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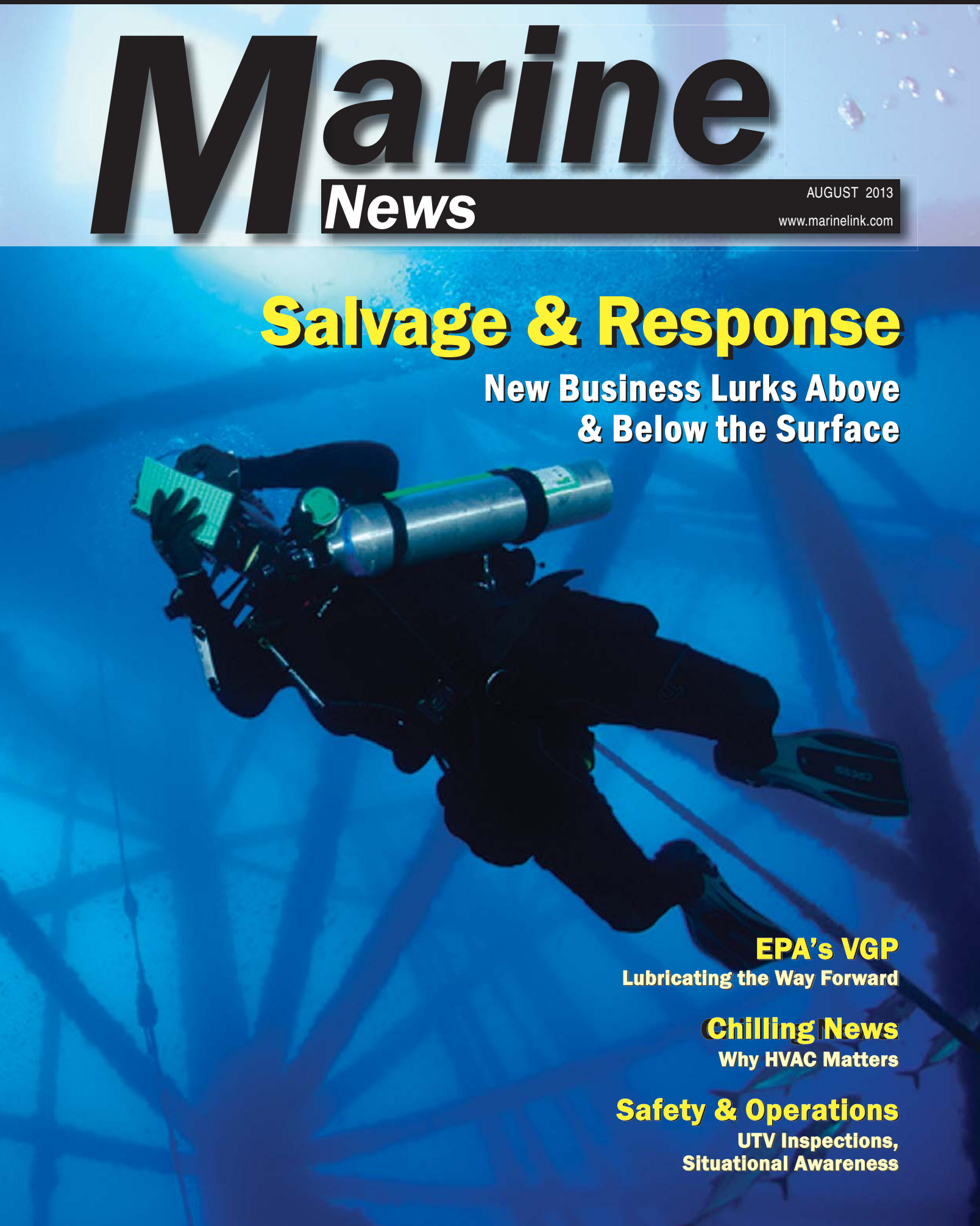

Salvage & Response

New Business Lurks Above & Below the Surface

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On the Cover

34 Danger Lurking: Above and Below the Surface

Salvage in 2013 involves far more than just traditional response roles. That's because today's salvors not only act as front line environmental stewards, their work is also branching out into some unconventional areas. Starting on page 34, Susan Buchanan lays out how, why and where.

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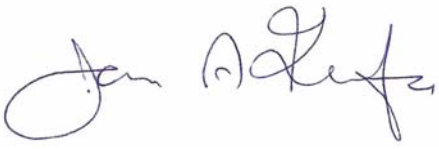
You may have noticed that a common theme for this page of the magazine, from month to month, is the regulatory environment that we collectively find ourselves facing on a daily basis. With the vast majority of new rules aimed at improving the safety of shipping and ultimately, the environment itself, it is no wonder that the forward-thinking operator is way out in front of most of these mandates. Charles Darwin's theory is alive and well on the water in 2013. Those who adapt will likely flourish and those who do not find themselves absorbed by others – or worse. The fascinating dance gives us something to write about; it gives you purpose to your daily work and it spawns new equipment and jobs that keep the maritime business engines churning.

Salvaging some sanity out of the coming six months is the real challenge for vessel operators. The latest iteration of the Environmental Protection Agency's Vessel General Permit (VGP) comes into effect later this year, right on the heels of the Maritime Labor Convention (MLC) of 2006, which comes into play in August. The United States has not ratified MLC Code, and probably never will. But that didn't stop the U.S. Coast Guard from issuing some guidance on the matter, ever mindful that U.S. flagged tonnage does, occasionally, hit foreign shores. Also lurking out there are the proposed Subchapter M Rules and the initial deadlines for ballast water treatment (BWT) system installations.

To be fair, none of the above has much to do with the traditional role of salvage – the headline focus of this edition – nor will all new regulations impact all ***MarineNews*** readers. But, it's a good bet that you and your team are now in the midst of preparations to address one or more of these mandates. Separately, the salvage community has its own issues to contend with, not the least of which involves the question of responder immunity. The implementation USCG OPA 90 Tank Vessel Salvage and Marine Firefighting (SMFF) regulation has long since past, but salvors and responders continue to evolve to meet, and exceed the intent of the rules. This edition of ***MarineNews*** therefore covers salvage from A to Z, touching upon everything from current events to coming sources of business.

Digging deeper into the world of modern salvage, the real "take-away" is that today's salvors are increasingly becoming the best environmental stewards possible for the greater maritime community. That's because salvage goes beyond just saving the day on the "big one." It involves coastal restoration, hi-tech training, ship reefing, mitigating potential oil spills from sunken wrecks before they happen, and even the removal of yesterday's defunct, offshore oil-and-gas platforms. On hand to explain all of that this month are Resolve Marine's Joe Farrell, ***MarineNews*** contributor Susan Buchanan and even the leadership of the American Salvage Association. Salvage has truly evolved to become one of the most interesting aspects waterborne commerce. After reading this edition of ***MarineNews***, you won't have to wonder why any longer.



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NOAA Identifies Lurking Environmental Threats

A new NOAA report that examines national oil pollution threat from shipwrecks has been presented to the U.S. Coast Guard. With as many as 20,000 recorded shipwrecks in NOAA's database, the May 2013 report finds that just 36 sunken vessels scattered across the U.S. seafloor could pose an oil pollution threat to the nation's coastal marine resources. Of those, 17 were recommended for further assessment and potential removal of both fuel oil and oil cargo. Based on vessel contents, condition, environmental sensitivity, and other factors, NOAA has determined that 6 vessels are high priority for a Most Probable (10%) discharge, and 36 are high priority for a Worst Case Discharge (Table ES-1).

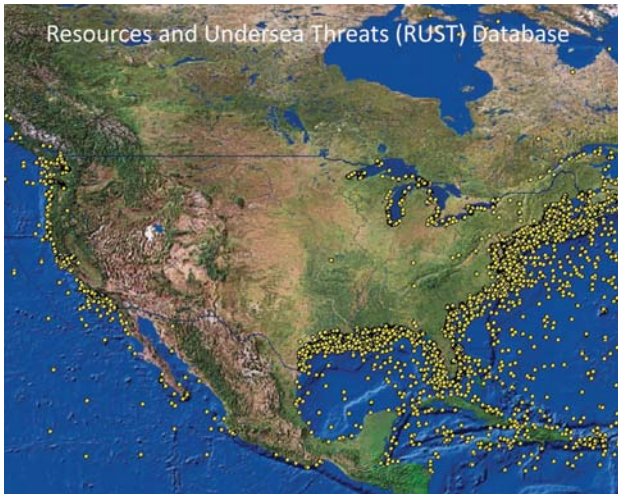
Table ES-1: Number of vessels in each priority category for the 87 priority wrecks.

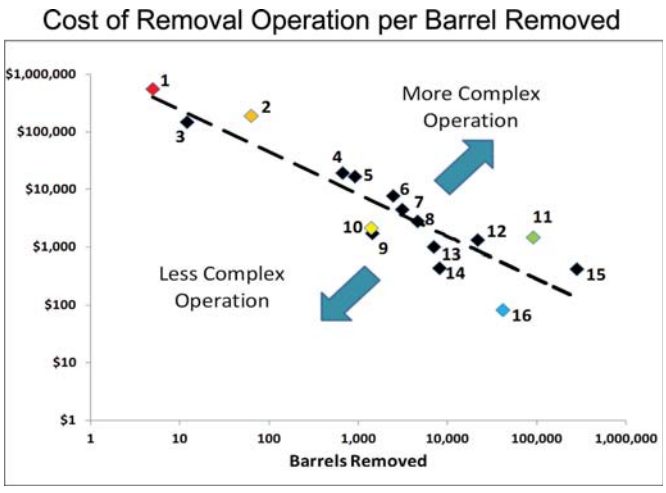
Category Rank	No. Wrecks for Worst Case Discharge	No. Wrecks for Most Probable Discharge
High Priority	36	6
Medium Priority	40	36
Low Priority	11	45

NOAA's Remediation of Underwater Legacy Environmental Threats (RULET) project identifies the location and nature of potential sources of oil pollution. Knowing where these vessels are helps oil response planning efforts and may help in the investigation of mystery spills--sightings of oil where a source is not immediately known. In 2010, Congress appropriated $1 million for NOAA to develop a list of the most significant potentially polluting wrecks in U.S. waters, specifically addressing ecological and socio-economic resources at risk. Those funds were not intended for oil or vessel removal. NOAA maintains the internal Resources and UnderSea Threats (RUST) database of as many as 30,000 sites of sunken material. Initial screening of these shipwrecks revealed 573 that could pose substantial pollution risks. This includes vessels built after 1891, when U.S. vessels began using fuel oil; vessels over 1,000 gross tons and built of steel, and tank vessels. Additional research narrowed that number to 107.

Table 1-1: A sampling of domestic potentially polluting wreck remediation projects.

Vessel (Year of Sinking)	Project Year	Location	Action	Removed (bbl)	Oil Type	Depth (ft)
Tenyo Maru, 1991	1991	WA	Partial Removal	620	Diesel	540
Union Faith, 1969	1999	LA	Partial Removal	400	HFO	125
Ehime Maru, 2001	2001	HI	Partial Removal	665	Diesel	2,000
Roy A. Jodrey, 1974	2003	NY	Partial Removal	143	HFO	200
Catala, 1965	2007	WA	Removal	820	HFO	Surface
William Beaumont, 1971	2009	TX	Removal	380	HFO	40
Ex- USS Chehalis, 1949	2010	Samoa	Removal	1,430	Gasoline	160
William McAllister, 1963	2011	NY	Removal	5	Diesel	160





To prioritize and determine which vessels are candidates for further evaluation, NOAA used a series of risk factors to assess the likelihood of oil remaining onboard, and the potential environmental impact if that oil spills. NOAA used risk factors to assess physical integrity and pollution potential as well as other factors that may impact potential removal operations. Risk factors included: total oil volume on board; oil type; if the wreck was reported to have been cleared as a hazard to navigation or demolished; if significant amount of oil was lost during the casualty; and the nature of the casualty that would reduce the amount of oil onboard. Factors impacting operations were wreck orientation on seafloor; depth; visual or remote sensing confirmation of conditions; other hazardous materials onboard; if munitions were onboard; and if the wreck is of historic significance and will require special handling. Each factor was also assigned a data quality rating. At the end of the evaluation, each vessel was given an overall vessel risk score of High, Medium, or Low. After this third level of screening, 87 wrecks remained on the priority list.

Oil discharges from shipwrecks are typically in the "Most Probable" category or smaller. Funding for any assessment or recovery operations determined to be necessary is dependent on unique circumstances for the wreck. If a wreck still has an identifiable owner, that owner is responsible for the cost of cleanup. If no responsible party exists, the Oil Spill Liability Trust Fund would likely be accessed. Selecting any vessel for proactive response requires further analysis including spill trajectory studies and monitoring or oil removal feasibility studies. While the salvage industry and oil spill response organizations have demonstrated great advancements in underwater oil removal technologies, in many cases the best alternative may not be removal of oil, but rather to monitor the wreck and plan for potential spills. The cost of removing oil from a wreck varies widely, depending on conditions and as depicted in Table 4-4.

Table 4-4: Sample of oil removal operation costs in domestic operations.

Vessel	Location	Factors in Case	Removed (bbl)	Cost	Cost/bbl.
Davy Crockett	WA	Shallow (not submerged) / Entire Removal	914	$15.5M	$17,000
Princess Kathleen	AK	134 ft. depth / Poor vessel condition (rivets)	2,620	$14.0M	$5,344
USS Mississinewa	Micro.	Shallow depth / Accessible tanks; Low complexity	42,000	$3.5M	$83
Prestige	Spain	12,000 ft. depth / Recent wreck; broken in two	91,000	$132M	$1,460
Jacob Luckenbach	CA	175 ft. depth; 49-y/o wreck / sensitive location	2,450	$19.2M	$7,836
T/B Cleveco	Erie	70 ft. depth; 50-year old wreck	8,100	$3.6M	$444

Based on the NOAA report, there is plenty of business out there – literally lurking just under the surface. No doubt, American ASA Salvors are standing by; if needed. View the report at: *http://sanctuaries.noaa.gov/protect/ppw/pdfs/2013_potentiallypollutingwrecks.pdf*

Joseph Farrell, Jr.

President & CEO, RESOLVE Marine Group, Inc.

Joe Farrell needs no introduction to the marine salvage community or, for that matter, ***MarineNews*** readers. Originally from the Boston, MA, area, he began by enlisting in the United States Coast Guard, eventually attending the U.S. Navy diver school, becoming a ship's diver. After two years at sea and diving in Arctic waters, he volunteered for service and became an explosives advisor, offloading ammunition ships in Vietnam. Eventually, Farrell became a civilian diver at the U.S. Navy's AUTEC base in the Bahamas, where he spent four years jumping out of helicopters in full SCUBA gear and recovering U.S. military torpedoes. Following that, he became Chief Engineer of a 158-foot salvage ship, ultimately assuming the role of Captain/Owner. From these roots, Farrell founded RESOLVE Marine, and under his guidance, RESOLVE has become one of the world's most well-known and respected marine salvage, emergency response and maritime training companies. Farrell and his team have accomplished some of the most unique and challenging operations in U.S. salvage industry history. Today, Farrell continues to lead his global RESOLVE team as they respond to vessel casualties, and provide salvage and firefighting response for approximately 40% of oil tankers that trade in U.S. waters. Follow along as he weighs in on all things "salvage"

for *MarineNews* readers:

Your immediate family has been involved in RESOLVE's formation, development and indeed, its future. Tell us about that.

It had been at about that same time I decided to form Resolve that I met my wife to be Mary Beth. Mary Beth would actually be aboard the salvage tug "Resolve" during rescue tows and salvage jobs. In the course of time my son, Joe III was almost born aboard the salvage tug during a salvage job off an island in Puerto Rico. Our first shoreside US mainland office was in a spare bedroom in our house in Ft. Lauderdale. Mary Beth would have 3 young kids about her when sending and receiving telexes. We never pushed our children to be part of Resolve. On the contrary, because of the stress especially in owning and operating a salvage company, I did not care to share this with them. It seemed as they matured they saw and realized what Resolve was and the opportunities that it provides. It is also nice to be working in a business where you get to help people, protect our environment and sometimes make a sound living. Today, all three of our children; Joe III, Lana and Summer work in the company.

Describe the Resolve organization today. Clearly, it is much more than just a salvage outfit:

You are correct. Resolve has grown into a much more diverse organization from its initial roots. Resolve has a unique industry business model by thinking outside the proverbial box. We are now a global emergency responder, a salvor and a major wreck removal company. Additionally, we have established one of the leading maritime training centers in the world where we train both officers and crew in all maritime aspects from vessel bridge operations to shipboard firefighting and damage control. And, we determined that by building a shipboard fire fighting school to train mariners we could not only develop a qualified fire fighting team from our school instructor base but we could also have all our employees maintain the highest training standards at our own in-house school. We currently have ongoing salvage and wreck removal projects in Africa, New Zealand, Mexico, Alaska, Singapore the Gulf of Mexico as well as pending bids in another number of global locations. Additionally, we have developed one of the largest OSRO's (Oil Spill Response Organizations) in China with our base of operations in Shanghai, where we are very active. For the second year in a row, we have also been awarded the ETV, Emergency Towing contract for India. This year's contract is now for both the East and West Coasts of India. Our organization is made up of some of the most experienced, committed and qualified individuals that an organization such as ours can have. We have approximately 200 full time employees worldwide. When we have a major project, as we did during the Deepwater Horizon incident, we can spool up to over three times that amount and readily do so. The key to this is the strong leadership and management practices. Our core floating assets are our salvage tugs, crane barges and heavy lift barges. Although only a handful of each, they are strategically located around the world. We are ever expanding these as well. We have a number of offices and warehouse depots in the US, UK, Singapore, India, China, New Zealand and plans for expanding into Africa and Holland. Additionally, Resolve builds all its own in-house salvage equipment and fire fighting pumps. We find this is the only reliable way to have equipment that you can truly count on when needed. Additionally we own all our assets and most of all our facilities with only rentals for overseas facilities. Therefore, when we have slow periods, we are able to weather these times with no risk of staff reductions.

The Resolve Fire Academy is an asset not only to your organization but to the greater maritime industry at large. Tell us about it.

Yes, we do know that our training division helps to save lives. The training arm of Resolve Marine Group, Inc. has been expanded and rebranded as Resolve Maritime Academy which encompasses our initial fire training component (Fire School) and now includes a Simulator Group which is comprised of a full mission bridge and engine room simulator, mini bridges and ECDIS classrooms. Within the Fire School, we have trained approximately 21,000 professional mariners and port fire fighters. The initial focus for the new expanded simulation and vessel officer training program has been with the cruise ship industry. We have signed a training agreement to be the exclusive provider of simulation training for Royal Caribbean International to train officers for Royal Caribbean, Celebrity, Azamara and their other fleets. Additional cruise lines are now taking our courses. This market was already at our doorstep, given our location in Fort Lauderdale and the port of Miami. Although this expansion was in the works for a number of years, the timing of our grand opening was somewhat uncanny since it basically coincided with Costa Concordia casualty and spotlighted the industry's needs. We are currently rolling out one of the only real-time combined Bridge and Engine Room Resource Management courses on the planet. This course allows both Bridge and Engineering Officers to train together during crisis and non-crisis scenarios and each in their respective full mission simulators. Further, we are now developing courses and classes for the Offshore Oil & Gas industries beginning with Dynamic Positioning, Anchor Handling, STS (Ship to Ship) and right down to offshore crane operator courses.

Many organizations consider the responder liability issue to be the most pressing matter on the plates of U.S. salvors today. Do you agree?

Without a doubt responder liability is a major shared industry concern. It has taken my family and team over 30 years to get where we are and this life's endeavor can be lost in one calamity. Resolve is an active co-sponsor of the ASA's effort to pass responder immunity legislation in the USA. Without reasonable provisions to protect professionals willing to take often time critical actions in the heat of a battle to control a developing marine emergency, who might be willing to step forward? Also, there seems to be a growing lack of enthusiasm for rewarding salvors in ways that resemble the traditional concept of encouraging experienced people to be ready and willing to take voluntary action in an emergency. We are frequently asked to quote lump sum prices before be able to evaluate the casualty circumstances and to disavow any right to make a claim for salvage. The two issues are related. The sea can be an extremely challenging, if not unforgiving environment. The ports and coastlines are home to myriad private and public interests. Why should a salvor take on a poorly defined or deteriorating situation at the risk of being penalized after the fact if the response does not turn out to be perfectly successful in the eyes of all parties that may claim to have been affected? Nobody in any industry bats 'a thousand' even when there is a well defined situation and time to develop and implement a fully conceived plan. It makes even less sense if you risk being liable to third parties for actions earnestly taken on behalf a client shipowner. If successful salvage does not make for an ample reward, it is difficult to justify putting anything let alone everything on the line.

Joe Farrell's Resolve Marine has, over the years, been defined over the years as an environmentally focused firm. What drives that focus for you?

We have always been and continue to be extremely conscious of the environment in which we work and make a living in. It has reflected in all our jobs over the years. This was before the environmentalist took note of seafloor damages or the lawyers found a new source of income, which is suing vessel owners and or their responders. We have always taken the time necessary in connecting up to stranded vessels laying on sensitive sea floors as well as finding extraction paths that will do the least seafloor damage during vessel removals. What drives this focus is simple: It is the right thing to do. Resolve's stated goal is "to Leave The World a Better Place." We are only on this earth for a fairly short period of time, therefore if we do good to others and our environment, who knows but maybe we get to stay here a little longer.

Salvage, by its very nature, involves expensive assets and considerable overhead. What else does Resolve do to keep its assets busy when not engaged in an emergency situation?

This is something which many, including our clients, do not usually see or consider. In our varying business entities we try to utilize our assets, but it is a challenge and frankly we seldom are able to use the task specific assets

in other applications. We therefore must just stand at the ready with no offsetting income streams. The equipment maintenance is another real burden. One Resolve team travels full time just to maintain our equipment, which in the US alone is located in over 20 locations. Actually, it is our people who are our main assets. There are highs and lows, feast or famine in salvage and maintaining response staff is even more critical. At Resolve we are blessed with some the best multi talented and committed people who can wear numerous hats. This has and continues to be the key to Resolve's success.

Tell us about your favorite restoration projects.

My favorite projects have been creating artificial reefs. This endeavor came about by a set of strange and tragic events in January 1986, when at the time I lost my only salvage barge. It sank 18 miles off the coast of Cape Canaveral. I purchased the 350 foot long ocean hopper barge in Trinidad, converted it into a salvage barge, equipped it with a crawler crane and loaded it with salvage equipment. I used the barge for commercial aggregate transportation between salvage operations since it could also carry 7,000 tons. The short story is that my tug Resolve was off line with a main engine issue and I had to charter a tug to tow the loaded barge. This chartered tug lost power in a major winter storm. The drifting barge was wallowing in seas in excess of 25 feet that simply battered her hatch covers loose and sank it. The following day I was able to locate it from the air by a surface oil slick and we could see the miles of floating polypropylene salvage hawser tangled from her. On the second day, I was able to get offshore and dive on her in the still heavy sea. Although it was 18 miles offshore, the water was only 80 feet deep. I had hoped that I would be able to salvage it by pumping the granite gravel off it; then patch, dewater and refloat. As it turned out on the dive I found that the barge had broken in the middle. We switched to plan "B", which was to recover the crane, Clyde winch plus all my salvage equipment. The weather worsened again. The following day the temperatures plummeted and the space shuttle, Challenger, exploded just after its launch above the barge. The area where the barge sank was then locked down since the Challenger debris was all around my barge. Although I had insurance, the loss of my major salvage asset put me in a small boat tying up Crowley CCT Ships in Port Everglades and delivering potable water with a small 100 ton barge and old push tug.

I bought the tug with what I had left on a credit card for $7,500.00. After about 18 months, when the ocean area was once again opened, my European insurers agreed that we needed to lower the underwater profile of the wreck and they agreed to pay my cost to roll my now destroyed crane off her deck. I did this and recovered the winch and some of equipment, but the most astounding aspect was my realization of the underwater habitat that was created by this one vessel. To this day I still remember this day's dive. The wreck was on a sand seafloor which extended 18 miles west or shoreward and hundreds of miles north, east and south but on and around the barge there were so many fish of every species that most of the time at the 50 feet clear water depth level of the barge's main deck, there was not even enough light to take pictures. This was due to the amount of fish between the wreck and the surface. Since then we have intentionally sunk more vessels than (probably) anyone else in the world. This includes a 2 year project of cleaning and then sinking of a US Navy aircraft carrier that we did with and for the Navy. This vessel created the largest artificial reef in the world.

The Bottom Line from the U.S. Salvage Leadership

In the choppy wake of regulatory changes, subtle changes in how, where and why salvors do business, high profile salvage assignments and still more lurking on the horizon, the American salvage community has a lot to say. This month, ***MarineNews*** *brought together three industry heavyweights to find out what was on their minds. Collectively, they combine to recalibrate the perception of what a salvor should be, where the industry will evolve, and why.*

Tim Beaver on the Role of the Salvor

The role of the marine salvor is to respond to a casualty – whether a fire, grounding, sinking, structural failure or even the threat of any of these disasters – and to provide speedy and effective solutions. Marine casualty response, commonly called Salvage, is an interesting but little understood world. It is a world of pumps and rigging, divers and engineers, tugs and derricks, fast response and hard contracts. To call a salvage company is to gain access to an amazing assortment of services. These services often are part and parcel of other marine disciplines such as marine construction, towing, diving and naval architecture to name a few. The role of these experienced and multifaceted companies and individuals is to minimize financial and environmental damages, by bringing fast and safe solutions to complex and unusual problems, understanding the ultimate goals of the client to first save lives, second save the environment and third save property.

The American Salvage Association (ASA) has for over 12 years continuously promoted professionalism and ethical business practices among salvors as well as a greater understanding of what the salvage community provides to the critical maritime industry. In doing this, our organization has brought together the best salvors in North America with a firm commitment to our stated mission and goals. These include reaching out to the maritime community of regulators, insurers and maritime professionals with conferences, educational programs and publications such as "Soundings." The role of the ASA is to ensure open communication and cooperation with regulatory authorities that results in prompt, effective response, meeting regularly with various federal and state agencies to exchange views on the improvement of salvage and firefighting response in North America.

We at the American Salvage Association are proud of our role as salvage operators providing salvage and marine casualty response to North America, as well as to the world. Member companies are currently involved in a multitude of projects both domestically and abroad. It is important to understand the role of the ASA as well as of the salvage operator. One calls a salvor when in need of fast, professional, effective services. Customers are entitled to the kind of response described above. We at the ASA promote this in our membership and recommend and encourage operators to get to know their salvage resources in advance of that midnight call for help. Our members stand ready to 'keep the oil in the ship' and to resolve your emergency with skill and professionalism you can rely upon both in North America and abroad.

Paul Hankins on the Benefit of the OPA 90 Tank Vessel SMFF Regulations

With just a couple years since the implementation of the USCG OPA 90 Tank Vessel Salvage and Marine Firefighting (SMFF) regulations, it may be premature to declare complete success. I'd argue that it takes several Vessel Response Plan planning cycles, along with practice and exercises, to come to a full appreciation of what the regulations have accomplished. But in my view, I think it's safe to say that they have helped achieve their primary objective – making our waterways safer. Among the many important advances that have been achieved by the SMFF regulations, two in particular stand out.

- *Tank vessel owners and operators are more prepared now than they have ever been to quickly contact their salvor and get immediate advice and assistance. Early notification can mean the difference between small accident and calamity. As shippers become more comfortable with their contracted salvor, this process should get even better. For better or worse, gone are the days of a scramble by salvors to get the attention of a stricken ship's owner for salvage services. We have replaced that arcane process with a facilitated methodology that simultaneously reduces uncertainty while increasing efficiency and response time.*
- *Salvors are much better prepared to provide this assistance; not just in homeports, but nationwide as well. Whereas previous to the new regulations, salvors maintained loose coalitions with a variety of suppliers, vendors, and service providers, in today's salvage world there are established agreements and contracts to lend aid. That helps both with timeliness of notifications as well as response. And, a corollary to this success is the salvor's ability to provide advance knowledge of where equipment and personnel are located, again aiding in response time management. This illustrates the renewed emphasis on ensuring that firefighting personnel AND equipment are rapidly available.*

All told, the regulations have facilitated a better prepared salvage resource and a quicker notification timeline when trouble unfortunately strikes. The salvage industry looks forward

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to new developments as the process matures and strengthens.

Mauricio Garrido on Salvors – The Next Generation

It is an unfortunate but accurate assumption that marine casualties will continue to occur. For this reason, one could surmise that a ready-to-respond professional salvage capability should be a priority for property owners and underwriters as well as an expectation of the public in general. Such capability, however, can only be supported by putting it to work and ensuring that adequate compensation under fair terms is given the service provider not only to allow for re-investment in equipment, but more importantly, in people.

Unfortunately, underwriters, the financial end-users of our services, tend to focus on the immediate quarterly bottom line of premium collected versus claims paid. This chronic tendency often leads to an underestimation of the job at hand and the hiring of alternative "cheaper" options which in the long run could result in a degradation of the professional salvage capability.

The challenges faced by U.S.-based salvors are not just limited to client misperception, aggressive competition, and lack of work. Those passionate enough to stay in the industry must learn to accept the incongruent model of operating a business which demands speculative investment in the hopes of a job which cannot be forecasted.

It is interesting to note that while global unemployment has recently escalated to alarming levels, the salvage industry has been able to maintain its strength levels. So while retention within the industry may not be a problem, recruitment of new young talent may indeed prove to be the real challenge facing U.S.-based salvors as they strive to formulate long term self-preservation. The ideal Salvage Master must be a generalist with an adaptable mindset that allows for constant specialized out-of-the-box thinking. On the job training is a must and the individual must be prepared to live aboard a virtual rollercoaster with an ever changing route where family life will sometimes necessarily take a back seat. The salvage industry as a whole must focus on a long term strategy to create a steady supply of young personnel. Such strategy must be comprehensive enough to entice future professionals to "try it out" and determine if they enjoy the adrenaline rush and long days surrounding a casualty.

A recruitment strategy to support the sustainability of our beloved industry is likely to fail if it is not based upon a campaign to increase the visibility of our industry at the household level. It is time to let America's mainstream learn about all the good things salvors bring to life in order to attract those who aspire to be professional maritime problem solvers.

Tim Beaver *began diving commercially in 1977. As president of Global Diving & Salvage, Inc. from 1988 to 2009 He managed both marine operations and company business. Mr. Beaver is currently CEO of the company. Global Diving has been a member of the Association of Diving Contractors since 1984 and Mr. Beaver spent many years on the Board of Directors and was a member of the ADCI executive committee tasked with generating the 6th Ed. ADCI Consensus Standards. He also is on the Advisory Board of the Historical Diving Society. Mr. Beaver is president of the American Salvage Association.*

Paul Hankins *has over 30 years' experience in the marine industry after graduating from the U.S. Naval Academy in 1981 with a Bachelors of Science in Naval Architecture and from George Washington University in 1991 with a Master's degree in Environmental Management. He has held positions with the Navy Supervisor of Salvage and as president of the joint venture Donjon-SMIT, one of the five SMFF Resource Provider networks, from 2005 to 2011. He is currently Vice President for Salvage Operations for Donjon Marine and serves as Vice President of the American Salvage Association.*

Mauricio M. Garrido *is President of T&T Salvage LLC. He received a Bachelor of Engineering degree in Naval Architecture, as well as a Marine Engineer's license from SUNY Maritime College in 1984. His experience includes tours with the Military Sealift Command and the NTSB as Naval Architect and Marine Engineer. He is the Immediate Past President and Executive Committee member of the ASA, a member of the SNAME Safety & Environmental Committee, the International Association of Emergency Managers (IAEM), and the Pan-American Institute of Naval Engineering (IPIN).*




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Is it Safer to Work Offshore in 2013?

By Jon Waldron

It has been over three years since the tragic accident occurred aboard the Deepwater Horizon on April 20, 2010. The industry and the relevant federal agencies have done much to put in place improved safeguards to prevent such an accident – which left 11 dead and 17 injured – from happening again. Congress, on the other hand, has done little to intervene to force new requirements on either the federal government or industry. Meanwhile, energy-related work in the Gulf of Mexico is rapidly increasing and forecasts are that it will remain busy for the next few years. The following is a summary and assessment of recent initiatives being implemented by industry and the government.

Previous Initiatives

Following the Deepwater Horizon incident, the forerunner agency to the Bureau of Safety and Environmental Enforcement ("BSEE"), published an Interim Final Rule ("IFR") titled "Increased Safety Measures for Energy Development on the Outer Continental Shelf" on October 14, 2010. BSEE published Notice to Lessees ("NTL") No. 2012-N-06 titled "Guidance to Owners and Operators of Offshore Facilities Seaward of the Coast Line Concerning Regional OSRPs" on August 10, 2012. The NTL is intended to provide clarification, guidance, and information concerning the preparation and submittal of a regional OSRP for owners and operators of oil handling, storage, or transportation facilities, including pipelines, located seaward of the coast line.

In addition, on October 15, 2010, BSEE published its Workplace Safety Rule on Safety and Environmental Management Systems, commonly referred to as the SEMS rule. The purpose of this rule was to establish a comprehensive management program for identifying, addressing, and managing operational safety hazards and impacts. This rule became effective on November 15, 2011 and audits have to be completed by November 15, 2013.

BSEE published Interim Policy Document ("IPD") No. 12-07 titled *"Incidents of Non-Compliance (INC) to Contractors"* on August 15, 2012. IPD 12-07 formally sets forth BSEE's intention to issue INCs to contractors for serious violations of BSEE regulations. Finally, BSEE published its Final Rule titled *"Increased Safety Measures for Energy Development on the OCS"* on August 22, 2012. The Final Rule becomes effective on October 22, 2012. In short, it amends drilling, well completion, well workover, and decommissioning regulations related to well control.

2013 Initiatives

BSEE and the Coast Guard have continued this trend in 2013 as new requirements are coming fast and furious. Specifically, on April 5, 2013 BSEE published its revised regulations for Safety and Environmental Management Systems ("SEMS II"). Among other things, SEMS II requires operators to (1) create procedures giving all personnel stop work authority, (2) establish who has the ultimate work authority on the facility for operational safety and decision-making, (3) promote the participation by employees and management in the mitigation or elimination of hazards, and (4) empower all personnel to report safety or environmental violations. In addition, it requires third party audits and new requirements for Job Safety Analysis prior to commencing work. Operators must comply with these new requirements by June 4, 2014.

In addition, on April 30, 2015 a new Memorandum of Understanding (MOU) between BSEE and the Coast Guard went into effect for the purpose of closely coordinating responsibilities for regulation and enforcement on the outer continental shelf and for the establishment of future focused agreements. Furthermore, on May 10, 2013 BSEE formally announced its Final Statement of Policy on Safety Culture. Specifically, under this policy, BSEE defined nine characteristics that are indicative of a robust safety culture. The purpose of the policy statement is to assist the offshore oil and gas industry to go beyond a checklist-inspection approach and to move toward a systemic, comprehensive approach to compliance.

Assessment of Progress

Two reports were recently published analyzing the progress of industry, the government, and Congress to improve safety offshore since the Deepwater Horizon incident. The Democratic staff of the House Natural Resources Committee analyzed data comparing pre-Deepwater Horizon and post-Deepwater Horizon accidents, inspections, vio-

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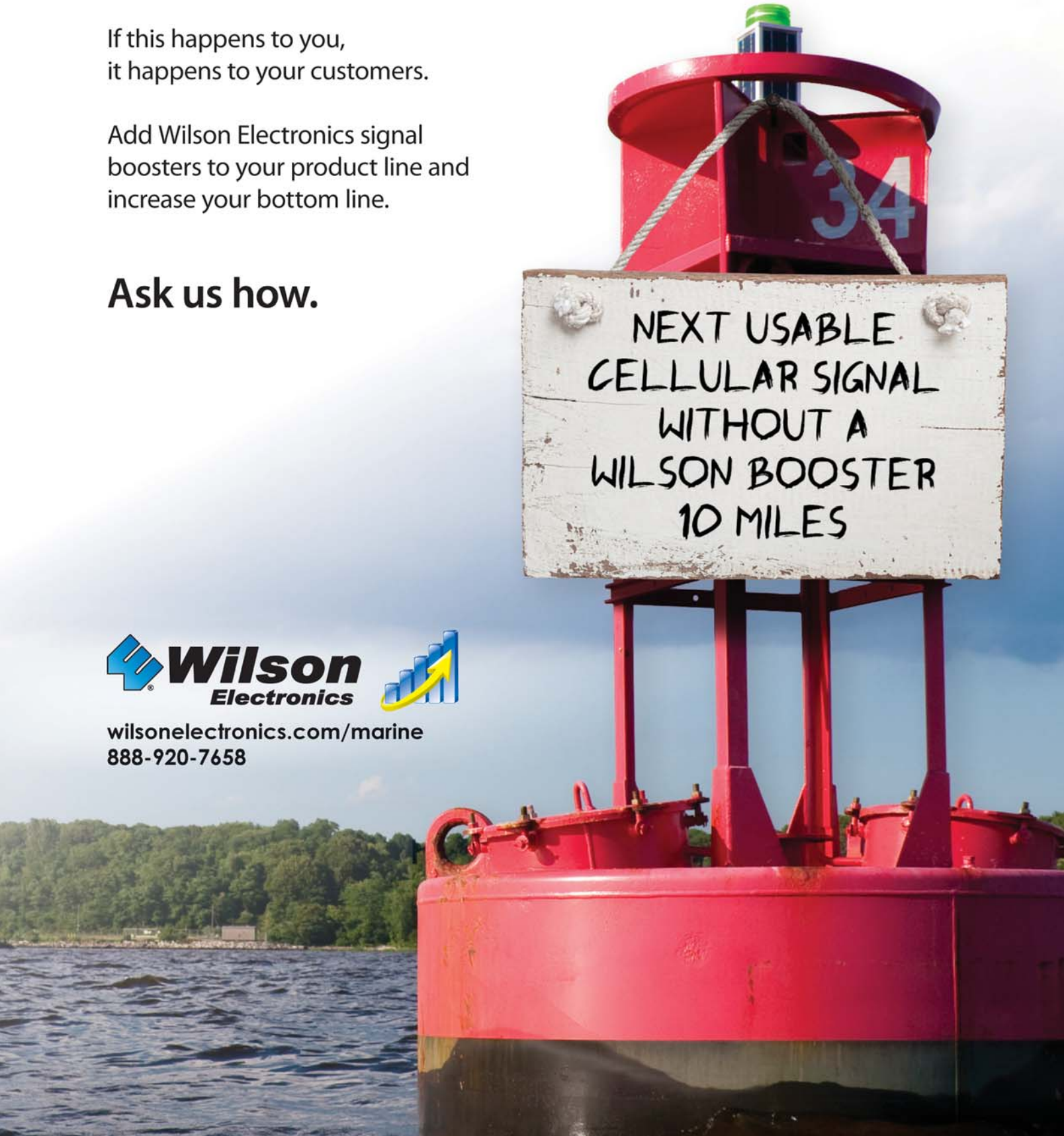

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lations and civil penalties to analyze improvements. The staff issued their findings on May 10, 2013 in: *Dangerous Drillers: Offshore Safety Lapses Continue Three Years After BP Spill ("House Report")* (http://democrats.naturalresources.house.gov/sites/democrats.naturalresources.house.gov/files/documents/2013-05-10_BP_Spill_Dangerous-Drillers.pdf).

Among other things, the data demonstrated marked improvement in the number of injuries from offshore accidents, down 50% over the past two years. There has also been a reduction in the number of loss-of-well control since the Department of the Interior ("DOI") adopted new safety regulations and has been issuing more violations.

Unfortunately, according to the House Report, companies continue to have safety lapses. It was determined that the companies who suffered serious safety lapses pre-Deepwater Horizon continue to be the top violators. The data shows that the threat of civil penalties has not deterred companies from engaging in risky practices. The House Report noted that part of the problem is that Congress still has not acted on recommendations to strengthen regulatory enforcement and raise penalties for violations of drilling safety standards. The House Report concluded, however, that despite the lack of legislation many of the DOI initiatives mentioned above appear to be having some positive effects. The House Report made the following three key recommendations:

- *DOI should focus inspections on the riskiest companies.*
- *DOI needs to assess more penalties for violations.*
- *Congress should authorize higher civil penalties for safety violations.*

In addition, the House Report mentioned a recent report titled "Assessing Progress" published on April 17, 2013 by former members of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling ("National Commission"). These former members started the Oil Spill Commission Action Project ("Oil Spill Commission") which is an outgrowth of the National Commission which was established by President Obama as a result of the Deepwater Horizon. The National Commission published its final report in January 2011.

The Oil Spill Commission issued its first report card in April 2012. The Oil Spill Commission's April 17, 2013 report is its second report card: *Assessing Progress: Three Years Later* (http://oscaction.org/wp-content/uploads/FINAL_OSCA-No2-booklet-Apr-2013_web.pdf). This report card concludes that because of more stringent regulations, and lessons learned by industry, offshore drilling is much safer than it was then, and the ability to respond effectively if a spill were to occur has been substantially improved. In short, the Oil Spill Commission awarded the Administration a "B" grade and industry a "B-" grade. Congress was awarded a "D+" for post-Deepwater Horizon reform, an improvement from its previous "D-" grade. This improvement is due to its approving a trust fund for restoring the Gulf region (the Restore Act). Congress, however, has not acted on recommendations for stricter regulatory enforcement and higher penalties for violations of safety standards.

Analysis

Three years has lapsed since the Deepwater Horizon occurred and our day-to-day lives have turned to other more pressing things. We can only trust that we have learned solid lessons that we will not forget. Indeed, as discussed above, there have been noticeable improvements in offshore safety. These improvements are noteworthy, but the government and industry cannot rest on its laurels as there is still much room for improvement. And, due to the continuing change in political priorities faced by Congress, it is now unlikely that it will pass sweeping spill-related legislation. Thus, eternal vigilance and further improvements in safety must continue to be priorities for the government and industry to ensure another Deepwater Horizon type incident does not occur again.

Jonathan Waldron *is Chairman of the ASA Legal Committee. He concentrates his practice in maritime, international, and environmental law, including maritime security. Mr. Waldron is a visiting professor at the Massachusetts Maritime Academy where he teaches on legal issues related to pollution response and spill management teams. He is a member of the Maritime Law Association and frequently speaks and writes on maritime issues.*

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Situational Awareness in Maritime Applications:

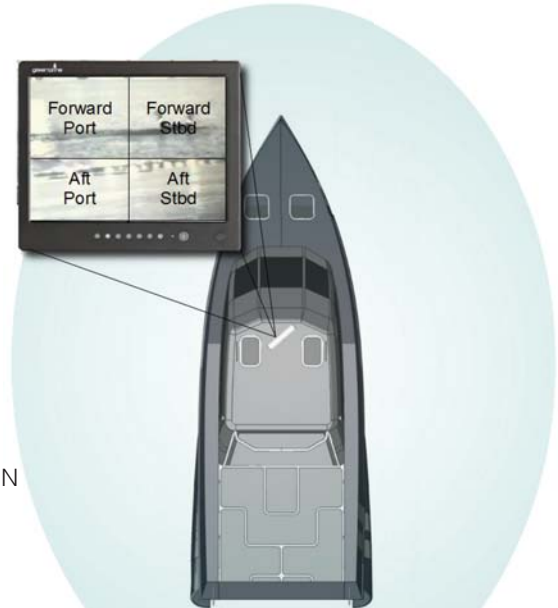
Increase Safety, Profits and Competitive Advantage

With hundreds of marine workboats and crane sites active across the world, companies are looking for ways to remain competitive, while maintaining high standards of safety and increasing the bottom line. Leveraging the latest technology in situational awareness platforms is one way these companies can remain competitive while maintaining quality. Increased situational awareness can be accomplished with a combination of strategically placed and properly installed sensors or cameras systems around the work site. Christopher Machut, the Chief Technology Officer of GM Engineering Services, LLC (GMES) explains why his TugCam system (www.gmesllc.com) fulfills all of these requirements, and more.

What is Situational Awareness?

Workboat captains and crane operators often take the lead in maintaining the tempo of the job site operations. The ability to make immediate and accurate decisions has a direct impact upon the entire job site. Providing the captain or operator with enough information to help relocate equipment, move materials and support the crew is critical to smooth operations. One way of increasing the ability to make better and more informed decisions is to improve the captain's or operator's awareness in the work environment.

In today's market, the competitive advantage at the job site can be gained by leveraging the latest in situational awareness platforms. Often a term reserved solely for the military, situational awareness "is the perception of environmental elements with respect to time and/or space"1. To further elaborate, the ability to see what is around the decision maker enables him to make better informed decisions. When personnel are properly trained and equipment is properly installed, situational awareness platforms can increase the decision making capabilities of both management and the equipment operators resulting in more efficient and safer operations.



Effective situational awareness platforms start with the basics by providing the operators with enough information to enable them to make better decisions without being a distraction. Simply put, a display mounted in the crane operators cab can show a live video feed from a wireless camera placed on the hook block during a blind lift. Another option is to mount cameras around the vessel to allow the captain to see in front of him during a blind push. The combination of strategically placed wireless cameras and video display mounted in the operator's cab is an example of a situational awareness platform.

Save Time

Blind lifts for crane operators and blind pushes for tugboat captains are some of the most dangerous and nerve racking maneuvers. Traditional blind lifts and pushes are often very slow and require time consuming moves. Having to rely solely on the eyes of the rigger or spotter to relay information to the operator with radio communication can cause a great deal of stress to the operator. This is especially true if the operator and the spotter have not worked together in the past or have not built a good rapport with one another. They must have the ability to work together as a team and rely on each other's judgment.

A wireless camera that is easy to deploy, rechargeable and provides a battery life long enough for an entire shift can significantly increase the efficiency of the crew. When using a camera mounted on or near the hook block of a crane, it is been found that the crane operator can be up to 40% more efficient in a blind lift than without a camera. This significant increase is due to the crane operator's situational awareness being increased to enable him to make better and more informed decisions regarding the load. In cooperation with a rigger, the crane operator is increasing his situational awareness enabling him to make better and more informed decisions resulting in more efficient operations.

Save Money

Situational awareness platforms positioned directly at the job site benefit the entire operation. When the captain or crane operator is given increased visual ability there is the implied benefit of less accidents. The result of less accidents can reduce costly claims and loss of personnel. In addition, the crane operator being more efficient, enables

the entire job site to gain in efficiency as well. This increase in efficiency results in increased productivity by having to work less to accomplish the same goal.

Placing wireless cameras on the boom of the crane, in front of a blind push or near the load to be relocated, can significantly increase the ability of the captain and the crane operator to effectively understand what is happening in and around the job site. By providing a video feed, to the crane operator, for hard to see areas he is effectively placing his "eyes" exactly on the load or equipment that he is responsible for. If the crew is able to work faster, without compromising safety, the benefit can be seen directly in reducing direct and indirect operational costs.

Reduce and Better Understand Accidents

It goes, without saying, that the most important job function of any marine pilot or foreman is the safety of his crew. Providing the crane operator with the proper situational awareness platform can be instrumental to the safety of the crew that operates around him. A wireless camera system can allow the captain and crane operator to decide when and where they need the additional line of sight. In addition, this video can be sent wirelessly over the internet for management to monitor the job site and even recorded to a DVR (digital video recorder). This recorded video could be used for analysis of the efficiency of the job site or to conduct post-accident analysis in the unfortunate event of an accident.The ability to relocate the captain or crane operator's "eyes" to anywhere on the job site improves the confidence of the crew resulting in better decisions being made by the team as a whole. A confident team lead is critical in preventing accidents and instilling similar confidence in the crew that work below him. Therefore, the benefits of a situational awareness platform can be immediately tangible and substantial for the entire crew's safety and well-being.

Additional Considerations

There are some unintended benefits of the use of cameras at a job site to improve situational awareness. If used to increase the situational awareness of the crane operator, the crew may interpret this as management watching them. An unintended benefit of this perception by the crew is an increase in productivity whether or not management is actually viewing the camera feed.

This productivity increase can be associated with what is called the Hawthorne Effect. The basic premise of the Hawthorne effect is "researchers concluded that the workers worked harder because they thought that they were being monitored individually."

As a counter to the positive psychological benefits of cameras at a job site, there can be a negative consequence as well. Some crew may interpret cameras as an invasion of their privacy, regardless if they are entitled to privacy or not on the job site. If not well educated on the positive aspects on the situational awareness platform for the entire crew, the crew will be left to their own thoughts. This can create anxiety for the crew and, even worse, the possibility of unintentional or intentional sabotage to the camera or other equipment. As with any new tool, proper education should be provided to ensure that everyone understands how the situational awareness platform is there to benefit everyone.

Finally, the use of any wired or wireless equipment at a job site needs to be properly implemented and maintained. Proper training, setup and rugged components need to be considered before attempting to install or use any situational awareness platform at a job site.

In conclusion, a properly installed and configured situational awareness platform at any marine, port or construction site can significantly reduce time, expenses and accidents. This is accomplished with a properly configured camera system and a fully trained and educated crew to support operations.

Lubricant Usage Standards in the 2013 Vessel General Permit

Environmentally acceptable lubricants required in Oil-to-Sea interfaces where technically feasible.

By Ben Bryant

With the recent release of the 2013 Vessel General Permit (VGP), vessel owner/operators must review their operational practices for incidental discharge of lubricants to the marine environment. Lubricant discharge limits from oil-to-sea interfaces are just one of 27 specific discharge categories covered by the VGP for vessels to achieve compliance with the US Clean Water Act (CWA). For applications with an oil-to-sea interface, environmentally acceptable lubricants will now be required unless technically infeasible.

Overview of the 2013 Vessel General Permit

The EPA issued the 2013 VGP under the authority granted to it by Section 402 of the CWA known as the national pollutant discharge elimination system (NPDES). When the CWA was first implemented, the EPA excluded discharges incidental to the normal operation of vessels from NPDES requirements. However, in a September 2006 court decision, the EPA was ordered to stop the vessel exemption, and in December of 2008, the EPA issued the first version of the VGP.

The 2013 VGP is presented in six parts plus appendices and tables. Part 1 describes the permit coverage. Part 2 establishes the effluent limits for the 27 specific discharge categories. Part 3 provides detail on corrective action requirements. Part 4 lays out the inspection, monitoring, reporting, and record keeping requirements. Part 5 established additional effluent requirements for specific vessel classes. Part 6 lists additional requirements for individual states or Indian country lands. Lastly, the appendices and tables provide definitions, forms, schedules, and additional technical data.

Vessel coverage can be obtained by either submitting a notice of intent to the EPA or, for vessels under 300 gross tons and minimal or no ballast water capacity, by maintaining required records onboard. Recreational vessels and military vessels are excluded from coverage and are regulated separately. Additionally, vessels under 79 feet may be covered by the 2013 VGP, however the EPA plans to release a different permitting program for these vessels which will likely have fewer reporting, inspection and record keeping requirements. Small vessel fleets, unmanned barge fleets and tug/barge combinations have the ability to combine reporting and record keeping for purposes of the VGP.

Allowable limits for discharges of lubricants

Section 2.2.9 of the VGP details the requirements for lubricant usage for oil to sea interfaces including wire rope and other mechanical equipment subject to immersion. A list of example applications is provided and in general applies to any thru hull fitting or propulsion system with an oil water separation seal, wire rope, and equipment that is immersed in water during normal operations. The section includes statements indicating that seals must be maintained in good operating order and vessel owner/operators must not discharge oil in quantities that would be harmful to the environment. Also described are three "best practice" requirements:

1. *Minimize maintenance on oil to sea interfaces outside of drydock.*
2. *Have pollution response equipment on hand if maintenance is done while vessel in the water.*
3. *If safe to do so - wipe excess lubricant off of wire rope and other equipment.*

A requirement of the 2013 VGP is that environmentally acceptable lubricants (EAL) be used in all oil-to-sea applications unless technical infeasible. Technically infeasible is defined as "no EAL products are approved for use in a given application that meet manufacturers specifications for that equipment, products which come pre-lubricated (e.g., wire ropes) have no available alternatives manufactured with EALs, products meeting a manufacturer's specifications are not available within any port in which the vessel calls, or change over and use of an EAL must wait until the vessel's next drydocking." To determine which applications are approved for EALs, vessel owner/operators should consult with their equipment manufacturers and lubricant suppliers. Seal compatibility with EALs should be verified and if needed, compatible seals should be installed at the next vessel drydocking. For new build vessels, the EPA recommends the use of water lubricated stern tubes as a means of reducing the quantity of lubricating oil entering the environment.

In Appendix A of the VGP, EALs are defined and specific standards are set for biodegradable, minimally-toxic, and non-bioaccumulative lubricants. Also included is a list of six labeling programs that lubricant manufacturers can pursue to certify the lubricant meets the EPA standards. If a lubricant is promoted as meeting the requirements of the EPA but does not have one of these labels, the owner/operator should request from the lubricant supplier copies of the test results indicating the lubricant meets the EAL environmental standards. If EALs are not used in an oil-to-sea application, vessel owner/operators are required in section 4.2.9(j) to document the reason that it is technically infeasible to do so. This information must be communicated to the EPA in an annual report.

Additional information on EALs is found in Section 2.2.1 of the 2013 VGP. This section details the best practices for minimizing discharges from deck washdown and runoff and above water line hull cleaning. The best practices for minimizing pollution from deck run off include use of drip pans, scupper plugs, and the requirement for biodegradable cleaners. In reference to lubrication, the EPA states "to reduce the risk of any leakage or spills of harmful oils into the aquatic environment, EPA strongly encourages the use of environmentally acceptable lubricants in all above deck equipment." For on deck equipment, the vessel owner/operator should investigate the availability of EALs that meet performance requirements for the specific equipment and then transition to the use of EALs as appropriate.

Deadline Looming

The 2013 VGP becomes effective on December 19, 2013. Vessels authorized to discharge according to the permit and operated in accordance with the permit's requirements will be in compliance with the CWA. Vessels not authorized by the permit to discharge may be subject to civil and criminal enforcement and to citizen suits against violators unless they are covered by alternative regulations. Discharges of lubricants and oils must not exceed quantities deemed to be harmful. The use of EALs is required in all oil-to-sea interfaces unless technically infeasible while the use of EALS is recommended for all above deck applications. The 2013 VGP is in effect for five years.

Ben Bryant *is a graduate of the Massachusetts Maritime Academy and holds a 1,600 ton master's license. He has experience on oil tankers, offshore supply vessels, tug and barge units, and various small power and sail vessels. Bryant holds a master of marine policy from the University of Rhode Island and a master of business administration from Boston College. E-Mail: ben.bryant@us.kluber.com*

Castrol Secures Environmental Acceptance

Less than six months before the US Vessel General Permit takes effect, Castrol Marine is working with owners to ensure they are truly compliant within definitions set out for 'Environmentally Acceptable Lubricant' in US waters. From December 2013, new requirements come into effect covering the substances deemed acceptable for discharge by ships in US waters. Few operators, perhaps, will be fully aware of what the revised 'Vessel General Permit' (VGP) means when it identifies "Environmentally Acceptable Lubricants" (EAL).

Eliminating Gray Areas

Unless deemed 'technically infeasible', EALs must be used in order for a VGP to be valid. Failure by a vessel to produce a valid permit means The United States Coast Guard can issue written warnings and, ultimately, mount civil and criminal action including potential penalties ranging up to $25,000.

EALs as defined in the 2013 VGP mean lubricants that are "biodegradable", "minimally toxic," and "not bioaccumulative".

These definitions do not qualify lubricants developed for other applications (for example, those developed for industrial applications) to be brought in to the maritime sector without considering the challenging conditions they will face. The permit's definitions draw explicit attention in their labeling requirements to other standards on lubricant environmental responsibility – OSPAR (Convention for the Protection of the Marine Environment of the North-East Atlantic), Blue Angel, European Ecolabel, Nordic Swan and Swedish Standard SS 155470 and 155434.

"Claims for 'environmentally responsible' products are made widely but can sometimes be misleading," says Susannah Linington, Castrol Marine Environmental Specialist. "It is a great step forward having defined criteria for determining the environmental performance of marine lubricants. This means that environmental claims can be backed up by relevant scientific testing."

"OSPAR requires testing the individual chemicals in a product in seawater as this is the environment they will ultimately end up in," she says. "Although seawater testing can be harder to pass than freshwater or soil testing, this is the regime we have adopted at Castrol for developing our BioRange of products. This ensures that we can supply documentary evidence why our products meet the environmental standards laid out in the VGP".

Castrol BioStat and BioBar ranges are registered under OSPAR and therefore meet the criteria for being EALs under the VGP. Owners will also need to be assured that the products they select meet acceptable standards in terms of performance. Here, Linington explains, Castrol Marine has spent the four years since the revised VGP was first raised securing Original Equipment Manufacturer approvals for BioRange products in the marine context.

Environmentally Acceptable Lubricants

- As of January 2014, all non-recreational vessels (apart from armed forces vessels) of over 79ft length that enter US waters must use an EAL in all oil-to-sea interfaces, unless an EAL is deemed 'technically infeasible'.

- Each VGP is valid for five years. For vessels of 300 gross tons and above, there is also a requirement to submit a notice of intent at least 7 days (electronically), or 30 days (paper version) before calling USA waters.

- EALs are required for applications at risk of operational leaks into US waters. This means all equipment in contact with the sea including:- controllable pitch propel-

lers; thrusters; paddle wheels; stern tubes; stabilizers; rudder bearings; propulsion pods; wire rope; and any other mechanical equipment subject to immersion.

- Furthermore, EALs must be used for any equipment on deck which has contact with water and in all two stroke inboard diesel engines. If, for any reason, a vessel is unable to use an EAL, the reasons why must be documented, and owners must report the use of a non-EAL to the EPA in their Annual Report.

A Question of Performance

Castrol Marine believes that developing an entire range of marine grade lubricants based on an unfolding legislative program, and at the same time securing OEM approvals ahead of time, represents an original methodology. But it also believes its coordinated efforts to share regulatory knowledge with customers will not be sufficient; only by working with customers to forecast the size and location centers of demand for its EAL compliant range can it claim to offer a truly market responsive approach.

According to Linington, Castrol's first principle for BioRange was to offer drop-in replacements for lubricants based on conventional mineral oils. A good example of this approach is Castrol's BioStat, suited for applications such as stern tubes, reduction gear, thrusters, spurs, helical and planetary gear units, couplings, and rolling and sliding bearings. "BioStat fluids contain selected additives ensuring good oxidation stability, good anti-corrosion and

MARINE and OFFSHORE APPLICATIONS	CASTROL GRADE	COMPLIANCE
Controllable Pitch Propeller and Thruster Hydraulic Fluid	BioBar (22, 32, 46, 68,100) BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant
Paddle Wheel Propulsion	BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant
Stern Tubes	BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant
Thruster Bearings	BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant
Stabilizers	BioBar (22, 32, 46, 68,100) BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant
Azimuth Thrusters	BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant
Propulsion Pod Lubrication	BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant

anti-wear properties and reduced environmental impact in comparison with conventional mineral oil based products," Ms Linington explains.

Castrol Marine is currently working with customers to analyze vessels using its lubricants calling US waters and the machinery in scope in their fleet, and to advise on what equipment is or is not in scope for VGP compliance. In doing so, the company is also mindful of the narrowness of the 'technical infeasibility' provisions within the VGP. She points out what technical infeasibility actually means according to the revised permit scheme:

- *No EAL products are approved for use in a given application.*
- *Products which come pre-lubricated (e.g., wire ropes lubricated for life during manufacture), with no EAL available during manufacture.*
- *EALs meeting manufacturers' specifications are not available in any port at which the vessel calls.*
- *Change over and use of an EAL must wait until the vessel's next dry-docking.*

Areas of Responsibility

If all this appears routine, the responsibility of knowing what is or is not technically infeasible rests with the owner. It is the owner who must document whether the EALs are registered under a labeling program. If a vessel is subjected to a spot check, and an EAL is not being used because it is deemed technically infeasible, recordkeeping must include documentation as to the reason.

Ms Linington also points out that the VGP uses more sophisticated criteria than the so-called 'sheen rule' to determine compliance. "Even lubricants that do not create a film or sheen on the water surface can have very poor marine environmental performance resulting in persistent, bioaccumulative and toxic chemicals entering the sea," she says.

"Choosing a lubricant that does not sheen, but has the potential to create a film or discoloration on the water or a sludge or emulsion in the water may leave a vessel operator open to charges of failure to report a spill should a discharge take place that is not reported as required. Choosing a lubricant that sheens also has the benefit of alerting operators to the fact that a piece of equipment may have malfunctioned and require repair."

Castrol Marine's advice is that compliance with the VGP on lubricant requires product-specific attention. It will rely on shipowners being sure that the environmental claims made for the lubricants they choose stand up to the scrutiny required for EALs by regulators with a marine environment-specific agenda.

Proper Engine Maintenance Leads to Significant Cost Savings

Engine Maintenance trumps a tough economy. Bypass oil filtration technology is one way to get there.

By Kevin G. Kroger

For the past several years, ferry service and tugboat operators have had one eye on fuel costs and the other on the economy. But worry as they might, there's not much, if anything, that operators can do to effect change to the economy or to reduce the price of fuel. What they can do, however, is effect change to reduce their company's operating costs and that's where proper engine maintenance can make a significant difference.

Oil is used to lubricate, cool and seal the engine, and maintaining its purity is crucial. If not kept continuously and meticulously clean, engine oil loses its key attributes, including vital additives, due to contamination from by-products of combustion, wear metals, liquids, gases, and oxidation. A buildup of particle contamination could cause restriction of oil flow, contributing to increase wear through reduced lubrication, which increases friction within the engine. This in turn can lead to added costs associated with unexpected engine maintenance or replacement.

Defining the Problem

Normal heat and pressure generated by an internal combustion engine combine with fuel sulfur and oxygen to form sulfuric dioxide (SO2) and sulfur trioxide (SO3). Sulfuric acid is created when these sulfur compounds react with water contaminant, triggering various forms of oil degradation such as polymerization, increasing engine oil viscosity and decreasing its ability to shear and flow smoothly.

Other key factors in engine wear include friction, heavy load and vibration, thermo-expansion, corrosion, fuel combustion chemical reaction, and intra-metal electrical currents. These primary sources cause heat, material deformation, component wear, oxidization of metal, non-metals, and degradation of oil, coolant, and seals. Together these add up to reduced reliability and life of engine-control and emissions components.

In years past, replacing the oil at manufacturer-recommended intervals was seen as a pre-emptive measure to protect the engine from internal wear and tear. Known as planned or scheduled maintenance, it's still routinely followed today. But even routine replacement of engine components and engine overhauls does not help to reduce overall pollutants generated by the engine.

Specific Maintenance Programs

Progressive maintenance programs – Condition-Based Maintenance (CBM) and World Class Maintenance (WCM) – are both great systems to combat engine wear. These programs emphasize asset optimization by eliminating the root cause of potential failures via careful monitoring. In essence, both allow us to predict how an engine will perform and what we can do to prevent potential problems. Bypass oil filtration technology and oil analysis are critical tools used in CBM and WCM.

One of the facts about engine maintenance is that oil must be replaced at regular intervals as it becomes contaminated and 'dirty'. But if oil can be kept clean it can continue to be used and the most effective way oil can be cleaned continuously is through the technology of bypass oil filtration.

Basically, bypass oil filtration works like a dialysis machine for oil, allowing lubricating oil to be slowly siphoned out of the engine, cleaned of solid, liquid, and gaseous contaminant, and receive the appropriate amount of base additives time-released back into the oil, maintaining oil viscosity and balance, then returning the cleaned, refreshed oil back to the engine.

By diverting a small amount of lube oil out of the engine, cleaning it of impurities and returning it back to the engine; the result is an engine running on continuously clean oil and a safe extension of the oil life. By doing this, lubricating oil remains continuously clean and is able to continue to perform the job for which it was intended – to maintain thermal stability, lubricate to keep engine parts from grinding together, carry away harmful debris, and seal the engine.

How it Works

At standard maintenance-scheduled oil drain intervals, an oil sample is taken and the disposable replacement filter element (of the bypass system) is replaced. Both actions are non-disruptive and can be performed while the engine is running, taking only a matter of minutes. Oil analysis

monitors the condition of the oil for a number of factors including viscosity, wear metals, additives, contamination, and physical properties.

Captain Bill Clark, who runs the South Ferry service, operates four ships that carry passengers across the waterways off New York's Long Island. Captain Clark estimates that lengthening of the oil-drain intervals – to 2,000 hours from 250 hours prior to using bypass filtration – saves him roughly 400 gallons of oil, equal to about $5,000, for each ship. Beyond this, Clark credits the filtration system in part for the incredible longevity of his engines. Clark's last two engines went 67,000 and 73,000 hours, respectively, before requiring an overhaul. "[Oil bypass filtration] can definitely take some credit for the long life of those engines," Clark notes, adding that oil analysis helps him to determine if and when an oil change is needed.

Ernie Villers, Port Engineer and Head of Maintenance for Fire Island Ferries, said he first learned about the benefits of bypass oil filtration system from Captain Clark, and uses it on two of his 14 boats. The system, Villers said, allows his 650 horsepower engines to run at least three times longer before requiring an oil change, and he plans to outfit the rest of his boats with a bypass filtration system. Like Clark, he tests the oil periodically to see when the oil needs to be changed.

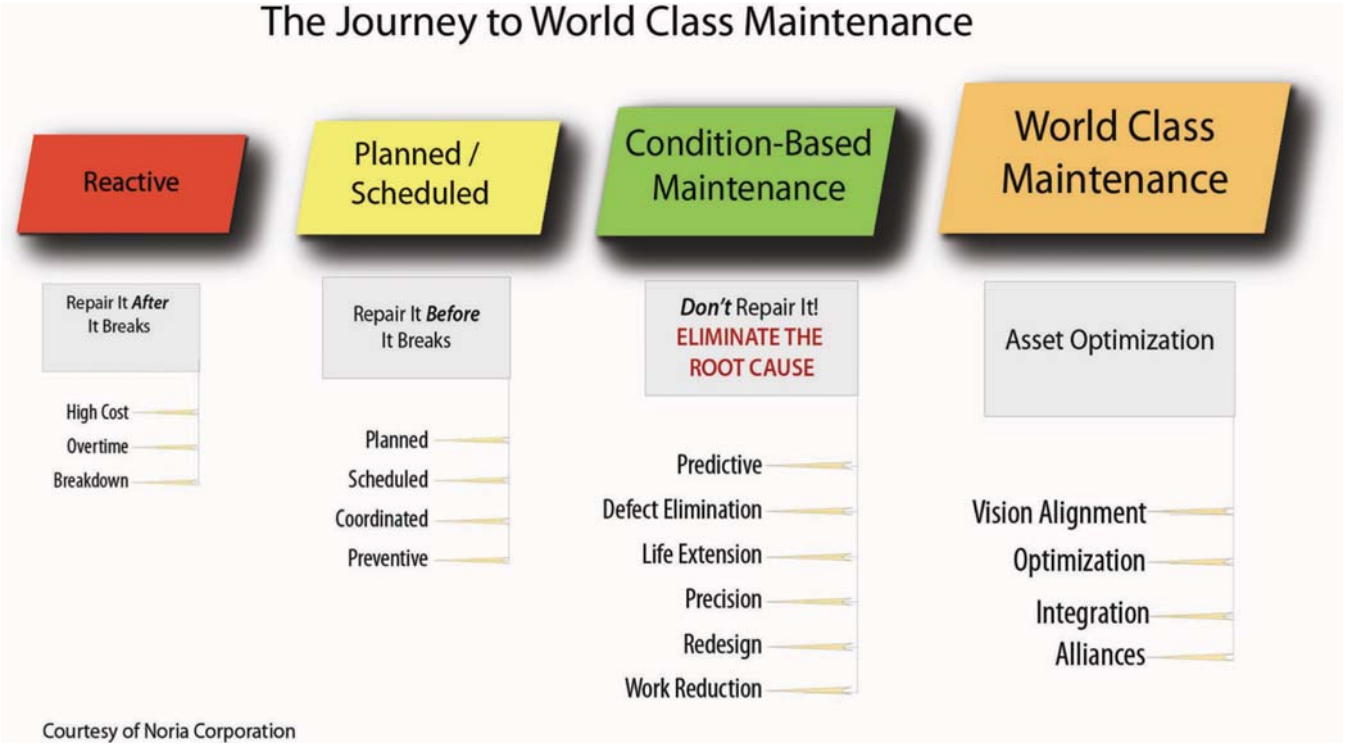
Intangible Benefits

Most ferry and tug operator clients are surprised to learn that savings from having to purchase less oil is just the icing on the cake. Once a successful bypass filtration program is implemented, most companies find that indirect savings from the program, such as downtime, reduced component repairs and extension of life to overhaul, significantly outperform the direct savings from the safe extension of oil life.

Additionally, there is a benefit in using bypass oil filtration technology with regard to larger applications in the marine industry. The cost of transporting and storing oil for maintenance is greatly reduced when the operator is able to reduce the amount of oil they have to carry with them when out to sea, as is the environmental risk associated with bringing oil on and off a vessel.

In purchasing an oil bypass filtration system, it's important to select a system that addresses all three main reasons the oil has to be changed to begin with: 1) removal of solid contaminant to below one micron (studies show that solid contaminants above the one micron level cause serious deterioration on engine parts); 2) removal of liquid and gaseous contaminants; and, 3) replenishment of base additives (in engine oil) to maintain the oil's chemical balance.

Kevin G. Kroger *is President & COO at Puradyn Filter Technologies. Previously, he served with Detroit Diesel Corporation and Caterpillar Corporation in various executive and positions.*



Sterling Builds Massive Dredger

Vessel's crane is the centerpiece of this state-of-the-art, technologically advanced workhorse platform.

By Eric Haun

Sterling Equipment, Inc., an East Coast marine construction rental company based out of Quincy, Mass., has more than 135 pieces of floating equipment in commission, but its newest barge, a 180- x 65- x 12-foot crane dredge, will be among its largest and most technologically advanced. In September 2012, Sterling, a subsidiary of Jay Cashman, Inc., contracted May Shipyard on Staten Island, N.Y. to start construction on its new walking spud deck barge, Dale Pyatt (named after President and CEO of Jay Cashman, Inc.).

Robert "Bobby D" DeCrescenzo, president of Sterling, said the 70-cubic-yard dredge is being built to help Sterling enter a bigger market. "To compete with dredging market, we have to come up in dredge size," DeCrescenzo said. "We're not a 20-yard dredge company anymore. We're a 70-cubic-yard dredge company, and we can compete with the big guys."

Two Steps Forward; One Back

The new dredger is Sterling's third barge to be built at May in the last year and a half, and though its construction has finally been completed, the shipbuilding crew encountered a few setbacks along the way. Last October, Superstorm Sandy brought more than six feet of water into the yard, knocking one of May's drydocks into the ship, causing damage to the vessel. The yard was closed for at least 30 days, DeCrescenzo said, and without power, the project was kept stagnant for nearly six weeks. With help from 250-kw generators, May's builders were able to get production back on track.

TDC Crane: Power and Features to Spare

Significantly, the crane is powered by two Caterpillar C27 tier 4 diesel generators that produce 800 eKW each, synchronized for 1,600 eKW of total power. DeCrescenzo said the vessel will feature state-of the art electronics and boasts an all-electric design, right down to the operation of the crane. With all hold-ups in rearview, Sterling has

Image above: Deck barge Dale Pyatt sits in May Shipyard while construction is finalized. (Photo: Eric Haun)

wrapped up assembly on the barge's crane in Quincy. The crane, designed to T6 criteria by Canadian company TDC Cranes Ltd., has finally made its way onto the barge.

When engineering on the crane began in June 2012, Sterling set forth to produce a crane that was enormous, powerful and high-tech, yet still durable and simple to operate. Sterling provided continual input to TDC throughout the engineering and design process to end up with a machine that suits the end user and application. "Everything about this crane is massive, said Richard Gillespie, President of TDC Cranes Ltd., "from the draw works to the boom to the dual slew drives, carbody, a-frame, house roller beams, gear reducers, open gears and operating cab."

"Assembly of a machine this size is a huge undertaking requiring skilled fitters, welders, millwrights and electricians," Gillespie said. "This was undertaken by Sterling's crew in Quincy with TDC supervision and support. Large steel fabrications were built off site, delivered to Sterling and had all the mechanical and electrical components installed by Sterling at the Quincy yard."

The dredge crane features 200,000 pounds of line pull, 250 feet-per-minute rating, diesel-electric drives and 75-foot operating radius. It can be equipped with either a 70-yard bucket for trimming or a 30-yard bucket for heavy digging. With a crane of this size, simple operation seems hard to imagine. But, that's where many of its high-tech features come into play. The entire crane can be operated from one seat with two joysticks. There are no pedals, no frictions, and the winches are fully powered up and down. Even the spud winches and walking spud can be controlled from the crane seat.

The list of state-of-the-art features doesn't end there. The crane's winch lock allows the operator to automatically coordinate the winches, auto-close, auto-open and cinch control. As the closed bucket hauls up, the closing winch adjusts itself 60 times per second to ensure the bucket remains closed even when the winch is inactive.

The house rollers, carbody and rail are unique to TDC. The roll path is a continuous, curved beam with heavy flanges and web that provide uniform, continuous support for the rail, facilitating direct transfer of loads to the structure of the barge without bending in the carbody. The rail itself is rolled in a precise curve with the ends cut on 45 degree bias to guide the house rollers transition across the rail joints.

Moving to the Head of Class

Built entirely in the United States with North American components, the newbuild work platform is ample proof that U.S. builders can get the job done and that much needed dredging capacity continues to be launched. "The result," Gillespie said, "is a strong roll path capable of withstanding the rigors of dredging. Environmentally, the crane is state-of-the-art; it uses Tier 4 engines, double walled fuel tanks and elimination of all hydraulic equipment," Gillespie said. "This dredge is lightyears ahead of the competition environmentally and is the only dredge in North America that is Tier 4 compliant throughout."

Ahead of the curve, environmentally and technologically, Sterling, Canadian-based TDC Cranes Ltd. and May Shipyard have beaten the odds presented by both Mother Nature and the regulatory scheme to produce a competitive and highly desirable dredge unit, and, not a moment too soon.

Left: Workers configure the crane's mammoth Carbody in Quincy, Mass. (Photo: Sterling)
Right: Robert "Bobby D" DeCrescenzo got his start in the maritime industry working on cranes in the late 1970s. From there, he was hired by Jay Cashman Inc. as a mechanic and worked his way up to president of Sterling Equipment. (Photo: Eric Haun)

Danger Lurking: Above & Below the Surface

Feds issue Interim Guidelines for reefing old rigs at the same time that NOAA identifies myriad potentially polluting shipwrecks. Salvage opportunities abound.

By Susan Buchanan

In late June, the U.S. Interior Department revised its interim policy for defunct, offshore oil-and-gas platforms, making it easier to turn them into artificial reefs under an initiative by the agency's Bureau of Safety and Environmental Enforcement or BSEE. Separately, and at virtually the same time, a new NOAA report that examines national oil pollution threat from shipwrecks has been presented to the U.S. Coast Guard. The May 2013 report finds that 36 sunken vessels scattered across the U.S. coastal seafloor could pose an oil pollution threat to the nation's coastal marine resources. Of those, 17 were recommended for further assessment and potential removal of both fuel oil and oil cargo. Based on vessel contents, condition, environmental sensitivity, and other factors, NOAA has determined that 6 vessels are high priority for a Most Probable discharge, and 36 are high priority for a Worst Case Discharge. Together, the two situations present one of the most important – and potentially lucrative – salvage opportunities in decades.

Idle Iron

"Oil operators would like to reef as much idle iron as possible because it's cost effective for them and environmentally favorable," said Tom Cheatum, sales and marketing manager at Versabar Inc. He adds, "The sports fishing industry has bemoaned structures being taken out of the water." Versabar, based in Houston, Texas and Belle Chasse, La. specializes in heavy-lifting solutions. Under BSEE's interim policy, "support structures will be moved to reef locations, and it will also be possible to reef in place," Cheatum said. "BSEE's modifications may slow the

reefing process down to some extent, however," he warned.

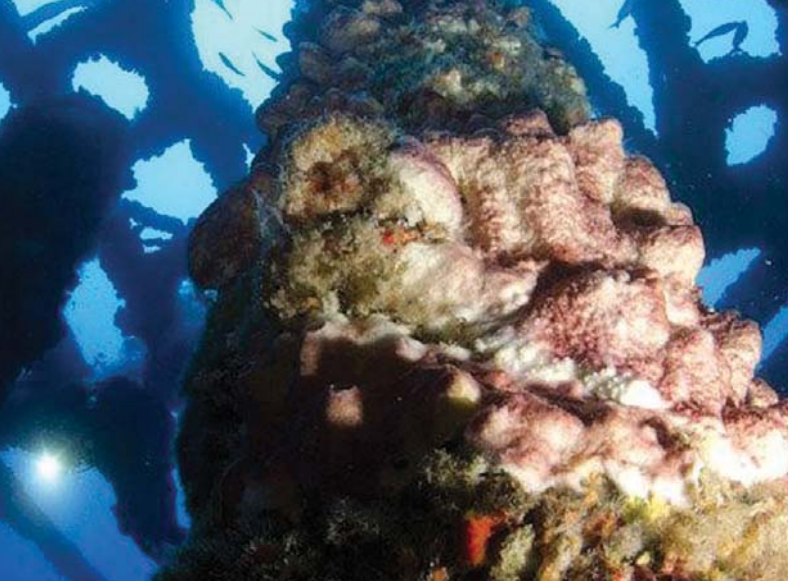
BSEE's new guidelines allow companies to avoid the removal process and enroll rigs in state-run, artificial reef programs. According to BSEE in June, rigs can be reefed in place or towed to a designated reefing area after hazardous materials have been removed. A recent, five-mile buffer zone between reefing areas was reduced to two miles. Storm-toppled platforms have been eliminated from reefing eligibility. The use of explosives on platforms proposed for reefing will be evaluated case-by-case, and won't be approved if natural biological features or established artificial reefs might be harmed. The agency's new guidelines extend decommissioning deadlines for companies converting rigs to reefs.

The interim policy incorporates suggestions from stakeholders in workshops held in New Orleans and Houston over the past year. BSEE is expanding its staff to address removals and reefing proposals, and it plans to introduce GIS or Geographic Information Systems maps of platforms in Gulf federal waters. The maps will include platform data overlays and can be used to identify candidates for reefing. Information on platforms prized by anglers and divers will be considered as reefing options are assessed.

The interim rigs-to-reefs guidelines should reverse the trend of old structures being unnecessarily removed, and will let them stay in the water for the benefit of fisheries and anglers, according to American Sportfishing Association (ASA) president and CEO Mike Nussman in late June.

In recent years, the rate of oil-and-gas platform removals in the Gulf has exceeded installations, and new platforms have been installed farther from shore, reducing anglers' access to them, the ASA said last month.

Ten percent of 800 non-producing



Gulf of Mexico platforms have been reefed since 2010 while more than 200 platforms have been removed yearly since then, according to BSEE. Three years ago, the Obama Administration tightened rules for plugging unused wells and removing old platforms and pipelines in the Gulf as part of a crackdown following the 2010 BP spill. Under September 2010 rules, wells that hadn't been used for five years had to be abandoned or "zonally isolated" within three years. If wells were zonally isolated, operators had to abandon them in two years. Platforms that had been idle for five years or more were to be removed within five years, starting in mid-October 2010.

Decommissioning May Become More Expensive For Some Operators

BSEE's interim policies have their benefits. "But they'll also make it more expensive to decommission rigs because companies won't necessarily be able to topple rigs and decommission on site the way they often did in the past," said Andre Franques, Managing Partner of D&L Salvage & Marine Services in Franklin, La. "That will equate to more expenses on a non-producing asset," he said. Some of the decommissioned rigs will be moved to specific reefing areas, where they'll be spaced apart, he said.

"I expect that the Big Boys – the major oil companies including Shell, Chevron, Apache and others, who lease offshore sites to smaller operators – will take charge of any required decommissioning on those sites themselves," Franques said. "Since the Gulf spill, big oil companies are very concerned about liability and preventing costly accidents. They don't want a spill to occur during decommissioning and then have their name plastered all over because of it."

"Macondo showed these operators how expensive an environmental accident can be," Franques said. "By taking liabilities into its own hands, a big oil company reduces its exposure and could save lots of money in the long run." Hurricanes in the Gulf have pushed operators to speed up decommissioning to eliminate the possibility of being hit by a storm. "An operator is better off abandoning a platform before a hurricane knocks it over and causes an underwater spill," he said. "A spill can be expensive, and since *Katrina*, insurance companies have put a payment cap on that kind of coverage."

"Decommissioning rigs may be easier for companies in state water than in federal waters," Franques said. "The federal decommissioning bureaucracy has become much more complicated and confusing in recent years because regulations were tightened after the 2010 Macondo spill. Federal rules and regulations are a moving target that keeps changing, making offshore oil and gas operators very cautious about how they invest. Today, they might be more willing to invest in less-regulated state waters." In the last 15 years, D&L has salvaged abandoned state-water pipelines, oil platform steel and other metals from old pipelines and equipment, and collected them for its scrap division.

BSEE's Revisions Could Give States More Flexibility

Sixteen states have rigs-to-reefs programs now. Louisiana reefs about 25 structures a year through its Artificial Reef Development Fund or ARDF. The state's oil-and-gas operators pay into the fund, expecting the money to be used on reef building and fisheries enhancement.

For oil companies operating in Louisiana, the average cost of decommissioning a Gulf platform outside of the ARDF program is about $3.8 million, Randy Pausina, Assistant Secretary of the Louisiana Dept. of Wildlife and Fisheries, said last month. Companies enrolling structures in the ARDF donate half of their realized savings to the fund. It takes six months to a year before old platforms are deployed as reef. LDWF pays any costs associated with maintaining artificial reefs.

BSEE's initiatives in June were a revision in internal policy, not a change in regulations, "but they seem to be in a positive direction, allowing for more flexibility at the

state level," Pausina said. Louisiana's ARDF, popular with oil companies, contains about $22 million now after the Jindal Administration removed tens of millions of dollars from the fund in recent years to balance the state budget. The states say the fund has enough money to meet reefing needs, however.

Feds Weigh Impact of Old Shipwrecks

In the salvage arena, the federal government completed a major study on old shipwrecks this spring. No significant salvage work on these so-called legacy shipwrecks is expected this year, however. In its report "*Risk Assessment for Potentially Polluting Wrecks in U.S. Waters,*" released in March, the National Oceanic and Atmospheric Administration assessed pollution threats from wrecks. Congress appropriated $1 million in 2010 to identify them, and NOAA worked with the U.S. Coast Guard on that mandate.

NOAA's Resources and Undersea Threats, or RUST, database includes 20,000 shipwrecks in U.S. waters. Most of these ships lost their cargoes long ago but some of them contain hundreds or thousands of barrels of oil. 87still have enough structural integrity to contain oil, and six are rated as high priority by NOAA for probable fuel discharges. The feds are monitoring World War II ship casualties in the Battle of the Atlantic. Great Lakes casualties were largely coal fired, however, and aren't much of a modern-day threat.

Shipwrecks that pollute are much more manageable than initially feared, NOAA concluded in its recent study. U.S. coastlines are not necessarily littered with vessels that are ticking time bombs of oil, the agency said. Upcoming U.S. Navy regulations should clarify how the nation's Sunken Military Craft Act will interact with Oil Pollution Act requirements, NOAA also said. For the majority of vessels identified in the Remediation of Underwater Legacy Environmental Threats or RULET, removal isn't feasible because of cost, complexity and historical significance, NOAA said in its report.

"To my knowledge, no legacy wrecks have been salvaged or had pollution removals conducted on them this year," Lisa Symons, NOAA damage assessment coordinator, said last month. "The USCG is in the process of reviewing the RULET, and incorporating risk assessments into appropriate area contingency plans. I don't know of any scheduled assessment or removal activities at this time but a couple of surveys of opportunity have taken place."

Seeking New Technologies – and New Opportunities

At Versabar, Tom Cheatum said his firm doesn't do shipwreck salvage. As for the decommissioning industry, "there isn't much new on the operational side of idle iron," he said. "But the industry continues to look for new technologies to make decommissioning more efficient and less expensive." Launched in 2010, Versabar's VB 10,000 lift vessel--used for topside rig decommissioning, jacket removal and underwater debris removal--can raise 4,000 tons in a single operation. That ability can save a company time in a rig removal. In 2011, Versabar introduced "The Claw," a lifting device used with the VB 10,000 to reduce diving exposure.

"Companies stay competitive by adopting emerging technologies," Cheatum said. "We have technology stuff we're working on but we aren't ready to talk about it yet." They can also look for new types of work. As for the NOAA report, as many as 20,000 wrecks do litter the ocean bottom, according to their database. No doubt, some will need remediation. Salvors with idle equipment, awaiting the proverbial "big one," may instead find opportunities in legacy wrecks and rigs. In both cases, these jobs are no less important than the next disaster which may or may not lurk just around the next corner. Until then, there's work to do.

OSV's, LNG and Deepwater: a New Climate Change for HVAC

Dometic Marine Develops and Supplies HVAC Systems for Harvey Gulf's LNG-powered Offshore Support Vessels

Edited by Joseph Keefe

Dometic Marine recently strengthened its position as a quality supplier of heating, ventilation and air conditioning by growing its footprint in the wider commercial marine sector. One such high-profile project includes the on-board systems for Harvey Gulf International's new-build projects. After securing the contract through Lemoine in 2011, Dometic worked Harvey Gulf, builder Gulf Coast Shipyard Group (formerly Trinity Offshore) and Louisiana-based Lemoine Marine Refrigeration to develop custom systems for the forthcoming liquefied natural gas (LNG)-powered Offshore Support Vessels. This allowed Dometic Marine to enhance, adapt and customize its innovative DuraSea Air-Cooled Condensing Units to ensure the equipment will withstand the extremely harsh marine conditions associated with life on board these unique, environmentally-friendly vessels.

The first Dometic Marine-built ship-set, comprised of four 10-ton DuraSea Air-Cooled Condensing Units, two six-ton units and two five-ton units, was delivered to the Gulf Coast Shipyard Group in late July. Built specifically to operate efficiently for long periods in all extremes of sea and weather, the units arguably combine to form the perfect vehicle to support crew well-being and to ensure the correct environment for sensitive electronics and other systems on board today's increasingly sophisticated and far-ranging OSVs operating in the Gulf of Mexico.

Harvey Gulf Project

A potential game-changer in the move towards an upsurge in the adoption of LNG-fuelled vessels across the marine and offshore sectors, Harvey Gulf International's six clean-burning, LNG-powered Offshore Support Vessels intended for deployment in the Gulf of Mexico will make Harvey Gulf the largest owner/operator of environmentally-friendly LNG OSVs in the world. Each STX USA Marine-designed vessel will be able to accommodate up to 42 crew members, with Harvey Gulf giving particular consideration to enhancing the crew comfort and accommodation on its OSVs. For instance, the vessels have spacious quarters, modern kitchens and common areas with premium equipment and Harvey Gulf extend this consideration for crew with their attention to the HVAC equipment. Dometic Marine dealer and marine air conditioning and refrigeration specialist Lemoine Marine Refrigeration, secured the contract to supply and install the on-board HVAC systems following a bidding stage in 2011.

R&D Produces New, Robust Design

Dometic Marine has further driven the technological advancement of its products to meet and exceed the requirements of a project to supply on-board HVAC systems for Harvey Gulf International's LNG-powered Offshore Support Vessels. Dometic Marine's stainless steel DuraSea Air-Cooled Condensing Units were further enhanced and developed to incorporate several significant design changes along with the addition of several features after prolonged discussions between the parties. The enhancements were largely initiated due to concerns about the harsh and varying sea, weather and temperature conditions endured by the vessels during sustained operations. These design-led innovations and additional features and enhancements can now be offered to future commercial clients.

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Built with a cabinet of stainless-steel 304 to resist heavy salt spray and UV damage, the DuraSea Condensing Unit is part of Dometic's DuraSea air-cooled direct expansion air conditioning equipment range. It is suitable for deck or rooftop mount and employs a unique, vertical fan design which prevents water puddling on the fan blades. The

Dometic Marine's DuraSea Condensing Unit with vertically-mounted fan

Dometic GROUP

DuraSea Condensing Unit with service panel removed

Ed Todd, National OEM Sales Director, Dometic Marine

Dan Wilday, Vice President of Engineering and Sales, Lemoine

system's innovative risers offer the option to elevate the unit above the mounting surface to provide excellent water drainage and protect the coil from debris and saltwater. The unit incorporates a scroll compressor which reduces noise and vibration of the system. The units also use the environmentally-friendly 410A or 417A refrigerant.

Several features were already incorporated in the design of the unit to ensure additional durability. The DuraSea resists corrosion with copper tube and aluminum-finned coils with a dipped coating that exceeds the 6,000-hour salt-spray test. The DuraSea also features corrosion-resistant stainless-steel fasteners and all other external components have a protective coating. The unit's control box and compressor are strategically located within a recess in the cabinet to ensure easy access and provide further resistance against salt water intrusion and corresponding corrosion.

Additional features – based on client requirements – included a suction accumulator (for storing the needed refrigerant when the linesets are long), crankcase heater (for cold weather conditions) and low ambient fan cycle control (to temporarily shut the fan off so that the head pressure will build in the system to keep the refrigerant flowing). Other items added to the 'standard' units for this project were drain holes in the base, a gasket on the outer panel, a grating cover over the fan, a shrink tube over the pressure switches, watertight electrical contact, pin type or lug connectors and sealed ferrules. It was also agreed to add a phase monitor as an extra cost item to provide an alert following an incorrect electricity connection.

Key Benefits

Designed for workboats, platform, and military vessels.	Operates with most evaporators.
Hermetically-sealed scroll compressor w/overload protection.	Brass base valves w/sweat connections/service ports.
High-efficiency copper tube, aluminum fin coil w/dipped E-coating that exceeds 6,000-hour salt spray test.	Vertical fan mount design.
Optional risers elevate unit to protect coil from salt water, debris (3 to 6-ton models only).	High- and low-pressure controls.
Copper tube/copper fin coil upgrade available for the ultimate in corrosion protection.	Heavy-duty contactor with lug connections.
Permanently lubricated fan motor w/Ingress Protection of IP 54 or better.	Optional stainless-steel 316 cabinet.

Collaboration is the Key

Collaboration with builders and the client from an early stage was a key factor in producing this custom OSV solution. National OEM Sales Director, Dometic Marine, Ed Todd, told *MarineNews* in July, "Dometic was chosen for

its long-life, durable products which will offer a good return on the client's investment. We then further discussed the unit in detail with Harvey Gulf and Trinity and built the products specifically for them. The end-users really drove the design of this system. They gave us a world of information."

Now making these adaptations formulated for the Harvey Gulf OSVs as standard options for those customers who want them, Todd believes that people on the rigs themselves will want to install the product. He adds, "It is a huge area of opportunity for us."

Dometic Marine dealer Lemoine Marine Refrigeration has played a key part in the discussions to optimize the performance of the units and has also been able to provide feedback and advice to the OSV builders from an early stage in regard to ensuring sufficient space for the equipment. With six units originally specified for the vessels, Lemoine will actually be providing eight to ensure improved control and performance – four placed on top of the pilot house, with the other units on the lower levels aft of the deck house behind the cabins.

Vice President of Engineering and Sales, Lemoine, Dan Wilday said: "Harvey Gulf and Trinity asked for stainless-steel marine-type air-cooled units and we knew Dometic Marine had been building those for a while. In fact, in 2009, we installed one of these units on another supply vessel, Terrel Tide. We also know about Dometic's expertise and their willingness and ability to adapt the unit for specific applications. The ones we are using on the Harvey Gulf vessels look very different and have several extra features from that prototype on the Terrel Tide.

"As well as enhancing the durability, there were also some refrigerant line issues - engineering and pressure issues specific to the Harvey Gulf project. The outdoor units are connected to the indoor units – a split system – and the structure of the vessel means the connections and tubing are very long and extensive which meant certain precautions had to be taken. We would not have had to make these adaptations when installing the equipment on a tug or other supply vessel."

The bottom line for Lemoine? Like Dometic, Wilday adds, "It was very important for us to be involved early in the process, so we could have some input on allowing enough space for the units. It was more of a challenge inside the vessel, with the ductwork, safety and regulatory issues." New vessels with even newer features require key equipment to have similar enhancements. HVAC installations are something most operators hope that they never have to think about again. In this case and because Dometic has done its homework, they probably won't have to.

The Ten Most Frequently Observed Towing Vessel Deficiencies

The U.S. Coast Guard's Towing Vessel National Center of Expertise (NCOE) recently conducted an analysis of all deficiencies recorded by CG field personnel while Examining "uninspected towing vessels" (UTV) under the Towing Vessel Bridging Program and through other activities. The purpose of this analysis was to provide information and visibility on the most common UTV deficiencies list to share with UTV owner/operators in order to assist them in identifying and correcting common problems. In May of this year, they issued a comprehensive list that workboat operators – no matter what sector in which they operate – will find enormously helpful.

The most frequently observed deficiencies, including a brief explanation of the deficiency, applicable regulation, and some possible corrective actions are provided below. These deficiencies were determined by examination of data from September 2009 through February 2013 as recorded in the CG Marine Inspection Safety and Law Enforcement (MISLE) system.

- **Remote Fuel Shut-off Valves (46 CFR 27.207)**

Location, location, location. Any fuel line that supplies fuel directly to an engine or generator must have a shut-off valve that can be remotely-operated from outside the space and must be located as near as possible to the fuel source (fuel tank, day tank, etc.) or the main fuel distribution manifold. Other requirements include mechanical linkages be kept clean and lubricated, valve control must be labeled indicating direction and action to be taken (i.e., pull to operate) in one-inch letters. The most common issues were location of the valves (most were located at the end of the fixed piping adjacent to the engine served).

- **General Alarm (46 CFR 27.201)**

General alarm installations are required to notify Persons in any accommodation, work space, and the engine room. Bells in the engineroom and any other space where background noise makes a general alarm bell hard to hear are required to include both audible and visual indicators (i.e., warning bell/siren and light). A placard with the inscription: "Attention General Alarm – When Alarm Sounds or Flashes Go to Your Station" is required to be posted in the vicinity of the general alarm bell/light. Missing placards, missing or malfunctioning visual indicators, as well as inoperable audible indicators are frequent deficiencies on towing vessels.

- **Navigation Lights (46 CFR 25.10-3)**

All vessels must have navigation lights in accordance with the International and Inland Navigation Rules

(Rules 22, 24 and Annex I), to include operable stern, masthead, sidelights and towing lights. In some instances the original or replacement installation of these lights was found to conflict with the International and Inland Navigation Rules, including the lack of "matte black" light screens (vessels over 65 feet per 33 CFR 84.09), improper vertical location, improper type approval of light, and proper arrangement of lights for area of intended operations. Operators should test their navigation lights prior to each voyage and inspect their navigation lights periodically, paying particular attention to the condition of the lenses, wattage and focal height of the bulbs. Household bulbs are not acceptable. Vessels should display the appropriate lights when aground in accordance with Rule 30 of the Nav Rules.

- **Drug and Alcohol Testing (46 CRFR 4.06-15, 16.230, 16.401)**

Marine employers shall establish a program for the random drug testing of crewmembers that are licensed or serve in safety sensitive positions, ensure alcohol testing is conducted within 2 hours of a Serious Marine Incident (32 hours for drugs), and provide an Employee Assistance Program for employees (including management). The inability to produce records supporting a testing system, expired testing kits or lack of written arrangements for testing, and lack of training or notification of EAP to employees were the most common issues.

- ***Fire Detection Control Panel (46 CFR 27.203)***

The entire control panel's required features must function properly: Power-available indicator light, audible alarm, visible indication of the zone (or zones) of the fire's origin, means to silence the audible alarm and a circuit-fault detector test switch. Labels for all switches and indicators must be in place. Repeaters must be compatible with the detection system and contain approved or listed components. The most common issue was the inability to Produce documentation that the system's installation was certified (by either a registered professional engineer, accepted classification society, or, if an equivalency has been granted by CG-CVC-1, a Level IV NICET). Owners/operators should be prepared to produce the document on board, demonstrate proper operation, and produce records pertaining to system testing in accordance with manufacturer instructions during each examination or boarding. Hiller Fire Safe units are not approved to be installed on board commercial vessels.

- ***Official/Unofficial Logbooks (47 CFR 80, 33 CFR 164.80, etc.)***

Although current regulations do not directly require a towing vessel to maintain an official logbook, multiple regulations require that records of mandatory equipment tests, inspections, and operational details be recorded. Examples include Radio Log, logging of the testing of navigation safety equipment, inspection of rigging and towlines, General Alarm tests, failures of navigation equipment, etc. The most common cause of deficiencies is the failure to record required information.

- ***Vessel Compass (33 CFR 164.72)***

Each towing vessel must be equipped with an illuminated card-type magnetic steering compass readable from the vessel's main steering station, or alternatively if the vessel engages in towing exclusively on Western Rivers, an illuminated swing meter. Some common related deficiencies include absence of the equipment, malfunctioning lighting, etc. Owners/operators are encouraged to ensure the equipment is on board and functioning, and deviation tables are updated as necessary.

- ***Marine Sanitation Device (33 CFR 159.7)***

Towing vessels with installed toilet facilities must not be operated without having aboard either a CG Approved Type I, Type II, or Type III Marine Sanitation Device. Specifically, the Coast Guard has detected a large number of deficiencies regarding Type II MSDs, which are required on vessels over 65 ft in length (vessels under 65 feet can have certain Type I MSDs). Some of the issues include lack of appropriate treatment chemicals, lack of operating instructions, and missing CG approval information/placard.

- ***Fire Extinguisher Brackets (46 CFR 162.028(g))***

Under the approval requirements for marine type portable fire extinguishers, mounting brackets are to hold the extinguisher "securely in its stowage location on vessels or boats, and which is arranged to provide quick and positive release of the extinguisher for immediate use." Some extinguishers go further and specifically state which brackets are acceptable for the purposes of meeting this requirement on their approval labels. It is noted, however, that many extinguishers arrive from the manufacturer or distributer with brackets that do not meet this expectation and must be changed out prior to use aboard a vessel. Operators are encouraged to read the approval labels and to seek further guidance from the manufacturer or the TVNCOE if necessary.

- ***Official Number Marking***

Commercial vessels in excess of 5 net tons are required to be documented by the United States. The official number assigned by the document shall be permanently affixed to a major structural member of the vessel in the format of "No. XXXXXXX". Surprisingly, either numbers are not affixed or are incorrect in format on many vessels. Operators are encouraged to ensure the correctly formatted number is welded, tapped, scribed, engraved or otherwise permanently affixed to a bulkhead, frame, beam, etc., on the vessel that can be readily observed.

The Coast Guard-generated list, developed and based upon vessel compliance with current regulations, does not address operations or excess equipment conditions that could pose a potential hazard (i.e., pressure vessel maintenance or condition). For more information about UTV examinations and how to prevent common deficiencies, including performing self exams, click: *http://www.uscg.mil/tvncoe.*

Mission Specific Boat(s) … With a Twist

Today's economy is tough enough for the commercial sector. For federal, state and municipal authorities – and in an atmosphere of shrinking tax revenues and sequestration – the task of securing mission-appropriate assets can be even tougher. At this year's National Sheriff's Association Conference (of all places), held this June in Charlotte, NC, at least two boatbuilders showed that there is an economical way to get the job done.

Rescue ONE: the recipe for interoperability and mutual cooperation

Increasingly, the need for multi-missioned boats to create both economy of scale and the ability to do more with fewer assets is becoming the rule, rather than the exception. Those tasked with providing specific missions, such as search and rescue, have similar needs. In 1992, a U.S. company called Rescue ONE Connector Boats introduced not only a mission specific search and rescue boat, but a boat system that would allow individual boats to be connected together to form larger vessels and/or platforms that expand the capabilities of singular boats to achieve larger scale missions. For municipalities with limited funds, the concept has real meaning – and utility.

The all-welded, aluminum-constructed Rescue ONE Connector Boat is anchored in its patented QuickFIT railing system that enables multiple boats to be connected side by side or end to end. Two boats can be connected together in less than 20 seconds and can then be disconnected in less than 5 seconds. This flexible connected system allows various missions to be accomplished that are simply not possible using single boats. Neighboring communities, each with their own single boat, can now promote real interoperability on the water.

Technical Specifications Boat Dimensions

Length: 16'3"	Max Capacity: 3400 Lbs	Dry Weight: 475 Lbs.
Beam: 6' 3"	Speed: 30 mph	Swamped Capacity: 5400 Lbs

The Connector Boat in its singular form is built specifically for public safety missions. With its wide, flat bottom and rectangular shape, the stability of the boat is unmatched. This stability translates to safety for water rescue technicians. Safety is also achieved by the more than 538,000 cubic meters of flotation material contained in the boat. Virtually unsinkable, the boat includes removable SeaTool boxes that act as bench seating and storage compartments. When removed, the flat non-skid flooring area becomes open work space. The SeaTool bench seats also float if necessary to put overboard.

A unique accessory that makes the Connector Boat a must have is the dive rescue platform. Stowed in the bow and is deployed to create a shelf below the surface of the water, this platform then allows rescue technicians to assist victims in the water rather than reaching over the side of the boat and also creates a ladder for boarding the boat for both victim and rescuer.

Exiting a boat has never been an issue for divers. Returning themselves and their gear safely inside the boat has been the constant challenge. With the Connector Boat fitted dive rescue platform, the divers can now swim up to the platform and sit down. Once recovered from a strenuous mission, the diver can stand up, securely hand their equipment to a tender inside the boat, and then take two steps to safely and easily board the boat. Constructed of welded aluminum also, the platform is easily deployed and retrieved by a single person.

Versatility is another aspect of the Connector Boat system that makes it a true value. Many times, agencies must purchase different types of boats to accomplish specific mis-

sions. While that still must occur in special circumstances, having one boat that can accomplish multiple missions is ideal. Yet another capability of the Connector Boat system is the ability to quickly and easily convert your boat system to a fireboat. With the removal of a seat in the Connector Boat, the boat can be fitted with a fire pump. A specially design 500 gallon per minute fire pump fits into the void of the front bench seat to provide immediate firefighting or water source capability. In its custom fitted frame, the Connector Boat fire pump houses a 20hp pump, fuel tank, battery, 8' flex hose suction, barrel strainer and fixed monitor with nozzle making it a self-contained unit capable of being dropped in at a moment's notice. Not only does the pump act as a quick attack apparatus for on water firefighting, its 2.5" utility discharge can be used to pump water to a land based tender when other sources of water are not available. Dewatering of flooded vessels can also be achieved with the on board pump system.

The Connector Boats unique design allows it to navigate extremely shallow water. With a draft of mere inches, the boats are able to take rescuers to location such as flooded urban streets that traditional boats just cannot go. And with its durable aluminum construction, it is made for the demands of work in debris filled flood rescue and evacuation missions. Connector boats can even be outfitted with outboard jet drives which can propel the boat in less than 10 inches of water. While its singular form is a tremendous asset, the system really proves itself by linking boats together for various purposes:

Evacuation bridges to literally walk victims from a flooded or endangered area. There is no limit to the number of boats that may be connected.
Humanitarian aid barges to disperse food, water, and other supplies to remote areas. When you reach your destination, you disconnect the boats and send them on individual missions to disperse the aid.
Floating command platforms can become beneficial when managing a large scale water incident.
Diving platforms can also be created to stage rescue divers and large scale extended dive recovery operations.

To this end, over 600 agencies worldwide, including the Federal Bureau of Investigation, have invested in the boat system that has changed how they conduct water operations. But, perhaps, it is the smaller, less financially endowed organizations that constitute Rescue ONE's most important customers. Neighboring communities only able to purchase one boat get the full benefit of the system when they join forces on a particular incident or response by pooling resources. That's economy of scale and utility. That's Rescue ONE.

Freedom 21 from Silver Ships: the affordable Law Enforcement Platform

For municipal police departments thirsting for a quality maritime platform even in the leanest of times, Silver Ships has just the tonic for what ails them. That's because, for about $128,000, they can obtain a first rate, capable patrol vessel that not only puts them in the water, it does so with superior performance, too. That low entry price comes complete with a full trailer package and with a vessel that is capable of making speeds of up to 40 KT, using an Evinrude 250 engine, with a relatively shallow 18" draft that will also take them to just about any place where there is even the smallest amount of water. A host of optional upgrades completes the package for those municipalities with a bit more to spend. At the Sheriff's Convention in Charlotte, they even took their first order.

Silver Ships has provided, on a global basis, military, municipal and commercial users with work and patrol vessels for more than 27 years. On any given day in the factory, you'll find Law Enforcement boats side by side to US Navy program boats with a variety of state, Federal & DOD as well as foreign market mixed in. Their latest rendition, the "Freedom 21CC," built with marine-grade aluminum has the ability to work in shallow or open water, powered by single outboard and open deck area the 21CC was Purpose Built and ergonomically designed for single officer operations.

The 21CC has a solid foam fendering system with side entry ports, plenty of dry storage as well as dedicated firearms locker. The console is laid out to accept any type of navigational system commonly used as well as department specific electronics. The boat is designed to be safe, reliable, efficient and most of all - intuitive for the officer to operate.

Performance Specifications & Features:

LOA: 21'-0	Propulsion: Single Outboard	Solid Foam Fendering System
Beam: 8'-6"	Speed: 40+ Knots	4 storage lockers
Draft: 18"	Full Walk Around Console	Lockable weapon/ storage
Low entry Price	Upgradable for Future Electronics	Full Trailer Package Standard

Campbell Transportation
Christens Towboats, Drydock

Campbell Transportation recently christened two newly built state-of-the-art towboats and a drydock. The June 25th event marks the first new vessel construction in Pittsburgh in 30 years, a significant investment that will help create jobs and benefit the economy. The drydock was partially built with a shipyard grant from the U.S Maritime Administration (MARAD) and constructed at the Campbell Transportation shipyard in Congo, WV. The construction of the two towboats at the Campbell shipyard in Dunlevy, PA also benefitted indirectly from stimulus money provided through MARAD in 2009 for new industrial fabrication.

The two new towboats, m/v Renee Lynn and m/v Alice Jean, have been constructed to comply with new U.S. Coast Guard Subchapter M inspection regulations. The towboats will be officially named after the wife and the mother of two long-term employees of Campbell Transportation; Renee Lynn Grizzel, wife of Steve Grizzel, Director of Human Resources, and Alice Jean Corigliano, mother of Ron Corigliano, Director of Regulatory Compliance.

	Renee Lynn	Alice Jean
Official Number:	1240413	1244619
Year Built:	2012	2013
Dimensions:	65'-0" x 24'-0" x 8'-0"	65'-0" x 24'-0" x 8'-0"
Registered Tons:	125 GT	125 GT
Propulsion Engines:	2-CAT C-18 Series Engines, 1200 HP	2-Cummins QSK-19 Series Engines, 1320 HP
Generator Sets:	2-John Deere 55 KW Generators	2-John Deere 55 KW Generators
Deck Winches:	2 Patterson, 20 tons low profile winches	2 Patterson, 20 tons low profile winches
Fuel Capacity:	6,000 gallons	Fuel Capacity: 6,600 gallons

Harley Marine Brings
State-of-the-ART Tug to Los Angeles

Harley Marine Services has brought its most powerful and environmentally friendly tug boat to service the Port of Los Angeles. The Robert Franco arrived in Los Angeles last week and joins four other tugs in the fleet that assist cargo vessels and tankers in and out of the San Pedro Bay port complex. The Robert Franco features Tier III engines and shore-side electrical power plug-in capabilities. Tier III engines, which are several years away from vbeing required by law; reduce nitrogen oxides (NOx) and particulate matter amounts by 90 percent compared to Tier 0 engines. The powerful tug is equipped with 6,800 horsepower and provides 91 tons of bollard pull. The vessel is also equipped with state-of-the-art marine electronics, tow winches and fire and safety equipment.

Moore Boat Delivers Fire 32

In June, Moore Boat delivered an all new aluminum Moore Fire 32 to the Ocean City Fire Department after its successful completion of various sea trials. The Moore Fire 32 is unique in its ability to respond to rescue and/or fire in areas normally deemed unnavigable to traditional fire boats. The vessel has been purpose built for its intended area of response in the Ocean City area. The first of a new series of fire boats from Moore Boat, vessel utilizes the patented hull form that other Moore Boats have successfully utilized. The Moore Fire 32 has a LOA of 32' and a beam of 12'. It is powered by twin 350 HP diesel engines turning jets which also serve as the source for the fire system, an industry first for a twin jet application. The jets are manifolded thus allowing for station keeping while the vessel is flowing water to the monitor or various hand lines. The boat is capable of 40+ miles per hour with the unique ability to transverse sandbars with depths as shallow as 6 inches. Statically the boat has a draft of 18.5 inches. Offering a central ergonomic focused helm, thermal camera, aft work platform with drop down transom, and abundant storage, the vessel also offers an infirm/triage area located within the pilot house, integrated body board storage and removable davit system among many other rescue specific design features. The firefighting system can produce total flow meter results of approximately 1,250 gallons per minute (GPM) and project a stream up to 250 feet with its remote controlled roof mounted monitor. The vessel additionally works as a shore hydrant, supplying land based equipment from a 5" Storz outlet. An integrated foam system and foam storage is also integrated into the design. Four additional hand lines can be configured for fire fighting.

Vane Brothers tug launched at Chesapeake Shipbuilding

A new Vane Brothers tug recently launched at Chesapeake Shipbuilding in Salisbury, MD, will feature some innovative towing winch and deck equipment from JonRie Intertech LLC, Manahawkin, NJ.

The Tangier Island, the eighth in a series of ten Sassafras Class ocean tugs for Vane Brothers, has a complete set of JonRie Deck Equipment, including a Series 500 Towing Winch with an independent drive level wind. The winch has a line pull of 45 tons and a spool capacity of 650M of 45mm cable.

The winch is completely controlled from the Tow Coop on the boat deck and features pilot house alarms. The drive in the engine room is powered by a 125 kW diesel engine and features a 25 kW backup system. All controls were designed and supplied by JonRie. On the after deck, the tug also has a JonRie Series 421 Hydraulic Capstan. Propulsion is supplied by two Caterpillar 3512 main engines that produce 2,235 kW (3,000 hp) through 6:1 reverse reduction gears to conventional shafts. The Tangiers Island has accommodations for seven crew members. Once delivered, the Tangier Island will push 30,000 bbl tank barges on near coastal routes. Construction is already underway on the remaining two tugs, each of which will be delivered over 18 months.

First of Two Jensen-Designed, ASD Line-Haul Tugs Delivered

Seattle-based naval architecture and marine engineering firm, Jensen Maritime, has announced the delivery of the Hawaii, the first of two 120' x 35' x 19' Jensen-designed ABS machinery class ocean-going tugboats, to Hyak Maritime, a marine equipment and vessel owner based in Dover, Delaware. The Hawaii was built by JT Marine of Vancouver, Wash. Hyak's second tug, the Washington, is scheduled to be delivered by the end of 2013. The Hawaii and Washington are based on the successful Titan class tugboats, which Jensen developed alongside Western Towboat, a Seattle-based tug and barge company. Western Towboat is currently constructing its seventh, Jensen-designed, Titan class tugboat. Powered by twin GE 8L250 EPA Tier II engines, each rated at 2679 HP/1999 KW at 900 RPM, the ABS Maltese Cross A1, towing service, machinery classed Hawaii and Washington consume significantly less fuel and enjoy much lower maintenance costs than other equivalently powered oceangoing tugboats. Measuring 497 international tons and 91 regulatory tons, the tugs are qualified to sail in all U.S and worldwide waters with the smallest possible crew. They are fitted with a pair of Schottel 1515 Z-drive units for superior maneuverability of tows in port and in close quarters. Living spaces are acoustically-dampened and fireproofed using the NORAC and Danacoustic systems, ensuring crew comfort and safety.

Bollinger Delivers 4th Ocean Class Tug, Ocean Sky to Crowley

Bollinger Shipyards have delivered the DP 2 classed Ocean Sky, the fourth of four Ocean Class tugs for Crowley Maritime Corporation. The first two Ocean Class vessels, the Ocean Wave and Ocean Wind, classed as DP1 were delivered in Q4 2012. Ocean Sky sister vessel to the Ocean Sun was delivered back in May. At 156 feet in length, the Ocean Sky and Ocean Sun are 10 feet longer than the first two vessels and are rated at 10,880 HP. The vessels are outfitted for long-range, high-capacity ocean towing, rig moves, platform and floating production, storage and offloading (FPSO) unit tows, emergency response and firefighting. All four vessels were built at Bollinger Marine Fabricators, LLC in Amelia, La.


Lesher


Haynes


Foxx


White

Coast Guard Yard under New Command

Captain George Lesher recently assumed command of the U.S. Coast Guard Yard. He is the 41st Commanding Officer in the 114-year history of the shipyard, the only shipbuilding and major ship repair facility of the U.S. Coast Guard. The Yard's Industrial Manager from 2011 to 2013, Lesher came from the Coast Guard Cutter (CGC) DEPENDABLE (WMEC-626), where he served as Commanding Officer from 2009 to 2011.

Dometic Marine Appoints Haynes

Dometic Marine has signaled its intent to focus on the commercial market with the appointment of 25-year company employee Ben Haynes to the Commercial and Military Marine portion of Dometic Americas. Haynes has worked with the Asia Pacific group for the past five years, will have key responsibility for generating sales in the Pacific North West, along with North West and North East Canada.

Foxx Sworn in as 17th DOT Secretary

Charlotte Mayor Anthony Foxx has been sworn in as the nation's 17th Secretary of Transportation. Confirmed by the full U.S. Senate in a unanimous vote of 100-0 on June 27, Foxx leads an agency with more than 55,000 employees and a $70 billion budget that oversees air, maritime, and surface transportation. Foxx received a law degree from New York University's School of Law and a bachelor's degree in History from Davidson College.

New Operations Director at American Cruise Lines

American Cruise Lines has appointed Captain Andrew White as Director of Marine Operations. White joins American Cruise Lines after his recent retirement from twenty-seven years of service in the U.S. Coast Guard. Captain White is a graduate of the United States Coast Guard Academy.

EBDG Seattle Continues Staff Growth with Two New Additions

Elliott Bay Design Group (EBDG) has added two employees to its Seattle team. Kurt Jankowski, who has naval architecture, marine engineering and ship construction experience, graduated from the University of Michigan in Ann Arbor with a BSE in Naval Architecture and Marine Engineering and earned his MSE in Naval Architecture and Marine Engineering. Justin Jones is a CAD Designer and Industrial Designer. He graduated with honors from the Lake Washington Institute of Technology.

Burger Boat Company Appoints Conboy as Commercial Director

Burger Boat Company has announced the appointment of Thom Conboy as its Commercial Director. Conboy will be working to secure new construction, refit and repair projects as well as heading its yacht brokerage and charter division at Burger Yacht Sales. Thom's yachting career spans over 30 years with positions as captain, project manager, yacht builder, shipyard owner and superyacht broker.

TITAN Promotes Shelby Harris

Salvage Master Shelby Harris has been named TITAN Salvage's new director of marine operations in Asia. He brings 15+ years of experience responding to large-scale domestic and international salvage and wreck removal projects. Based out of the company's Singapore office, he will report to TITAN's Director of Operations Patrick Keenan. Harris joined TITAN in 1998 as a commercial diver shortly after graduating from the Divers Institute of Technology in Seattle.

Watson to Join ABS

ABS has announced that James A. Watson, Director of the Bureau of Safety and Environmental Enforcement (BSEE), will join ABS as President and Chief Operating Officer of the Americas Division on September 2, 2013. Watson will have operational responsibility for activity in North, South and Central America and the Caribbean. Before becoming BSEE Director, Watson was the US Coast Guard's Director of Prevention Policy for Marine Safety, Security and Stewardship. He was designated as the


Watson


Jankowski


Jones


Conboy

Federal On-Scene Coordinator for the government-wide response to the Macondo oil spill. Watson graduated in 1978 from the US Coast Guard Academy and holds Master of Science degrees from the University of Michigan and the Industrial College of the Armed Forces.

Jepson to Serve Second Term as GPA Chairman

The Georgia Ports Authority has elected Robert S. Jepson Jr. to serve a second term as chairman of the board. Jepson was first appointed to the Board of Directors in 2008 and previously served as vice chairman. The new vice chairman will be James A. Walters, and Stephen S. Green will serve as secretary/treasurer.

IMTRA Names Vancura CFO

Imtra has announced the hire of Jeff Vancura to be the company's next Chief Financial Officer. A finance veteran with twenty years of experience, Vancura has held similar roles for Double E Company, TPI Composites and Mettler-Toledo Thornton. In addition to his financial duties, Mr. Vancura is also a member of Imtra's strategic planning team. Imtra is an importer and manufacturer of high quality consumer marine products, advanced LED solutions and integrated marine systems, supplying the OEM and aftermarket.

Coast Guard-AWO Vessel Rider Program Kicks Off Second Year

Canal cadets

Amendolara

For the second consecutive year, cadets from the U.S. Coast Guard Academy are spending time on board tugboats and towboats this summer as part of a Coast Guard-American Waterways Operators (AWO) Safety Partnership. The Coast Guard Academy Cadet Towing Vessel Rider Program was established in February 2012 to educate cadets on the tugboat, towboat, and barge industry through a week or more of shoreside and onboard training. AWO members Blessey Marine Services, Inc., Canal Barge Company, Inc., Foss Maritime Company, McAllister Towing, and Seabulk Towing, Inc. are all hosting cadets for their training experience. The five companies will host 11 cadets.

Harris

Jepson

Charles de Cuir is VOW Coalition Chairman

Charles R. de Cuir, Director of Rutherfoord's Maritime Division, has been named the 2013 Chairman of the Virginia Offshore Wind Coalition (VOW). VOW is an industry group comprised of developers, manufacturers, utilities, localities, and businesses that support the development of the offshore wind industry in Virginia. de Cuir will be responsible for leading the coalition's efforts to create and support a new manufacturing industry in Virginia.

New VP of Engineering at BMT

BMT Designers & Planners has announced the promotion of Richard (Rich) Celotto who will take the role of Vice President, Engineering. With 40 years experience in maritime engineering, Richard has been with BMT for 17 years. He has worked with the US Coast Guard's (USCG) Ship Acquisition Directorate over the last 12 years and will lead BMT's growing Naval Architecture & Marine Engineering team.

Pellerin Names New Operations Manager

Pellerin Energy Group (PEG) has named Scott Pellerin as operations manager of its Water Solutions business unit, announced President Joshua Pellerin. Pellerin joins PEG as a former employee of Siemens, where he was employed for 13 years and held various management positions. Pellerin is a graduate of University of Louisiana, Lafayette and holds a degree in industrial technology.

Bekkenes Named CEO of Harding

Styrk Bekkenes, chief executive of Noreq, has been appointed CEO of Harding – a new large joint company for the development and production of life-saving equipment. Harding will have more than 900 employees in 30 different locations worldwide. The 39-year-old was the founder of Noreq and he has been chief executive of the company since its start-up in 2006.

Tidewater Holdings Announces Refinance Package

Tidewater Holdings, Inc. announced today that it has entered into a $115 million refinance package with Northwest Farm Credit Services. Northwest FCS was the lead arranger and Barclays acted as sole placement agent on the refinance package. Tidewater's operations include terminal services and tug & barge operations on the Columbia and Snake River systems in the Pacific Northwest.

ABS Nautical Systems Signs Mexico City-based Mantenimiento Express Marítimo

Mantenimiento Express Marítimo S.A.P.I de C.V., an Offshore Marine Services company that is part of SEACOR Holdings Inc., has signed a con-


Vancura


de Cuir


Celotto


Pellerin

tract with ABS Nautical Systems for use of its Energy & Environmental Manager and Maintenance Manager modules on four newly-built workboats. The company did not have a current system in place and was in need of a solution to manage its fleet for better efficiency. After a successful implementation, Mantenimiento Express Marítimo will consider use of the software across its entire fleet.

LEEVAC Acquires Quality Shipyards, LLC

LEEVAC Shipyards, LLC through its newly created subsidiary LEEVAC Shipyards Houma, LLC announced that it has completed the acquisition of substantially all assets of Quality Shipyards, Inc. The acquisition of assets includes 35 acres of industrial property located on 2,500 feet of waterfront along the intracoastal waterway, 4 drydocks, 100,000 square feet of covered production facilities and several large track cranes. Larry Vauclin will assume the role as Vice President and General Manager of LEEVAC Shipyards Houma.

Foss Unifies All Operations Under Single Name

Foss Marine Holdings has announced that it will merge all of its operations and resources under a single, highly recognizable name: Foss Maritime Company. Today, Foss Marine Holdings' wholly owned subsidiar-

Bekkenes

Stevens

All Coast, LLC

Bollinger Shipyards

ies - Foss Maritime, AMNAV, Young Brothers, Hawaiian Tug & Barge, and Cook Inlet Tug & Barge - operate the country's largest coastal tug and barge fleet. Effective immediately, Foss Marine Holdings will merge with Foss Maritime, whose lines of business include two shipyards, harbor services, ocean towing, marine engineering and others. Paul Stevens is President and CEO of the unified Foss Maritime. Foss Maritime will reorganize into four divisions.

All Coast Acquires Hercules Offshore

All Coast, LLC, a newly formed company for the marine services industry, has completed the acquisition of Hercules Offshore's domestic liftboat assets. This $57.5 million acquisition includes 29 actively marketed liftboats ranging from class 105 to class 229, 10 inactive liftboats and additional related assets. All Coast domestic operations will be led by Byron Allemand, vice president and chief operating officer, and the operations center will remain in Lafayette, La.

June U.S.-Flag Lakes Cargo up 2.3 PCT

U.S.-flag Great Lakes freighters carried 10.1 million tons of dry-bulk cargo in June, a virtual repeat of the preceding month, and an increase of 2.3 percent compared to the corresponding period last year. The June float was, however, down 2.9 percent from the month's long-term average. Through June, the U.S.-flag float stands at 32.7 million tons, a decrease of 4.6 percent compared to a year ago. Iron ore cargos are down by 6 percent. Coal loadings trail last year by 4.5 percent. Shipments of limestone are 1.6 percent off last year's pace.

12 Years of Safety at Bollinger's Fourchon Facility

Bollinger Shipyards' Fourchon, L.L.C. facility has worked twelve (12) years without a lost time accident.

Building on a philosophy that starts at the top, Bollinger Shipyards strives for "0" accidents. In May, 2013 Bollinger was awarded the 2012 "Award for Excellence in Safety" by the Shipbuilders Council of America for the eighth consecutive year. The Shipbuilders Council represents over 120 shipyards located throughout the United States.

Caterpillar to Acquire Berg Propulsion

Caterpillar Inc. has signed a definitive agreement to acquire Johan Walter Berg AB, including its core brand of Berg Propulsion, a manufacturer of mechanically and electrically driven propulsion systems and marine controls for ships. Caterpillar will transition from selling only engines and generators to providing complete marine propulsion package systems. Headquartered in Sweden, Berg has designed and manufactured heavy-duty marine thrusters and controllable pitch propellers since 1929. Berg will become part of the Caterpillar Marine and Petroleum Power Division when the deal closes in the third quarter 2013, pending final regulatory approvals.

Ingalls Shipbuilding Celebrates Apprentice Graduation

Huntington Ingalls Industries recently held graduation ceremonies for Ingalls Shipbuilding's Apprentice School. The ceremony celebrated the accomplishments of 60 students representing Ingalls' various crafts. Mississippi Secretary of State Delbert Hosemann was the keynote speaker and acknowledged the graduates' commitments. The program involves a comprehensive two-to-four year curriculum for students interested in shipbuilding careers. Today, more than 1,000 alumni of the school fill approximately 50 different types of jobs – from pipe welders to senior executives.

ACL Presents Marine Environmental Stewardship Awards

American Commercial Lines recently recognized 39 customers with its Marine Environmental Stewardship Award. The customers recognized by ACL safely handled over 2.5

Ingalls Shipbuilding graduates

Knoy

Titan Salvage

Jewell

billion gallons of liquid bulk cargoes with the barge transportation company in 2012. Recipients included Axiall LLC; BASF Corp.; Bayer Corporation; Bunge North America; CCI Manufacturing IL Corp.; CITGO Petroleum Corporation; Consolidated Grain & Barge Co.; Cymetech Corporation; Dow Corning Corporation; Eastman Chemical Company; ED&F Man Liquid Products LLC; E.I. Du Pont de Nemours and Co.; Formosa Plastics; GulfMark Energy Inc.; Kinder Morgan; Koch Supply and Trading; Kolmar Americas, Inc.; Marathon Petroleum Co.; ME Global Americas, Inc.; Methanex Methanol; Momentive Specialty Chemical Inc.; MV Purchasing, LLC; Neville Chemical Co.; Old World Industries, LLC; Owensboro Grain Co., LLC; Quality Liquid Feed Co.; Rentech Nitrogen Pasadena, LLC; SABIC Innovative Plastics; SeaRiver Maritime, Inc. (Exxon); Shell Chemical Co.; Shell Trading U.S. Company; Styrolution America LLC; Sunoco Logistics; Texas Aromatics; Vertex Energy, Inc.; Vitol Inc.; and Westlake CA&O.

TITAN and T&T Salvage Complete Wreck Removal on Chilean Coast

Crowley Maritime Corp. subsidiary TITAN Salvage, based in Pompano Beach, Fla., and its partner T&T Salvage, recently completed a challenging wreck removal project off the coast of Chile. The job, which involved the removal and scuttling (the process of strategically sinking a shipwreck) of a grounded bulk carrier on Llolleo Beach, required the use of unique, ship-to-shore equipment – such as an aerial téléphérique and a pneumatic pontoon system, TITAN's linear hydraulic chain pullers and T&T's high capacity pumping units – as well as ingenuity and teamwork to achieve success. The vessel ran aground last August in Chile, nearly 300 meters from the high-water mark, while carrying more than 34,000 tons of grain cargo. TITAN and T&T Salvage were contracted after the failed attempts of previous salvors led to a constructive total loss of the vessel.

MEBA Re-ups for Another 12 Years on the Lakes

The Marine Engineers' Beneficial Association (M.E.B.A.) and Interlake Steamship Company have successfully reached an agreement on a 12-year contract for 10 bulker vessels on the Great Lakes. Ten Interlake vessels employ M.E.B.A. mates, engineers and stewards. According to MEBA President Jewell, Interlake and M.E.B.A. have enjoyed a solid relationship for years. Both organizations look forward to continuing a mutually prosperous relationship over the next 12 years.

Harper Government Announces Short-Sea Feasibility Study

The Honorable Peter Van Loan, Leader of the Government in the House of Commons has announced funding for a Container Trans-Shipment and Short-Sea Shipping Feasibility Study in British Columbia.

The Government of Canada is providing up to $225,000 through the APGCI Transportation Infrastructure Fund toward a Container Trans-Shipment and Short-Sea Shipping Feasibility Study at Port Alberni. The study will identify potential market opportunities, as well as assess the viability of a container trans-shipment and short-sea shipping distribution centre in the Alberni Inlet.

ShipConstructor Software Inc. renamed SSI

ShipConstructor Software Inc. will henceforth do business with the name "SSI". The name of the company's flagship CAD/CAM software suite will remain as ShipConstructor. Separating the company name from the product name will allow SSI to bring greater focus to its full range of products and services such as complimentary Autodesk software, as well as SSI training and consulting. This also sets the stage for the company to expand into other products currently under development. To reflect this name change, SSI has a completely new website. The old website address www.shipconstructor.com will now be redirected to the new address www.SSI-corporate.com

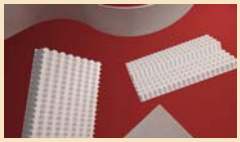
PRODUCTS

J D Neuhaus Shipyard Solutions

The JDN air powered equipment offers a wider range of operations that can be safely undertaken in outdoor damp, dirty or even hazardous area locations as well as indoor operation in dusty or potentially explosive atmospheres. Advantages include easy installation with robust, low-maintenance compact designs combining reduced weights and easy handling with 100% duty rating toughness. A range of optional pendant controllers provide safe, precise positioning of suspended loads. General insensitivity to dust, humidity and temperatures ranging from -20°C to +70°C helps to ensure an unlimited duty-cycle performance capacity.

www.jdngroup.com

Thermhex Lightweight Sandwich Panels



Thermhex, an innovative polypropylene honeycomb material results in a weight saving of over 85% on a like for like thickness of plywood. The material has received approval from Germanischer Lloyd for use in shipbuilding. Shipbuilders looking to reduce the weight of their boats without sacrificing strength or durability can use Thermhex in a range of different core densities and sizes to suit specific project requirements, with core thicknesses from 3.5mm to 30mm. ThermHex is also resistant to chemicals and moisture. ThermHex is 100% recyclable, as part of ensuring ethical and sustainable sourcing of materials.

www.thermhex.co.uk

Compliant Hydraulic Fluid Gains Popularity

For EPA Vessel General Permit (VGP) compliant lubricants, shipowners don't have to sacrifice performance or pricing to meet regulations. PANOLIN America offers a wide range of Greenmarine environmentally considerate lubricants, including high-performance hydraulic fluid HLP Synth. HLP Synth derives from saturated synthetic esters. Like all Greenmarine products, it is 100% VGP and sVGP compliant. Readily biodegradable according to OECD 301B/ ASTM D 5864, it produces no bioaccumulation and has negligible toxicity to aquatic life. ABS type approved, it meets global environmental requirements such as RINA Green Plus, Blue Angel, and Euromargerite.

www.panolinamerica.com

nv charts Releases Free, Simple to Use App

Mariners who want cutting-edge navigation with mobile devices can now take advantage of nv charts App, a new, simple-to-use free app. The new nv charts App makes it a simple matter to download nv charts' superior chart regions to iPads, iPhones, and all iOS platforms as well as Android operating devices. The App is in its beta version currently. Mobile devices equipped with internal GPS receivers can work with the app immediately and without any changes of settings. Non-equipped can easily pair with a portable Bluetooth-equipped GPS receiver for offshore navigation.

www.nvcharts.com

PROPEN's M7000 Portable Marking Solution

PROPEN's new portable marking solution, the electro-magnetic M7000 is fully mobile, with Integrated Control Unit and Belt Battery; user-friendly with Intuitive Programming, easy to hold by hand, fast and offers deep marking. The M7000 has a 7" color touch screen with the ability to use with gloves on. The M7000 offers 2 USB Ports, a large memory space with the ability to store over 2000 files, standard fonts, and a fast marking process. The M7000 allows marking of products with logos, serial numbers, linear text, Data Matrix, month, date or year codes.

www.propen.us

100 AMP Ship-to-Shore Cable

Hubbell Marine produces a variety of 100 amp cordsets to meet the larger power demands of modern boats. The high-visibility yellow cable sets come in 75', 100' and 125' lengths, with a 50' extension cord. Hubbell offers models for boats with an isolation transformer onboard, or for craft using a cable winch system. The company manufactures its products under factory-controlled conditions, performing testing to ensure high quality performance. Every Hubbell product meets USCG requirements and bears ABYC approval. The STOW-type cables are designed for heavy-duty service in harsh marine environments.

www.hubbell-marine.com

ABS Certified Dialight LED Lighting Fixture

Dialight's LED fixture lines have now achieved Design Assessment Certification by the American Bureau of Shipping for compliant use in ABS classified marine vessels, offshore drilling rigs, platforms and various other marine applications. Dialight's industry leading LED lighting fixtures are now certified with ABS Steel Vessel Rules and ABS MODU Rules for Marine Offshore Drilling Units (MODU) include various lumen and Wattage packages for their High Bay, Area Light, Linear and Wallpack/Bulkhead fixture types.

www.dialight.com

BIRNS Titan 4,000 Watt Floodlight

BIRNS, Inc. 4,000 watt, Titan lighting system delivers 380,000 lumens with its hydrargyrum medium-arc iodide (HMI) lamp. The dimmable lamp features a Color Rendering Index (CRI). Providing massive light output, mixing mercury vapor with metal halides in a quartz-glass envelope, and energizing the resulting mixture with two tungsten electrodes of medium arc separation, the housing is especially rugged. The lens is constructed to withstand rigorous salvage and offshore applications. A stainless steel, fully adjustable mounting yoke, and exclusive power system integrates BIRNS high performance metal shell subsea connectors, and robust braided shielded cable.

www.birns.com

Victor's XT Automated Plasma Power Source

Victor Thermal Dynamics' Ultra-Cut XT Series of power sources for automated plasma cutting delivers higher productivity and lower cutting costs. The Ultra-Cut XT systems' cut quality enables parts to go directly from the cutting table to welding, painting or assembly without secondary operations. The Ultra-Cut XT delivers ISO Class 3 or better cuts any material from gauge to 2-inch thick. Cutting 1-inch thick steel at 80 inches per minute (IPM) and 2-inch thick steel at 30 IPM, the Ultra-Cut XT 400 lowers cost per cut and makes it competitive with the oxy-fuel process.

www.victortechnologies.com

Ocean Signal Introduces RESCUEME PLB1

Ocean Signal's compact, personal locator beacon has certifications for use throughout Europe and US. The 116g rescueME PLB1 is ideal for a range of applications. Carried easily and unobtrusively by workers on tug boats, patrol vessels and workboats, it will not impede activity, while providing instant access to emergency services. With long-term coverage (7 year battery) and a worldwide link to emergency services, the PLB, when activated, transmits position data from 66 channel GPS, using designated 406MHz search and rescue satellite communication systems, as well as transmitting a 121.5MHz homing beacon.

www.oceansignal.com

Harrington Hoists Electric Chain Hoists

Harrington Hoists' NER electric chain hoists are available in dual speed capacities from 1/8 to 5 Ton. Designed for precise lifting, lowering and stopping and for delicate loads, the Smart Limit feature allows the hoist operator to program upper and lower smart limit positions, eliminating the typical production downtime. Equipped with a soft stop feature that slows the hook down as it approaches each limit, NER Smart Limit electric chain hoists include Smart Brake Technology; a maintenance-free brake with 10 year warranty, extreme duty 60 minute rated motor and a sealed hoist body.

www.harringtonhoists.com

Marco's Dustmaster 28,000 CFM Dust Collector

Marco Group International has launched the Dustmaster 28,000 CFM Dust Collector, which collects and contains airborne debris generated from an abrasive blasting process. Collection and containment of airborne abrasive and debris improve abrasive blasting efficiency by creating visibility and safer working conditions throughout the abrasive blasting process. A 114 HP Perkins diesel powered engine dramatically improves productivity by producing a 28,000 CFM air rating at entry. The Dustmaster 28,000 CFM Dust Collector includes 24 super high-capacity Dustmaster Dust Collector Filters, reducing replacement costs and labor hours.

www.marco.us

PRODUCTS

STAUFF's Compact Mobile Hydraulic Tester

The STAUFF PPC-04-plus features robust construction and an oil-resistant rubber coating to withstand impact, vibration, dust and moisture. Designed for use in harsh conditions, mobile tester measures pressure, temperature, flow rate, frequency and speed in industrial hydraulic systems. Available with either two analog sensor inputs or a CAN interface, measured values can be read quickly and reliably from the multi-line, backlit LCD graphic display. A USB port and software allows measurement values to be easily read and transferred to PC, where they can be displayed, analyzed and processed.

www.stauffusa.com

Net-Logic's NavWatch Compass/Course Monitor

The NavWatch Dual Compass Monitor and Selector with integrated Course Monitor allow system redundancy on any gyrocompass combination, enhancing safety and functionality while reducing overall cost. Vessels over 500gt are required to carry a Gyrocompass, and must be capable of correcting heading and bearings to true at all times. NavWatch monitors input from any combination of gyrocompass pairing and alarms when threshold is exceeded, monitors vessel course and alarms when user definable threshold is exceeded and provides a combined display of Course and Compass Monitor using an intuitive design.

www.net-logic.co.uk

Imtech's HVAC on board EGV Bonn

Imtech Marine has provided the German Navy vessel (EGV) Bonn with engineering, material delivery, installation and commissioning of the HVAC-system, hot and chilled water plant, the refrigerating plant for provision- and waste-cooling as well as the chilled water units. Imtech Marine implemented a number of notable innovations for the German Navy. In the fresh air supply of the modular air filtration unit for example, Imtech implemented a humidity control with a compulsory emptying of chillers and heaters in case of freeze alarm, in order to protect the system.

www.imtechmarine.com

Tideland Marks 1,000th Racon Milestone

Tideland Signal recently dispatched the 1000th SeaBeacon 2 System 6 racon from its Houston facility. With hundreds of earlier versions of the racon in service, SeaBeacon 2 System 6 is the racon most widely specified by global users. One authority has calculated the cost of through-life ownership for a Tideland Signal racon to be lower than that of other designs and 5% of the initial purchase price, based on trouble-free service life to date of over 15 years. SeaBeacon 2 System 6 is available in three variants, with a number of options to match different applications.

www.tidelandsignal.com

Tube and Pipe Weld Purge Systems

Huntingdon Fusion Techniques has reached the Fifth version of its PurgElite range of Tube and Pipe Weld Purging systems for diameters from 1" to 24" diameter inclusive. Suitable for marine industries, shipbuilding, ship repair and offshore industries, PurgElite systems can be used in tube and pipework where the internal surfaces may be polished to ensure minimum entrapment and low corrosion resistance. With the new in line purge valve and synthetic hose protection, there are no metal parts to scratch tube or pipe surfaces.

www.huntingdonfusion.com

Jet Edge's EDGE X-5 5-Axis Water Jet System

Waterjet systems manufacturer Jet Edge, Inc. has introduced the Jet Edge EDGE X-5 5-axis waterjet system cuts complex taper-free and 3D parts from any material. Featuring Jet Edge's Permalign EDGE technology, the EDGE X-5 is capable of cutting chamfers, weld bevels and sophisticated 3D parts such as impeller blades. The AquaVision Di Controller's open architecture design gives operators the freedom to fine-tune programs from any CAD/CAM/nesting software, utilizing standard G&M code. An Intelligent Work Envelope automatically adjusts depending on the angle of the cut to protect the operator, material, and system components.

www.jetedge.com

Senior Technical Lead
Job Location: USA, VT, Richmond

Creative Unmanned Technologies
Greensea Systems, Inc., a leading provider of navigation and control systems for unmanned underwater vehicles,
is seeking a senior level technical leader to direct our diverse engineering team. The ideal candidate will
possess both technical proficiency and exceptional interpersonal skills.
Job Description
The Senior Technical Lead is responsible for guiding project teams through all phases of development. He/she
will manage schedules, provide status to customers, and assure that projects are delivered on time conforming to Greensea's quality standards. The Sr. Technical Lead will assure that productive development processes are
implemented and will oversee efficient execution of these processes. He/she will be responsible for technical
direction and leadership of the daily engineering and software development efforts at Greensea. This position
will take direction from the President/Chief Technical Officer of the company.
Responsibilities
• Manage all phases of engineering and software development including design, analysis, coding, testing,
and integration of control and navigation systems for unmanned vehicles.
• Oversee engineering processes including configuration management, quality assurance, component
testing, and system testing.
• Manage schedules and resource allocation to assure projects are adequately staffed and delivery
schedules are met successfully.
• Interface with customers to manage requirements, schedules, change orders, and deliverables.
• Work with Greensea's CTO to assure engineering efforts at Greensea adhere to the company's strategy
and technology architecture.
• Maintain enthusiasm and positive momentum in engineering staff.
Requirements
• Proven ability to lead technical project teams and interface with customers in all development phases.
• Successful completion of formal leadership or management training highly desirable.
• Strong oral and written communication skills.
• Master's degree in Engineering, Physics, or Computer Science with 10 years experience in a software
development or engineering environment. Bachelor's degree in similar fields with exceptional
experience.
• Proficiency in object oriented programming and design practices and C/C++ software development.
• Working knowledge of software product management.
• Proficiency in standard engineering processes, configuration management, and quality management.
• Working knowledge of navigational solutions for underwater vehicles, sensors for underwater vehicles,
and sensor fusion techniques highly desired.
• Strong working knowledge of the Linux operating system, embedded systems, and embedded Linux.

Greensea Systems, Inc.
Creative Unmanned Technologies
To apply, please send your resume to careers@greenseainc.com
The candidate must eligible to work in the United States

This position is based in Richmond, Vermont though some travel will be required. Greensea Systems, Inc. is an equal opportunity employer. We offer a casual and fun work environment and
provide our employees regular training and continuing education opportunities. Greensea offers competitive
salaries and a complete benefits package including health insurance, paid vacation, and sick leave.

HR
Greensea Systems, Inc.
Richmond VT
Email: careers@greenseainc.com
Web: http://greenseainc.com/

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- **Equip your vessel with the Walker ALGAESEP® to keep your diesel fuel clean, and your fuel filters lasting longer...reducing solid waste.**
- **Replace your original paper and plastic air filters with Walker EVERQUIET® high-performance air filtration...your engine will run better, quieter, and look great.**

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