maverick Place, Paradise NL , tel:709 726-3490, mn1@pennecon.com contact: Eddy Knox, www.pennecon.com

INSURANCE SERVICES

WQIS (Water Quality Insurance Syndicate), 60 Broad Street 33rd Floor, New York, NY

INTERIORS

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

JOINER- WATERTIGHT DOOR- PANELING-CEILING SYSTEM

Thermax Marine-Panel Specialists, Inc., 3115 Range Rd., Temple, TX 76501, USA

LIFESAVING EQUIPMENT

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

LUBRICANTS

Varna Products, 4305 Business Drive Cameron Park, CA 95682 , tel:530-676-7770, fax:530-676-7798, tmcachran@VARNAproducts.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

NAV/COMM EQUIPMENT

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SATELLITE COMMUNICATIONS

Delta Wave Communications, Inc., 8001 Hwy 182 E. Morgan City, LA 70380, Morgan City , tel:(985) 384-4100, fax:(504) 617-6393, tom.clark@deltawavecomm.com

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

Superior Lidgerwood Mundy, 1101 John Ave., Superior, WI 54880, USA

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Tankerman
Job Location: USA, U.S Gulf Coast

HARLEY MARINE SERVICES
JOB TITLE: Tankerman LOCATION: U.S. Gulf Coast
GENERAL JOB DESCRIPTION:
Responsible for the safe and efficient transfer of petroleum products between barges, ships,
and facilities including completion of bills of lading and gauge reports.
JOB RESPONSIBILITIES AND DUTIES:
The job responsibilities include, but are not limited to the following:Monitor product level in tanks, operate diesel engines, operate cargo pumps, operate tank/pipeline valves, and operate manual and hydraulic booms. Communicate with foreign crews and oil facility personnel. Adjust and secure barge lines. Complete loading and discharge gauge reports. Load 55-gallon drums. Inspect vessel for Coast Guard and state regulatory compliance.
KNOWLEDGE, SKILLS AND ABILITIES:
- Must have physical ability to maneuver cargo hoses, handle barge lines and board vessels by use of an accommodation ladder, Jacob's ladder or tugboat.
- Must possess good communication skills by voice and/or visual hand signals.
- Ability to do accurate paperwork. Knowledge of basic arithmetic skills (add, subtract, multiply, and divide).
- Knowledge of Coast Guard and state requirements for transfer operations.
- Knowledge of company safety practices
-Must be able to read, speak, and understand English over telephone and/or radio
jobs@harleymarine.com
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Foreman-Fabrication & Fitout
Job Location: USA, Mobile, AL

Foreman-Fabrication & Fitout: Austal USA is seeking to fill the position of Foreman—Fabrication & Fitout.

This position will be responsible for implementing all production schedules, monitoring & maintenance of schedules and adequate stock levels in conjunction with Supervisors and ensure adherence to established construction procedures. Additional responsibilities include, but are not limited to sourcing and distributing information to Supervisors, liaising with and directing contractors, monitoring resource levels and ensuring distribution of resources to meet production levels, ensuring safe working practices and good housekeeping are maintained in all areas, as well as, make certain Austal's policies and procedures are followed.

Candidate will be accountable for guaranteeing all Supervisors under their control are complying to the Ten Fundamental rules of Supervision and the Leadership Creed, ensure all time charges are processed and allocated on a daily basis, provide proactive and consistent feedback to Supervisors regarding quality, cost, delivery, safety and morale.

Qualified candidate will maintain positive morale and minimize confrontation among other crew members, maintain a succession plan and identify key personnel while implementing training programs. Candidates must display good working knowledge of planning and monitoring, be able to work under pressure in a fast-paced environment and must have excellent people management skills.

Fabrication Qualifications: Candidate must have 3 years experience at Austal or a total of 5 years shipbuilding, minimum 2 years supervision, sound knowledge of Austal's scheduling format & reports including: manning requirements, late starting tasks, late finishing tasks, 21 day look ahead and physical percent complete and must have sound computer skills in Excel, Word and Outlook.

Fitout Qualifications: Candidate must have 5 years supervisory experience in marine and/or industrial construction, be able to perform all tasks associated with Fitout Supervisory position, must have working knowledge of marine joiner/carpentry, insulation HVAC and paint. Experience with EVMS (Earned Value Management Systems) a plus. Candidate must have working knowledge of Microsoft Excel, Word and other software products.

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Austal

AL USA
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Email: dana.harris@austalusa.com
Web: http://www.austaljobs.com

Fire & Marine Diesel Mechanic
Job Location: USA, Tacoma, WA

The Tacoma Fire Department has a temporary (approximately 90 days) Fire Marine Diesel Mechanic position. A Fire and Marine Diesel Mechanic performs specialized, skilled work in the repair and maintenance of a variety of Fire Department equipment, vehicles and fireboats. Duties include inspecting, adjusting, diagnosing, and repairing diesel and gas engines, transmissions, drive trains, brakes, air systems, fire pumps, valves, and electrical systems. Other duties include ordering parts, filling out work orders, operating a computer, and designing and fabricating parts and tools.

Requires graduation from high school or equivalent and experience in the overhaul and maintenance of fire apparatus, diesel vehicles, fireboats, or light duty vehicles in a full-service repair shop as one of the following:

•Four years as a journey level mechanic
•Five years of experience as an apprentice/journey level mechanic
•Six years of experience as a City of Tacoma VESA

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Rodney Croston
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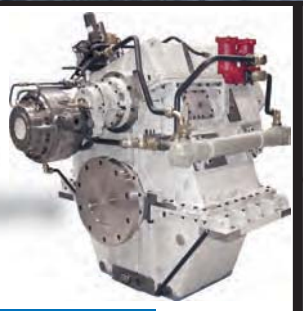

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