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Spring 2008

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Article and Photo Submissions:

Articles should be about 500 words long; however, C4IT, engineering, logistics and environmental specific articles can be up to 2,000 words -- all acronyms must be spelled out when first used. To have your article considered for publication, photo(s) must accompany each article. Articles can be submitted by DHL or other carrier in hard copy and/or in Microsoft Word on a 3.5 disk, CD, or e-mailed electronically. Please submit original photographs and graphics. All slides, photos, graphics and illustrations should be in color where possible. Please include **by-line** when submitting article. Let us know if you want your photos and graphics returned to you. Submit inquiries, letters, articles, and photographs to:

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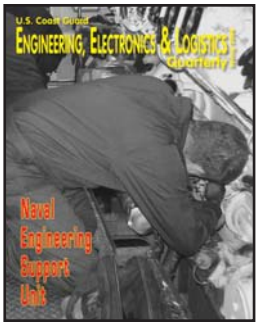
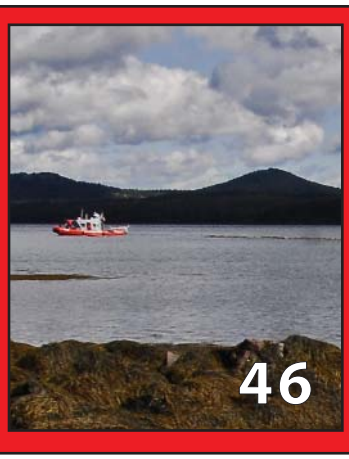


***On the Cover*: A member of NESU Portsmouth conducts an engine overhaul. Read more NESU stuff on page 20.**



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NEW
We have a new website address, you can reach us at
www.uscg.mil/hq/cg4/eelquarterly

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***Back Cover*: The multi-color sunset acts as a backdrop for the 87-foot Coast Guard cutters FLYINGFISH, of Boston, and HAMMERHEAD, of Woods Hole, Mass., temporarily moored at Naval Station Newport, R.I., for a "Cutter Roundup." The cutters were two of 15 present and 27 represented from throughout the First Coast Guard District, which covers from Maine to New Jersey, participating in the three-day training event. (Coast Guard photo/Lauren Downs)**

From the Assistant Commandant

In the last edition of the *Engineering, Electronics, and Logistics Quarterly*, I presented my thoughts on operational and depot level maintenance, which I framed as "unit level" and "above unit level" maintenance. In a bi-level system, the unit is responsible for "unit level" maintenance, which the unit executes using standardized Maintenance Procedure Cards. The Product Line is responsible for everything else, or all "above unit level" maintenance, as well as providing programmatic oversight for all "unit level" maintenance. Product Lines are a key component in the Coast Guard's new logistics business model and how they are formed as we transition from acquiring an asset to sustaining it is an important step.

For most new surface assets the Coast Guard acquires, we currently establish a Project Resident Office (PRO), which monitors construction, adherence to contracting, and delivery of the asset. As part of the modernization effort, PRO functions will either be assumed or augmented by an Asset Project Office (APO). It is the APO's job to address all ten elements of logistics, which include asset maintenance; supply; training; support and test equipment; manpower; packaging, handling, storage and transportation; facilities; IT support; technical data; and design interface. The APO serves as the "one stop shop" for asset support, ensuring integrated logistics is planned for and executed. It is the job of the APO to hand to the operator all of the necessary operational doctrine, support equipment, and maintenance requirements needed to effectively operate the asset.

The key elements of the APO include the command staff, the Operations Department, Standardization Department, Safety Department, Training Department and the Product Line. Each of these departments have responsibilities to ready the asset for operations. These responsibilities include developing the operating handbook and maintenance manual, establishing the Integrated Logistics Support Plan, creating maintenance support contracts, determining appropriate "C" Schools, and writing PQS and training standards among others. Once all tasks are complete and the asset is ready to be delivered to the operator, many of the APO components will be spun off or disestablished. The Product Line, for example, will be removed from the APO and installed in the appropriate Logistics Center. The Standardization Department will move to the

appropriate Training Center and the other departments will be disestablished and their responsibilities assumed by the appropriate DCO, DCMS, or FORCECOM organization. We are also investigating having a core group of experts remain at the APO to assist with the next asset product line and to ensure adherence to the logistics business model.

Since the operational, safety, standardization and training pieces have already been created for our legacy boats, the Standard Boat APO that supports the Sector Baltimore and San Francisco pilots contains only Product Lines and the cross functional support departments. These Product Lines serve as the single point of contact for all standard boat engineering and logistics issues for the Sector Baltimore and San Francisco Engineering Officers. They have also been working to provide support to the fleet in general. For example, an RB-S at Station Kaui recently experienced flooding after being hit by a large wave. While the RB-S was able to return safely to port, the crew was not able to successfully de-water the vessel because the installed bilge pump was clogged. The technical experts in the RB-S Product Line evaluated all aspects of the bilge pump failure. They also reviewed the bilge pump inspection criteria for the BUSL, TANB, MLB and UTB classes of boats. As a result of the APO's investigation, modifications to the current preventive maintenance procedures will be promulgated. For Sectors other than Baltimore and San Francisco (the two Sectors involved in the Standard Boat Pilot program), the APO worked with the RB-S PRO to generate a service bulletin, providing technical guidance for the entire boat fleet.

The APO has also been realizing savings from the centralization of the parts supply chain. The Item Managers in the APO's Product Line have been able to realize tremendous savings by purchasing common parts through the federal stock system and negotiating prices with vendors for bulk purchases. In the first six months of the Baltimore pilot, this resulted in a savings of over $23K dollars in parts requisitions for Sector Baltimore alone. Just a few examples include:

- The Honda 225 spark plugs for the RB-S purchased from NAPA instead of Honda resulted in annual total savings of $1.5K for just one Sector.
- Marine binoculars originally ordered for $300 each from West Marine were purchased from the Federal Stock System for under $100.

The APO has also been working diligently on process improvement in areas such as depot maintenance and boat outfitting. Working with the National ATON School, ANT Baltimore, ELC, and CG-731, the APO Product Line is developing a standard rigging package for all TANBs. This will ensure standardization and availability of certified gear for the Aids to Navigation Teams nationwide.

These are just a few examples of how the Standard Boat APO is improving mission support and serving our operational customers under the new Product Line concept. As we continue to roll out the new CG Logistics Business Model to additional sectors and then new asset lines, we'll continue to realize the benefits of this customer-focused and efficient model across the Coast Guard.

Dale G. Gabel RADM, USCG
Assistant Commandant for
Engineering and Logistics

A Reader's Thoughts:

I was reading a recent issue of the U. S. Coast Guard's *Engineering, Electronics & Logistics Quarterly* and noted a quote from the author of an article in the Spring/Summer 2007 edition on subject Cutter which indicated that "The BERTHOLF was the first major cutter to be christened for Coast Guard service since ... the MIDGETT was launched 35 years ago."

I need to take exception to Mr Peterson's quote ... after all, what are/were the 270's??? Are they not as a "Major" cutter as the 378? Granted the 270 is a WMEC, BUT it is nonetheless a "major" cutter in the Coast Guard Inventory. I am a former CO of USCGC's HARRIET LANE and MORGENTHAU and as far as I am concerned, they are both in a class of "Major" cutters. I believe Mr Peterson's statement is very misleading and as a former Coast Guard Sailor who served on both classes of cutters, I take offense to the quote.

Thanks for listening...v/r, Mike Ragsdale

Yard Delivers Five MEP Cutters in Ten Weeks (Yard):

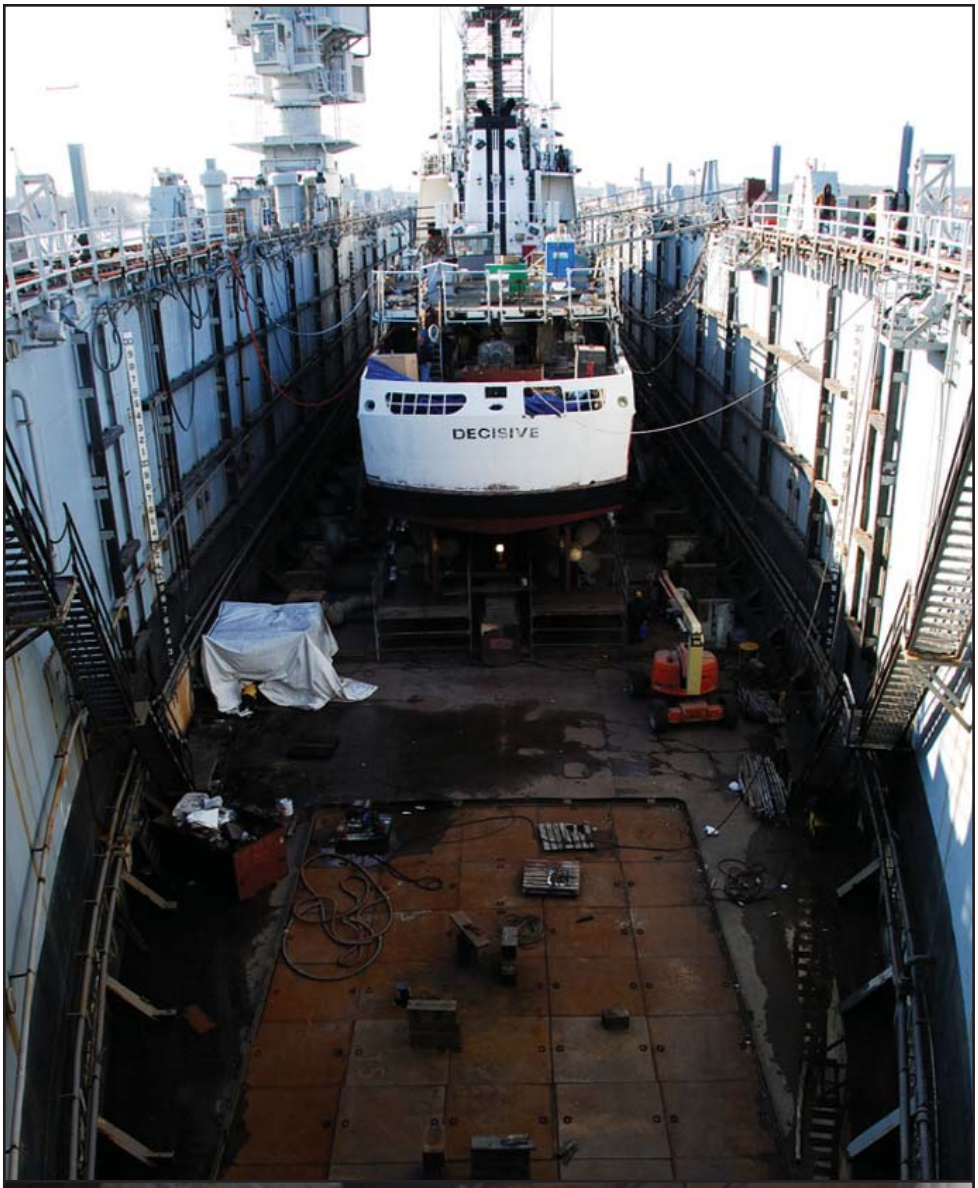
BEAR - 270' MEP cutter delivered 8/31/07
VENTUROUS - 210' MEP cutter delivered 9/21/07
OCRACOKE - 110' MEP cutter delivered 9/21/07
CUTTYHUNK - 110' MEP cutter delivered 11/2/07
VIGOROUS - 210' MEP cutter delivered 11/9/07

"More than anything else, the 110'/210'/270' MEP has reminded me of the resilience and innovation of our own Coast Guard organic mission support organization. Faced with delays on our major capital cutter acquisitions, in only a few months, this MEP (as a bridging strategy) was conceived, designed, priced, tooled, equipped, staffed, and executed -- and continues to provide significant fleet improvements at or below cost and on schedule. If there is a better measure for a maintenance extension program running well, I don't know what it is."

RADM Gary Blore,
Coast Guard Chief Acquisition Officer

USCGC CUTTYHUNK

MEP in Pictures



quick hits

COAST GUARD TAKES DELIVERY OF HIGH-TECH FACILITY

On December 4th, 2007, the U.S. Coast Guard, Integrated Coast Guard Systems, and Lockheed Martin completed the final phase of the $20 million Command, Control, Computers, Communications Intelligence, Surveillance, and Reconnaissance (C4ISR) simulator at Training Center Petaluma in Petaluma, Calif. The completion of this state-of-the-art training suite represents a milestone in the Coast Guard's $24 billion, 25-year modernization and recapitalization plan known as Deepwater.

As a result of commonality between Coast Guard and Navy C4ISR equipment, the training simulator provides both Coast Guard and Navy crews a safe, high fidelity environment to develop the skills and expertise needed to sail the military's newest, most capable ships in the 21st Century. To date, over 80 Coast Guard and 20 Navy students have attended nine courses at the new facility, and the first-of-its-kind team training was convened in December for 30 members of the first National Security Cutter, BERTHOLF. Additionally, the site has served as an invaluable resource in the installation, evaluation, and testing of the C4ISR suite for BERTHOLF.

C4ISR encompasses a wide range of technical and operational functions, systems, and activities. The C4ISR suite being installed on Deepwater cutters, as well as legacy Coast Guard cutters, provides the United States' lead maritime homeland security agency with the same interoperable intelligence and communications standard as that of the Department of Defense and other government first responders.

The Calhoun Building, site of a multi-million dollar renovation and outfitting project hosting the C4ISR training simulator, now houses classrooms, high-tech shipboard operations simulators, and state-of-the-art radar and electronics systems to train crews of the Coast Guard's new Legend-class National Security Cutters. Plans for further expansions over the next several years will ultimately more than double the size and capacity of the facility to accommodate training for additional cutter classes being built under Deepwater.

Deepwater News Flash, courtesy of the Deepwater Project.

FIRST NATIONAL SECURITY CUTTER COMPLETES MACHINERY TRIALS

December 11, 2007 – The first National Security Cutter (NSC), BERTHOLF (WMSL 750), returned to Northrop Grumman Ship System's Pascagoula facility after completing Machinery Trials.

"The BERTHOLF Machinery Trial was an excellent opportunity for the industry and Coast Guard Team to groom the various systems in preparation for the Builder's Trial," said Richard Schenk, Northrop Grumman vice president and general manager, U.S. Coast Guard Programs. "The five days at sea validated our belief that BERTHOLF will clearly exceed expectations."

"The Machinery Trials, which began on December 4, were an initial test of many of the ship's capabilities at sea. Among the tests completed, BERTHOLF successfully met its contractually-required speed of 28 knots."

"I could not be more proud of the government and contractor team whose dedicated efforts were critical to the success of this sea trial," said CAPT William Krewsky, supervisor, PMRO Gulf Coast. "There is great urgency to get this ship fully operational, conducting Coast Guard missions to ensure the freedom and security of our Nation; this sea trial went a long way to that end."

BERTHOLF is the first of eight planned ships in the new class of highly capable, technologically advanced multi-mission cutters being acquired under the Deepwater Program. Northrop Grumman Ship Systems is building the NSCs, while Lockheed Martin is building and integrating the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) capabilities on board the cutters.

Several of the ship's C4ISR systems completed initial tests during these trials including the surface search radars, air search radar, and the AIS. The team also achieved TACAN certification during the trials.

"Machinery Trials allowed the team to successfully display the capability of all three primary sensors and demonstrate the ship's navigation and communication system capabilities at sea," said Brian Hillers, Lockheed Martin NSC lead system engineer. "We were pleased with the system's performance during the trials and look forward to further success as we approach Builder's Trials."

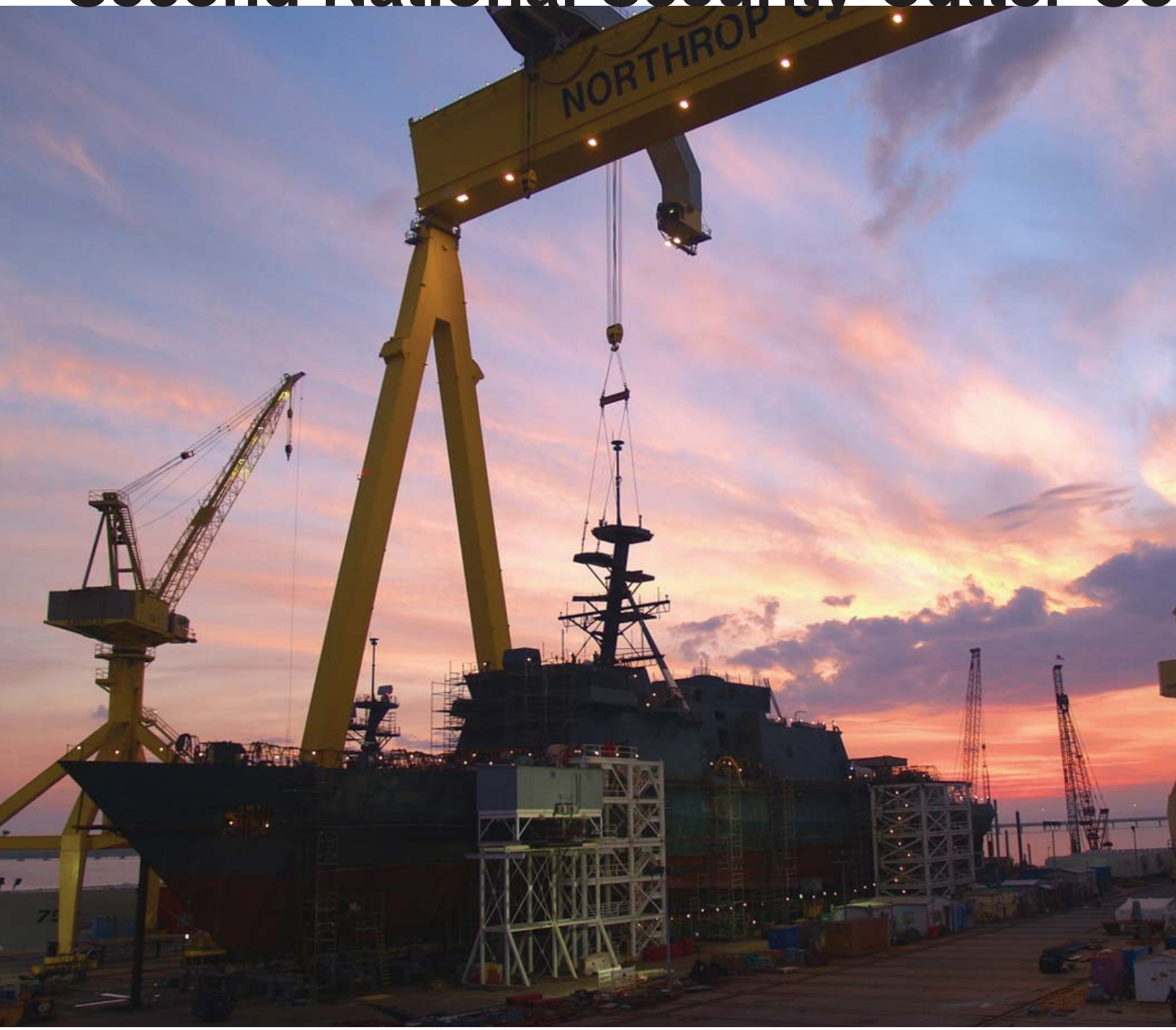
The NSC will complete two additional sets of trials, including Builder's Trials which are scheduled for early 2008. BERTHOLF is scheduled to be delivered to the Coast Guard following Acceptance Trials in spring 2008.

"This is a huge milestone for both the program and for the whole Coast Guard," said CAPT Patrick Stadt, prospective commanding officer, USCGC BERTHOLF. "This is the future of the Coast Guard and the start of the next 40 years of the surface fleet."

Deepwater News Flash, courtesy of the Deepwater Project.

BERTHOLF (WMSL 750) leaves the Pascagoula shipyard under its own power to begin Machinery Trials.

Second National Security Cutter Co



WAESCHE is now fully assembled at the Northrop Grumman Ship Systems facility in Pascagoula.

mpletes Final Lift

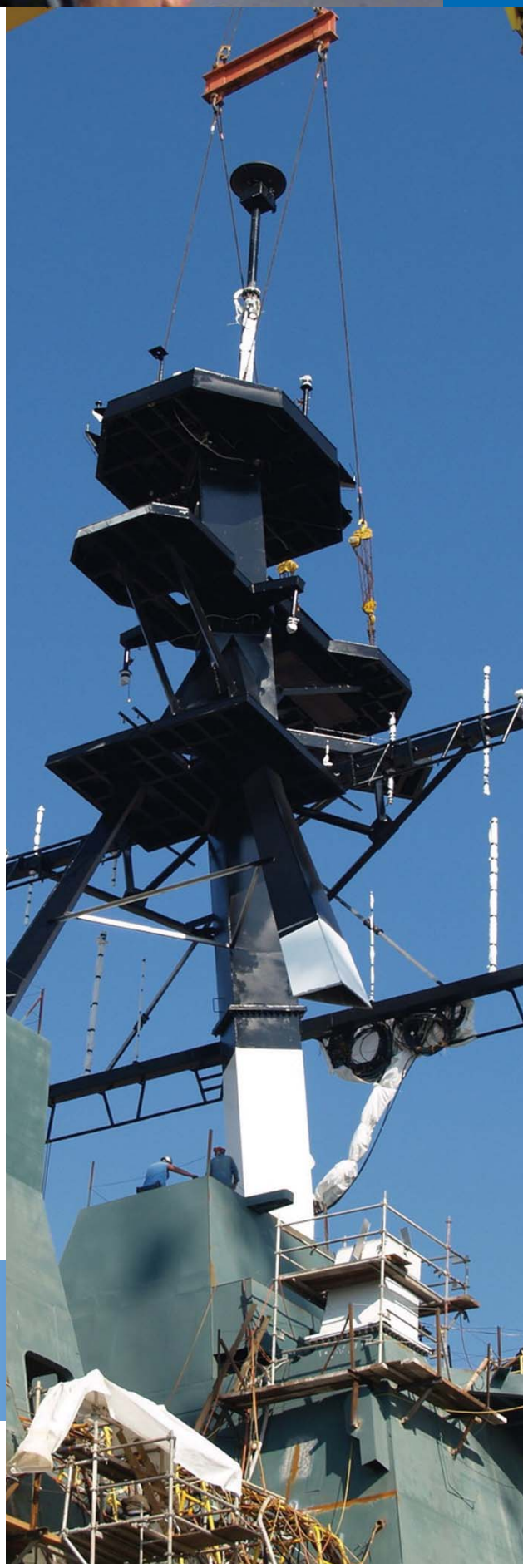
(November 28, 2007) – Recently, the 25-ton mast was successfully lifted onto USCGC WAESCHE (WMSL 751). This 29th and final lift makes the second National Security Cutter (NSC), currently in production at Northrop Grumman Ship Systems facility in Pascagoula, 100 percent unit erected.

The mast lift was also the first completed by Goliath, the largest crane at the Pascagoula shipyard, since it was badly damaged during Hurricane Katrina in August 2005.

"It was exciting to see Goliath complete the final lift on WAESCHE," said Bob Penney, ship program manager, NSC 2. "Because of planning and work sequencing lessons learned from USCGC BERTHOLF, WAESCHE's mast was landed with 30 percent more of its outfitting work completed prior to the lift. We're very proud of everyone on the team who worked so hard to bring the ship to full assembly."

WAESCHE's next milestone is launch, scheduled for April 2008.

Deepwater News Flash, courtesy of the Deepwater Project.



The 29-ton mast is successfully lifted onto WAESCHE, bringing the ship to 42 percent complete.

Coast Guard, Industry Conclude 'Extremely Sea Trial of National Security Cutter

In December, 2007, the Coast Guard's acquisition and operations communities anticipated with great excitement Machinery Trials (MT) for BERTHOLF, the first of the new class of National Security Cutters (NSC). According to the Acquisition Directorate, the trials, which took place December 4-10 off Pascagoula, Miss., were “extremely productive” in helping to identify and reduce risk ahead of BERTHOLF's delivery in spring 2008.

"While MT was certainly a significant milestone in of itself, the real value was all the work that was done by the contractors and our personnel (in careful oversight) to prepare the ship for a safe and productive trial," RADM Ronald J. Rábago wrote in a Dec. 9 message from aboard BERTHOLF. "Nevertheless, the list of unknowns on our path to … a fully operational cutter is now shorter because of the good work done during MT. In addition to the stellar work of the Program Manager's Resident Office [PMRO], the entire Acquisition Directorate team, along with sponsor and technical authorities, have brought us to this significant milestone."

MT was significant in many ways, including marking the first time BERTHOLF got underway on her own power. The trials also saw the first underway evaluations of the ship's propulsion plant -- Combined Diesel and Gas Turbine (CODAG) -- reduction gear, and steering system in various modes of operation.

Many other systems, equipment, and facilities also were exercised, including the Machinery Control and Monitoring System (MCMS); the Aqueous Fire Fighting Foam system; flight operations (with a leased Bell 412 helicopter); and BERTHOLF's hotel services (crew berthing, accommodations, and galley).

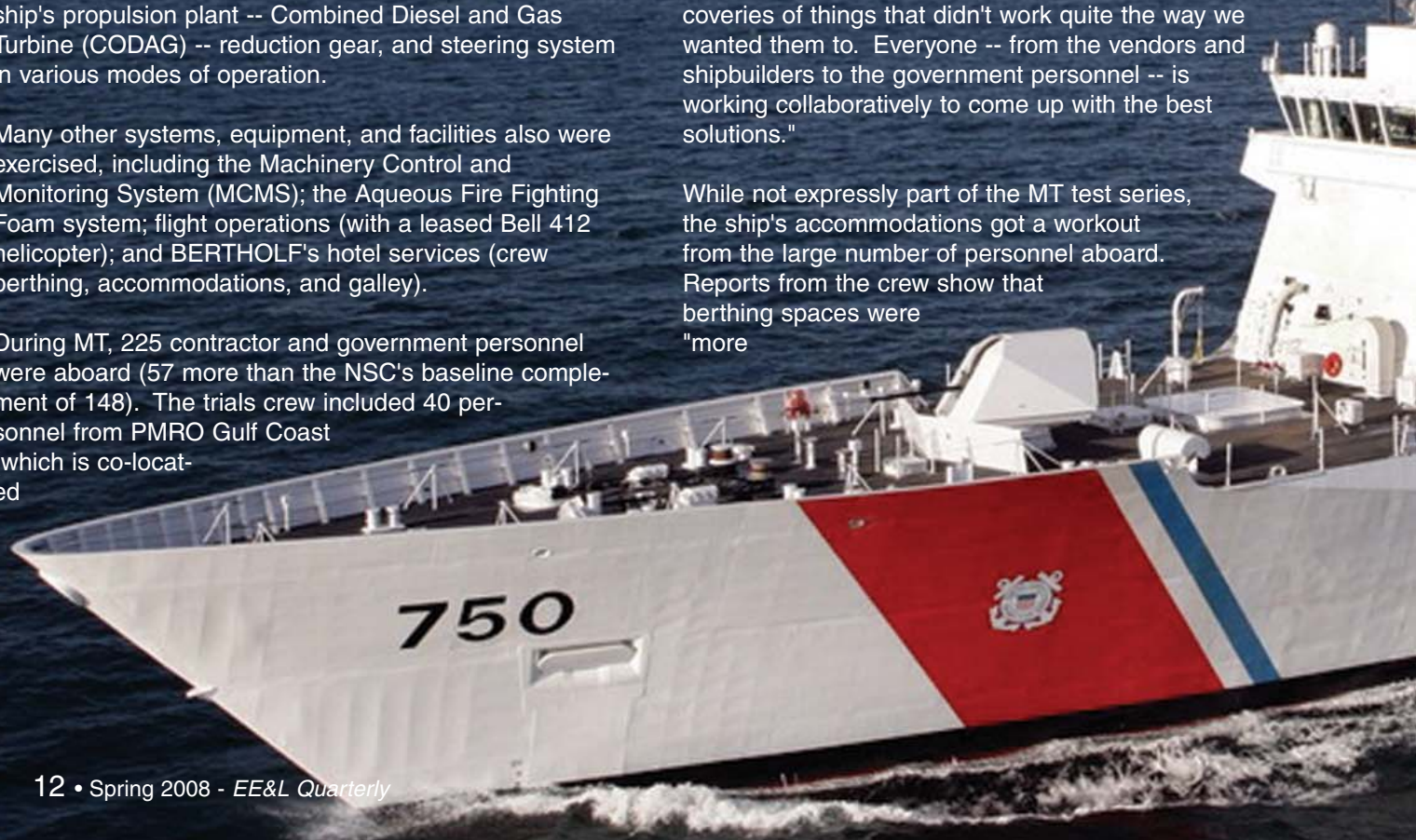
During MT, 225 contractor and government personnel were aboard (57 more than the NSC's baseline complement of 148). The trials crew included 40 personnel from PMRO Gulf Coast (which is co-located with the Northrop Grumman Ship Systems shipyard at Pascagoula), to provide oversight and hands-on assessments of BERTHOLF's machinery.

The Coast Guard's MT team included Chief Warrant Officer Walter Probst, test officer with PMRO Gulf Coast. During a Dec. 19 interview, Probst noted that some innovative tests were performed with the propulsion plant, including a demonstration that the ship would make standard speed running a single engine on one propeller shaft, with the other shaft "freewheeling" and its prop feathered to reduce drag. During another demonstration, the ship met its required 28 knots speed using less than 85 percent power.

Some elements of BERTHOLF's machinery and computer software controls require adjustments, but that was the purpose of performing MT, Probst added. Data from MT in all modes of operation is being analyzed by industry and Coast Guard engineers as they adjust BERTHOLF's propulsion plant ahead of Builder's Trials.

"However, there was nothing that outright failed us," Probst said. "We now have a very good baseline of data in all modes of operation and we have made good discoveries of things that didn't work quite the way we wanted them to. Everyone -- from the vendors and shipbuilders to the government personnel -- is working collaboratively to come up with the best solutions."

While not expressly part of the MT test series, the ship's accommodations got a workout from the large number of personnel aboard. Reports from the crew show that berthing spaces were "more



Productive'

by Hunter C. Keeter
CG-925

comfortable than some other ships … comparable to the 270' cutters," showers and head facilities functioned well. In the galley, the crew found sufficient capacity to handle the extra personnel aboard, even if the space became a little crowded.

Other aspects of BERTHOLF's habitability will be more thoroughly tested later, including the ship's gymnasium, computer room, officer's ward room, and chief's mess.

In the coming months, the shipbuilder and the Coast Guard will take BERTHOLF to sea again, this time for Builder's Trials (BT), which will completely exercise all equipment functionality. BT events include "measured mile" and full power runs of the propulsion system. Additionally, the builder and the Coast Guard will assess and "sell" the last of the ship's compartments -- such as medical and galley facilities.

In shipbuilding a vessel's spaces or compartments are evaluated individually by the government customer, who ensures that each space meets contractual requirements. When a space is accepted as complete, it is considered "sold."

BERTHOLF has more than 300 compartments, including engineering, bridge, berthing spaces, water and fuel tanks.

Builder's Trials also serves as a complete review of the ship's condition ahead of Acceptance Trials (AT) and delivery -- currently slated for spring 2008. The Coast Guard has partnered with the U.S. Navy (USN) to conduct the final assessments of BERTHOLF before it enters operation. During AT the contractor will demonstrate to the Coast Guard and the USN's Board of Inspection and Survey (INSURV) that the ship meets its requirements. INSURV is the premier organization for determining the materiel readiness of naval ships.

With much work to complete before delivery, all attention is focused on readying the ship for acceptance. The government/industry engineering design and construction team in Washington and at PMRO Gulf Coast are working around the clock to prepare the new cutter.

"We have been able to progress very rapidly based on what we learned at MT," Probst said. "We have had our noses to the grindstone these past several months and now our heads are up, and we are looking forward to the next phase of trials and delivery. The Coast Guard is going to be very proud to get this ship!"

Technical Advanced Education Opportunities

by LCDR James Kammel
CG-481

The Coast Guard is committed to developing a workforce with the technical competencies needed to not only ensure successful mission execution (operations), but also ensure that our specialists have the skills needed to provide our operational commanders with the assets and resources needed to meet mission demands. To that extent, the Coast Guard provides a wide range of professional development opportunities, one of which is the advanced education programs. The Coast Guard offers many different advanced education opportunities including: Marine Engineering, Financial Management, Public Affairs, Intelligence, as well as those sponsored by the Assistant Commandants for C4IT (CG-6) and Engineering and Logistics (CG-4).

The advanced education opportunities sponsored by CG-4 and CG-6 include a wide range of technical engineering, industrial management, and information technology programs. These programs are different from tuition assistance in that members will be attending a college full time. Our officers and enlisted are given the chance to pursue a degree as a full time student while receiving all of their active duty benefits. The payback for this opportunity is 3 months for each month the first year and 1 for 1 every year after. While most of the officer programs focus on obtaining a graduate degree, two programs, ACET and NET allow officers to pursue an

Technical Advanced Education Opportunities

undergraduate degree. The enlisted programs are for the pursuit of an undergraduate degree. Most of the programs allow up to 2 years for completing the degree.

The officer programs include:

- Advanced Computer and Engineering Technology
- Aeronautical Engineering - Avionics, MSIA, and Structures
- Civil Engineering/Civil Engineering (MBA)
- Computers, Communication, and Electrical Engineering
- Industrial Management
- Information Technology
- Naval Engineering/Naval Engineering Technology
- Ocean Engineering

The enlisted programs include:

- Advanced Computer and Engineering Technology
- Aviation Maintenance Technology

Some people might ask what benefit they gain by attending one of these programs? The first obvious answer is they can earn a degree, while receiving their full salary and having school paid for. There are very few companies out there that offer this type of benefit. The second benefit is the opportunity to apply these newly gained technical skills in their future jobs. Most people graduate from the program and immediately fill positions of increased technical and leadership responsibility. The Coast Guard's increased emphasis on technical authority has the potential of dramatically increasing these opportunities. The final and less obvious benefit is the prospect of enhanced promotability. Recent analysis of promotion trends for officers in engineering/technical specialties appears to indicate those members that have earned an advanced degree have an increased opportunity for promotion. For example, in the last two promotions cycles, 96% of those members in the C4IT community that were promoted to O5 had an advanced degree. Enlisted personnel will also find advantages in having a degree. Enlisted members who complete an advanced education program usually compete well on service wide exams, CWO appointments, and many apply for Commissions.

In the coming months, CG-4 and CG-6 will announce their advanced education opportunities via ALCOAST. Additionally, CGPC will provide detailed information on the application process. Interested members should keep a close eye on the message board for these two important messages. These programs are very competitive, so make sure you follow the application process and get all of your required documents in before the deadline. If you just can't wait and want more information now, look under the Learning Tab in CG Central for CG Advanced Education or follow this link to CG Central for more information about the CG-4 and CG-6 sponsored programs: http://cgcentralweb.uscg.mil/cLink/00000707. You can also contact the CG-4/CG-6 Advanced Education Coordinator, Mary Fuata at (202) 475-5737 or via email, mary.k.fuata@uscg.mil.

Yard Breaks Ground for Landfill Gas Co-Generation Plant

WASHINGTON -- The Coast Guard Yard in Baltimore, the service's only full-service shipyard, broke ground on an alternative energy project that will take it "off the grid" for nearly all of its electric and steam power needs. The project is expected to yield the same reduction in greenhouse gases as removing 33,000 cars from the road annually.

The Yard will utilize methane gas piped from the nearby Quarantine Road Landfill, owned by the city of Baltimore, to produce electricity and steam for the next 15 years. This is a collaborative project between the Coast Guard, Baltimore City, and AMERESCO Federal Solutions, Inc. of Knoxville, TN. Construction is expected to conclude in late 2008.

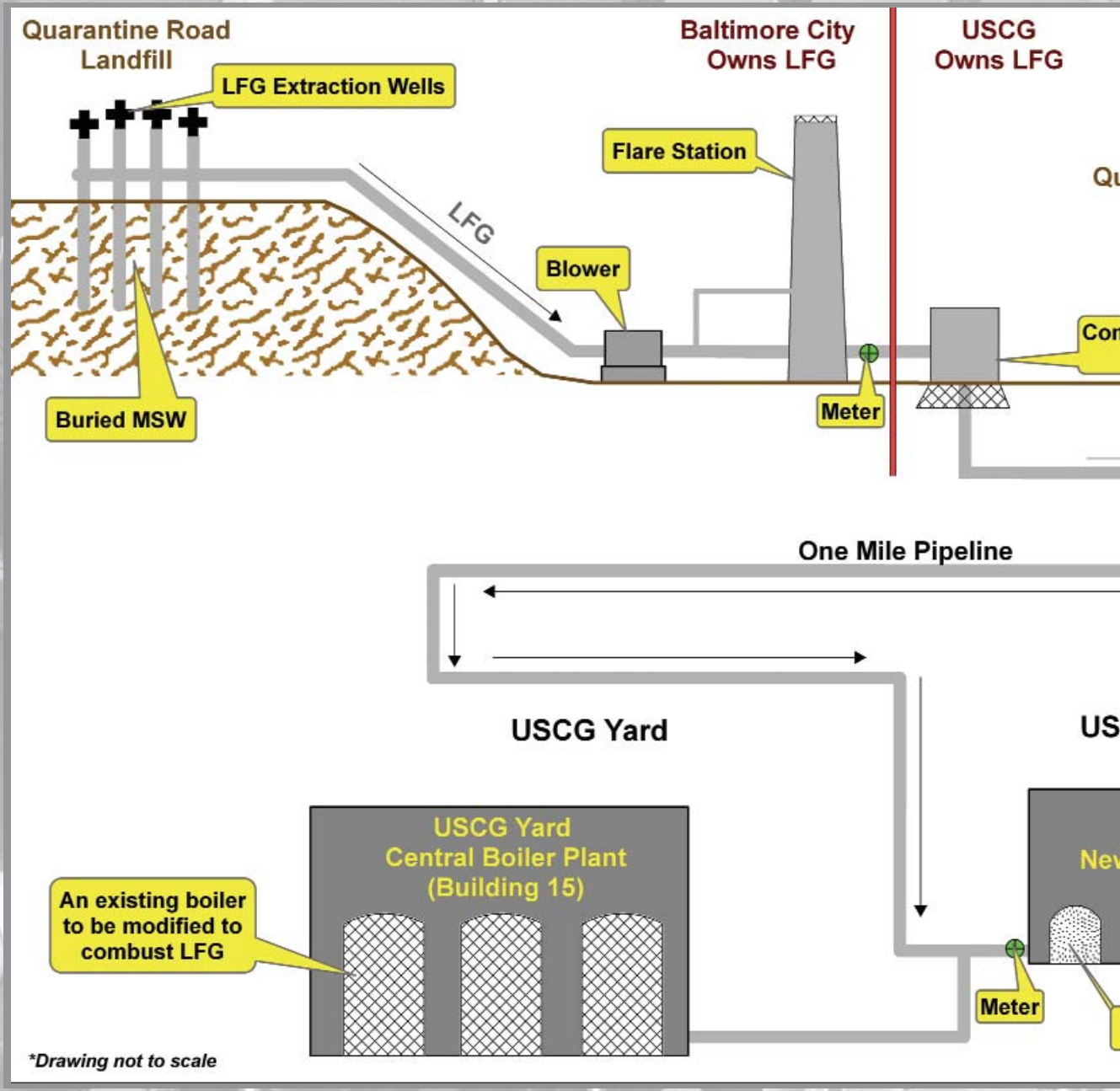
The Yard held an All-Hands Groundbreaking Ceremony on November 13, 2007 to begin construction of the Landfill Gas Co-Generation Plant. Honored dignitaries included (left to right): U.S. Congressman Wayne Gilchrest of the 1st District of Maryland; U.S. Congressman Elijah Cummings, Chairman of the Subcommittee on Coast Guard & Maritime Transportation and representative of Maryland's 7th District; U.S. Congressman John Sarbanes of the 3rd District of Maryland; Captain Stephen Duca, Commanding Officer, Coast Guard Yard; Mayor Sheila Dixon of the City of Baltimore; Admiral Thad Allen, Commandant of the Coast Guard; Governor Martin O'Malley of Maryland, and Mr. George Sakellaris, President of AMERESCO Federal Solutions, Inc. With the rousing applause of over 500 Yard employees and guests, the official party gripped shovels and broke ground to officially commence construction of the Yard's Landfill Gas Co-Generation Plant, expected to be operational in late 2008.

"Protecting and preserving our environment is a core mission of the Coast Guard, so it's fitting that this renewable source of energy will soon provide the electricity needed to run the Yard as the men and women there work tirelessly to renew and modernize the Coast Guard's fleet of ships and boats," said Coast Guard Commandant ADM Thad Allen.

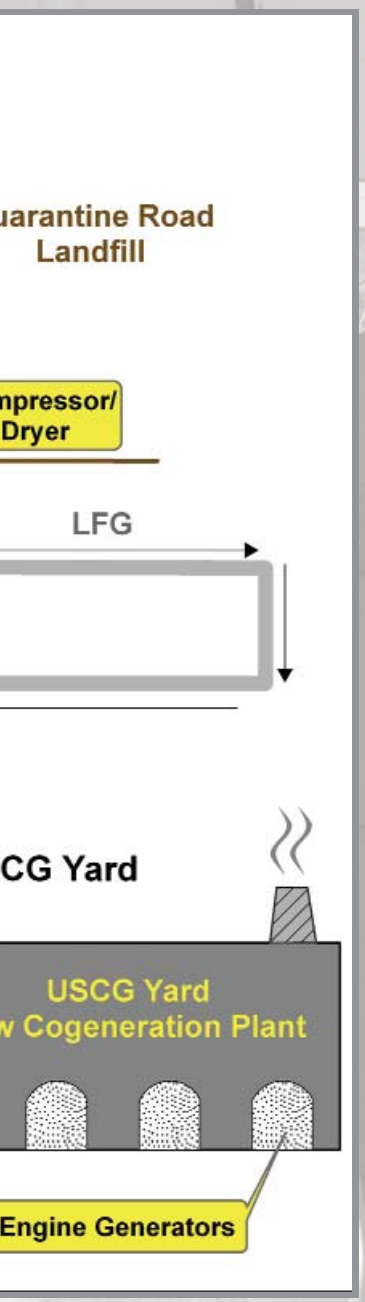
The project is the largest renewable energy project in Coast Guard history and the first landfill gas co-generation plant in the State of Maryland. The initial project cost and future operations and maintenance expenses will be paid through the plant's annual energy savings.

"The Baltimore landfill gas project highlights the continuous effort of the Coast Guard to manage energy resources," said Daniel Gore of the Coast Guard energy program. "Since 1985 the Coast Guard has reduced energy consumption per square foot of building space by 27 percent. This project alone will remove up to four percent of the Coast Guard's total electricity consumption from the grid and place it on a renewable source."

The project will meet the renewable energy requirements of the Energy Policy Act of 2005 for the entire Department of Homeland Security through 2012. The bill mandated that,



Through an agreement with Baltimore City, a landfill gas collection system will be installed at the Quarantine Road Landfill, located approximately one mile northeast of the Yard. Methane gas, a natural by-product of the decomposition of municipal solid waste, will be captured and converted into bio-energy from the landfill. A new, one mile underground pipeline will be installed for the transfer of gas. Once it reaches the Yard, the methane will be the fuel source for the new co-generation plant that will be capable of generating four megawatts of electricity and 35,000 pounds of steam, enough to meet all the Yard's utility requirements. The amount of electricity to be generated is the equivalent of removing 2500 residential homes from the electrical power grid.



by 2009, five percent of electricity consumption for federal agencies be generated from a renewable source. When this electricity is produced on-site, double credit is received.

The landfill gas project will save the Yard an estimated $2 million in annual utility payments. The Yard will provide an annual payment of approximately $200,000 to the City of Baltimore for rights to the methane gas. In addition, the Coast Guard will pay for the construction and operation of a gas collection and processing system.

The Coast Guard Yard's primary role is to keep the service's fleet of cutters and small boats operationally ready. The 112-acre, 108-year old installation is also home to a dozen Coast Guard tenant commands and activities, including first responders for search and rescue, marine environmental protection, maritime law enforcement, maritime mobility, and homeland security missions.

"Coast Guard fleet operations worldwide are often the direct outcome of the experience and skilled craftsmanship of the Yard and its tenant commands," said CAPT Stephen Duca, Commanding Officer of the Coast Guard Yard. "With the independent energy source and power generating capabilities this project will bring, the Yard will be able to meet its fleet support mission uninterrupted by the external power situation. Further, the entire Coast Guard community in Baltimore will have a base of operations from which to respond to natural and man-made disasters, freed from the constraints of the power grid."

The project will be executed through an Energy Savings Performance Contract with AMERESCO, an energy services company. Guaranteed energy savings by the contractor will be used to "pay back" the capital costs of the project.

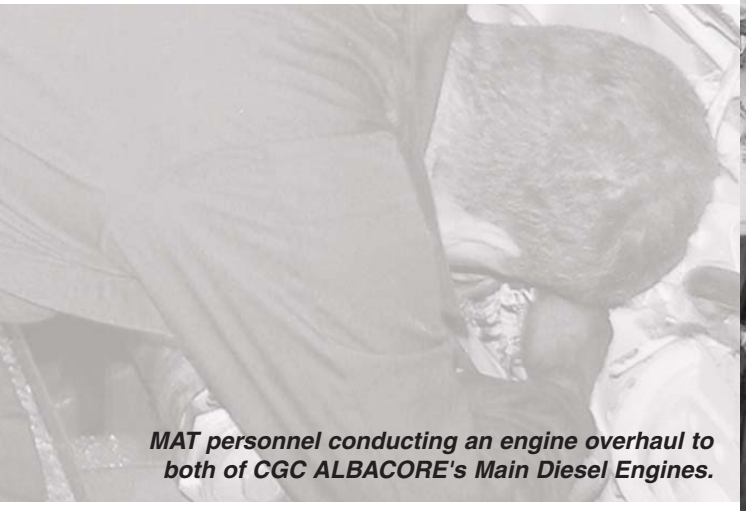
The 126-acre Quarantine Road Sanitary Landfill is one of five solid waste disposal locations for use by the citizens of Baltimore City. Nearly 500,000 tons of residential and commercial waste are deposited annually at the location.

"This project will stabilize the Coast Guard Yard's energy costs for the next 15 years and possibly beyond, which is crucial in this time of rapidly escalating prices for traditional energy sources," said CDR John Slaughter, the Yard's facility engineer. "The initiative also showcases the talents of the people at the Yard, the Coast Guard, the city of Baltimore, and our contractor to bring a project of this financial, engineering, and environmental magnitude to reality."

Buried solid waste naturally decomposes and produces methane gas -- a fire hazard as well as a potent greenhouse gas contributing to global warming. While methane gas has significant negative environmental attributes in its natural state, it is a combustible gas and is a potentially valuable, renewable energy source.

THE MISSION OF TODAY'S NAVAL ENGINEERING SUPPORT UNIT

by LCDR Scott Keister
Executive Officer NESU Portsmouth



MAT personnel conducting an engine overhaul to both of CGC ALBACORE's Main Diesel Engines.

On several occasions I have been asked by family and friends, "What exactly does a Naval Engineering Support Unit (NESU) do?" My typical response is a very generic description created to satisfy those who may never even have heard of the Coast Guard until 9-11. I tell them we are responsible for providing assistance to Coast Guard operational units to keep them working so that they can fulfill the Coast Guard's missions. The Maintenance and Logistics Command Atlantic (MLCA) Standard Operational Procedure Instruction defines the primary responsibilities of a NESU as:

1. Maintain a clear understanding of the material condition of all cutters and boats in their area of responsibility.
2. Plan, execute, and monitor maintenance, repair, and engineering changes of structural, electrical, machinery, and ordnance systems of cutters and boats.
3. Provide engineering, technical, and administrative information and guidance on the operation, support, and material conditions of cutters and boats.

However, NESUs have significantly adjusted in recent years due to changes in Coast Guard missions and increased levels of operation tempo. Today's NESUs have an expanded role and the amount of afloat assets that fall under their umbrella of responsibility has ballooned to include previously unsupported cutter classes, small boats, and even buoys in some areas. The geographical spread of the 10 existing NESUs necessitates core duty overlap.

CGC HARRIET LANE dry docked during MEP at the CG Yard.

However, individual NESUs have also developed unique engineering roles that they provide independent of their region. Here at NESU Portsmouth, our mission is to provide engineering and logistic support to Atlantic Area and Fifth District cutters, boats, and navigational aids. So what does this really mean? The best "real-time" description of a NESU's role was recently presented by CAPT Lisa Festa at her Change of Command on 13 June 2007. The following has been paraphrased from the notes of her speech.

As a NESU we are here to support the operational cutters and stations. The men and women of each NESU are outstanding technicians, they are experts in their specialty, and they are proud of what they do each day. We strive to support our old, as well as our future, shipmates in any way we can. A NESU Portsmouth Chief Petty Officer said, "Most of us here at NESU have been on cutters and we know what it's like to ensure a cutter meets her operational commitments. So, once we come here to NESU it's our job to take some of that burden off the back of our old shipmates." In fact, at NESU

55' ATON boat recently pulled out of the water for a depot level maintenance availability with Industrial Portsmouth.

Portsmouth, 80% of personnel have sea time, 23% are permanent cuttermen, and many of them who transferred in last summer came from cutters and many who departed this year are returning to an afloat assignment.

On any given day a NESU is engaged in a number of different projects supporting the Coast Guard's cutters, boats, and Aids to Navigation (ATON) units. None of our work is done in isolation, because we work in partnership with the operational units and other support units to provide the required assistance for operational units to complete the Coast Guard missions. For example, our casualty response and cutter availability work is always done hand in hand with the MLCs and none of our buoy and boat work would be completed without the dedicated work of Integrated Support Command (ISC) Industrial Divisions and the Coast Guard Yard.

The structure at each NESU varies from location to location based on the type and number of platforms serviced. At NESU Portsmouth we have six divisions consisting of the Port Engineer Division, Boat Maintenance Division, Buoy Maintenance Division, Logistic Support Team (LST), Maintenance Augmentation Team (MAT), and Weapons Augmentation Team (WAT), each of which make significant contributions to the Coast Guard each day.

WAT Personnel conducting a MK75 change out on CGC GALLATIN.

The Port Engineers at each NESU are a mix of our most seasoned and experienced officers, the Warrant Officers and the Junior Officers, who have just completed their student engineer tours and will become the future Engineer Officers of the Coast Guard. The Port Engineers serve both our legacy and Deepwater cutters as well as each NESU's respective District Search and Rescue and Aids to Navigation Cutters. The Port Engineers provide technical and administrative support to cutter crews including oversight of commercial contracts for depot level maintenance and repair functions. They also help the cutter plan for extended maintenance periods by assessing the cutter's hull, mechanical, and electrical systems condition and documenting required work for near and long-term projects, including overseeing critical generator upgrades and lead paint abatement projects. NESU Portsmouth Port Engineers were instrumental in the early stages of the Mission Effectiveness Program, where they worked with the Coast Guard Yard and MLCA prior to the stand-up of the Legacy Sustainment Support Unit, in overseeing equipment upgrades to ensure the Medium Endurance Cutter fleet continue to serve the Coast Guard until the Deepwater assets are delivered.

MAT personnel completing emergency repairs to CGC FORWARD's #1 Ship Service Diesel Generator.

The Boat Maintenance Division at NESU Portsmouth manages all depot level boat maintenance, boat casualty support, and sets up transportation for the Fifth District boats. The Boat Division performs depot availability scheduling and work planning, Casualty Response (CASREP) technical guidance and funding for CASREPs requiring funds over a designated threshold, condition assessments of non-standard boats, as well as sharing the responsibility with the unit and Sector for the centralized management of boat maintenance funds. The Boat Division is also tasked with identifying and implementing improved maintenance practices and maintenance cost verification through data collection. NESU Portsmouth has been out in front during the early stages of the Coast Guard's centralized boat maintenance initiatives. They have participated in the Honda Engine Product Support Integrator Program that was sponsored by the Office of Naval Engineering. This is an agreement with Customs and Border Protection to have our Honda engines overhauled in St Augustine, Florida by the National Marine Center, and it will be a key support element for the Response Boats as we transition to the new Logistics Support Systems. Just as important, is the daily interaction that the Boat Division has had with the

MAT personnel conducting a Ship Service Diesel Generator change out on CGC STATEN ISLAND.

Recently overhauled buoys at ISC Portsmouth awaiting transfer to operational units.

Stations and the ATON Teams to work closely with the Engineer Petty Officers to address their unit casualties and work out viable repair plans with the Industrial Detachments.

The Buoy Maintenance Division at NESU Portsmouth manages the overhaul of all floating aids and the supplying of the replacement buoy needs within the Fifth District. This includes tracking the location and status of all aids to navigation, in the overhaul process and in storage; maintaining an up to date inventory of available buoys and associated hardware; and the scheduling, transport, and staging of all buoys. The Buoy Division is also tasked with improving the maintenance process and reducing the inventory of hardware, while continuing to deliver all buoys on schedule. The careful coordination of the refurbishment of buoys became even more critical when the Coast Guard lost a key supplier of new buoys as part of the fallout of Hurricane Katrina. As a direct result, the Buoy Division partnered with the Coast Guard Yard, as well as the Industrial Division at ISC Portsmouth, to overhaul buoys that would normally have been scrapped if we had a reliable source of new buoys. The Buoy Division also found time to work with the Fifth District and ISC Portsmouth to supply the City of Portsmouth some non-sea-worthy buoys for display in the new park next to Naval Hospital Portsmouth.

The WAT augments shipboard ordnance personnel in the accomplishment of routine preventive maintenance, and corrective maintenance for combat systems and ordnance. WAT Portsmouth services ordnance systems for six 270' WMECs, three 210' WMECs, two 110' WPBs (MK38), and two 378' High Endurance Cutters (WHECs) home ported in Charleston, SC. WAT personnel at each NESU may travel outside their respective area of responsibility in support of requests for assistance and special operations. WAT Portsmouth personnel also provide assistance to other units on an "as available" basis, including cutters completing Tailored Annual Cutter Training at Naval Amphibious Base Little Creek and Naval Station Mayport. In partnership with MLCA, the WATs volunteered to take on the role of conducting Ordnance Technical Inspections aboard our 110-foot patrol boats in order to ensure the safety and reliability of their weapons systems. Additionally, WAT Portsmouth has faithfully worked to ensure the cutters going through annual cutter training at Little Creek were free of CASREPS on their MK92 radar and MK75 weapon system, regardless of whether the cutter was home ported here in Portsmouth or from Key West, Boston, or Portsmouth, New Hampshire.

CGC BELUGA being pulled out of the water on a railway.

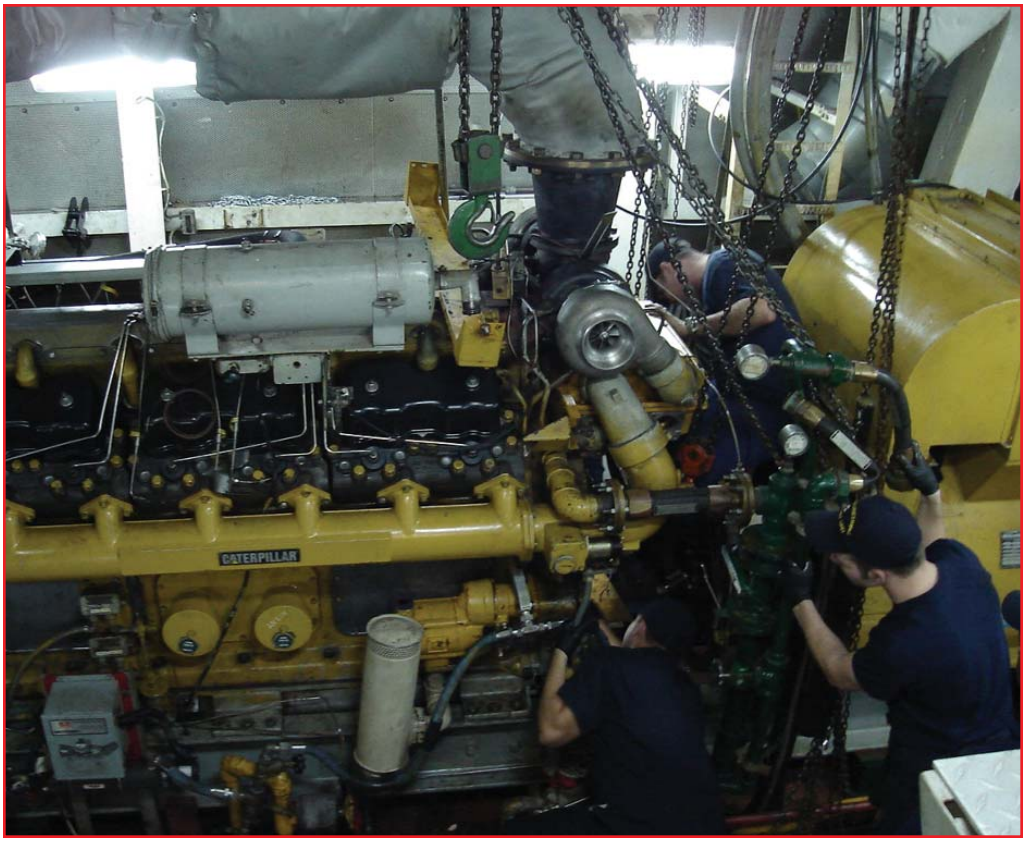
The Logistics Division is comprised of the Procurement Section and the Logistics Support Team (LST). The Procurement Section provides procurement and accounting services for all NESU managed accounts. The Logistics Support Team is a unique section of NESU Portsmouth in that they support all the cutters on the East Coast and not just the ones here in the Fifth District. The LST project managers serve as members of the cutter availability Acquisition Team (A-Team) to identify and procure long lead-time material required for all MLCA supported cutter's depot repair work items. They have purchased and performed the quality assurance inspections on over 6000 government furnished equipment items for 33 maintenance availabilities this last year at a success rate of over 99% in terms of delivering the right part to the right location at the right time. This level of success is even more impressive when you realize that they are also shipping equipment to Bahrain in support of Operation Iraqi Freedom. They work very closely with MLCA Type Desk Managers and the Engineering Logistics Center and constantly strive to improve their processes to ensure equipment arrives on time and cutters return to their missions as quickly as possible.

The MAT at each NESU provided hull, mechanical, and electrical (HM&E) support to their chartered cutters in their respective District. In the Fifth District this includes the six Portsmouth-based 270' Medium Endurance Cutters (WMECs) and one 175' Coastal Buoy Tender (WLM) along with MAT Detachment Fort Macon, N.C. providing support for two 110' Patrol Boats (WPBs). Additionally, as resources are available, MAT Portsmouth provides maintenance support to twenty-one additional cutters located throughout the Fifth District.

MAT Portsmouth has established themselves as the ALCO and CATERPILLAR engine overhaul experts of the Coast Guard. NESU Portsmouth has gained the reputation as the "Subject Matter Experts" for overhauls and quite often with the development of the casualty repair plan. The MAT has worked in partnership with the Engineering Logistics Center in forward-looking maintenance initiatives such as the Reliability Centered Maintenance Program where they perform vibration and infrared signature analysis to predict pending equipment failures before they actually happen. Additionally, the MAT has a Technology Lab which uses technologies such as diesel engine inspection, diesel engine signature analysis, motor circuit analysis, and laser alignment to determine equipment condition and reliability. They administer the Fifth District and Patrol Forces Southwest Asia deployed cutters' critical gauge and meter calibration programs, they have brought engineering consoles back to operational status after

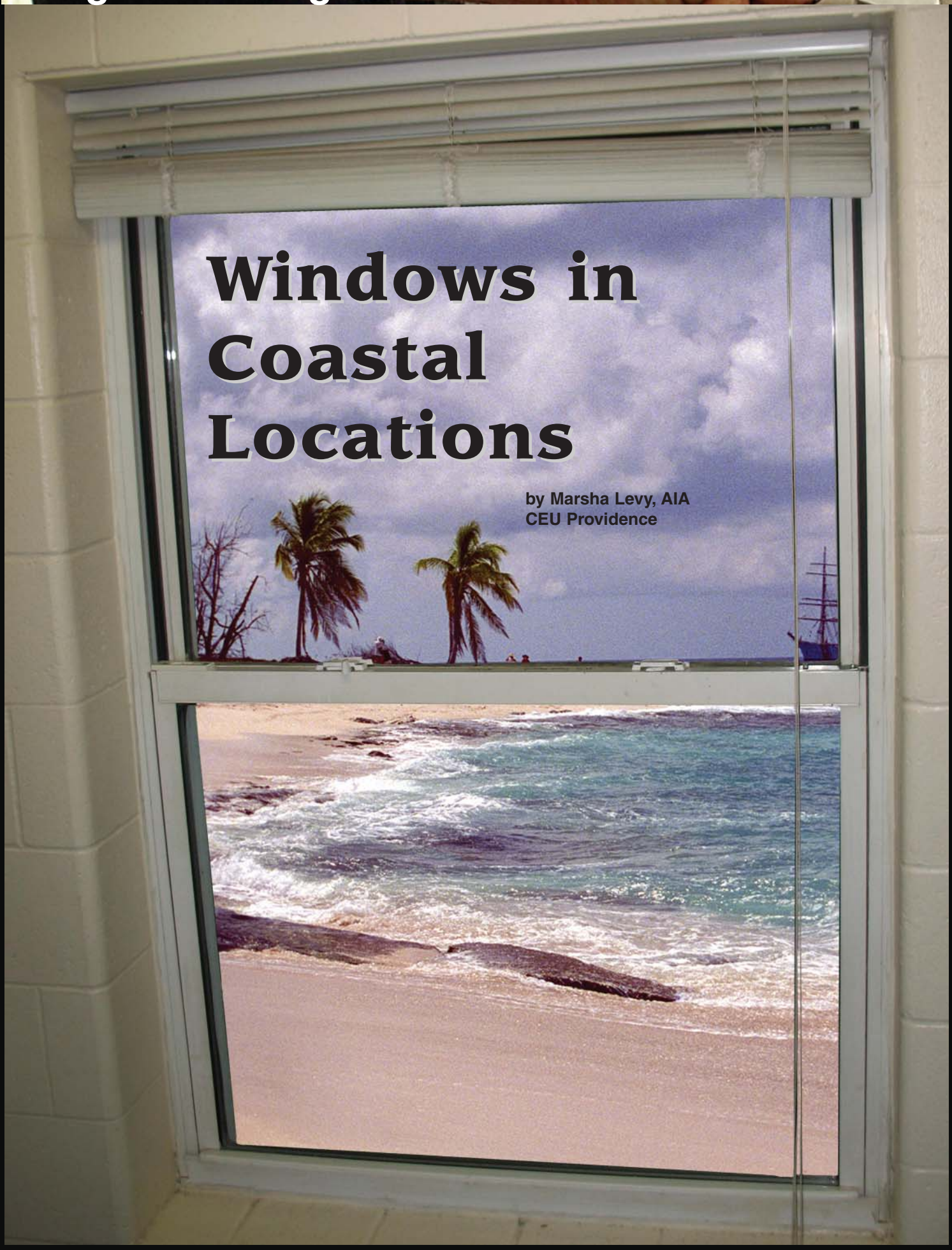
Port Engineer taking Ultrasonic Test readings to verify hull thickness for CGC NORTHLAND.

MAT personnel completing emergency repairs to CGC FORWARD's #1 Ship Service Diesel Generator.



they've been laid up for six months as part of the Mission Effectiveness Program, and served as Atlantic Area's P-100 pump overhaul facility for all East Coast Cutters.

From all of these accomplishments, it's obvious that the men and women of each NESU spend a great deal of time supporting cutters and boats. The entire workforce of the Coast Guard is being challenged to meet changing expectations and stretched to cover new roles in Homeland Security in addition to our traditional missions. In order to evolve, it is paramount that we as an organization recognize our own strengths and remain in touch with each unit's role within this ever expanding framework. The people of the NESUs provide building blocks for the operational units at the forefront of the Coast Guard who are most in the public eye. Those units' ability to successfully adapt is based, in part, on the strong NESU foundation that exists within today's Coast Guard.



Windows in Coastal Locations

by Marsha Levy, AIA
CEU Providence

According to the ASTM and major providers of liability insurance for architects and engineers, 90% of all building defects stem from water intrusion. Most of these defects originate from two building components -- windows and roofs. In the southeastern United States, a substantial number of building losses during the hurricanes of the last decade and beyond resulted directly from the failure of roofs -- and windows. Our experience at Coast Guard facilities mirrors the rest of society.

Windows have often been treated as mere commodities in the past -- items that are simply purchased and installed without reviewing detailed performance or code requirements. In fact, windows must be carefully specified and installed, especially in coastal areas. Treating windows as commodities has resulted in enormous property loss. The loss of windows in hurricane winds can pressurize the interior of a structure and initiate structural failure. Many windows experience failure in weather conditions that are not as extreme as a hurricane. Water infiltration from poorly manufactured windows can result in problems such as mold, structural deterioration, and in some situations, repair costs comparable to the cost of replacing the building. The economic and social effects of hurricanes like Hugo, Wilma, and Katrina, along with a surge in mold and related construction defect claims, spurred the insurance industry to lobby for stricter building codes that reflect the need for building components such windows -- not just structural frames -- to resist major hurricanes and typhoons.

The most critical factor for proper selection of windows is the wind speed in the area. The basic wind speeds in most locations have been incorporated into the International Building Code (IBC), now adopted or in the process of adoption by nearly every jurisdiction in the United

States. The wind speeds incorporated in the IBC and used for coastal regions have been updated and mapped by the American Society of Civil Engineers (ASCE) in their standard publication *Minimum Design Loads for Buildings and Other Structures*, also known as ASCE 7. Both ASCE 7 and the IBC require exterior building components such as roof coverings and windows to resist the loads imposed by wind speeds in the area. A glance at these wind speed maps will show that the majority of the Coast Guard's facilities are located in areas with wind speeds over 100 mph, with some Florida facilities in a 150 mph and up zone. Using windows that have been designed and tested for these conditions is a critical part of facilities maintenance and design. The testing for wind resistance not only addresses structural requirements, but also includes air infiltration, water infiltration, and energy performance. The more recent editions of the IBC have a newer requirement for glass and windows -- windows and glazed areas must be impact resistant in coastal areas that are subjected to damage from wind-driven debris. The requirement for impact-resistance applies to many Coast Guard facilities. Generally, the requirement for impact-resistant windows applies to new structures located in hurricane-prone regions with wind speeds over 110 mph, and located within 1 mile of the coastal mean high water line. The requirements also apply to Hawaii and areas with wind speeds over 120 mph. Of course, these code requirements apply to new buildings and major renovations. But window replacement projects at Coast Guard facilities should also address these requirements. At our facilities, these issues demand consideration. They affect the service life of our facilities, living conditions, and energy consumption.

The process of selecting a window in a coastal area begins with determining basic wind speed. The wind loads are often adjusted upward, depending upon whether the structure is a critical facility, the height of the structure, and the type of terrain. The process used is described in detail in ASCE 7. Once the maximum pressure is determined, the window selection process can begin. At this time, the most commonly used standard for determining the performance of windows is the American Architectural Manufacturers Association (AAMA) 101. This standard has been adopted by ANSI and the National Wood Window and Door Association (NWWDA), the association that grades wood windows and doors. This standard establishes performance grade testing for window types based on various pressures. Window types are designated by initials, such as DH for double hung. There are five basic performance class categories, from lowest to highest are: Residential (R), Light Commercial (LC), Commercial (C), Heavy Commercial (HC), and Architectural Window (AW). The performance grade is the negative and positive pressure, in pounds per square foot -- the design pressure. As an example, a DH-HC-50 window is a double hung, heavy commercial window, with a design pressure of 50 pounds per square foot. A design pressure of this range could be used in some coastal locations with a 115 mph wind speed, depending on terrain. It should be noted that some window materials, such as vinyl, cannot easily develop the strength required to resist these wind loads. Other window types, such as tilt-in double hung windows, present problems in high wind zones. The window sashes are held in place

by pins or clips, and these pins or clips (shown at left) may compromise the structural performance of the window. Inexpensive tilt-in windows that do not meet the standard needed for the area can experience sash blow outs, where sashes held in place by flimsy clips or pins fall out of the frame. It is important to verify that testing has been done on windows of the same size as those intended for installation.

A requirement for impact-resistance calls for tests that are not part of AAMA 101, and can limit the selection of products available. There are two categories of impact-resistant testing for windows: small-missile and large-missile. The height and exposure of the window determines whether it must meet the requirements for small or large missile testing. The testing procedure is an ASTM standard, and subjects the window to many cycles of repeated impacts that simulate wind-driven debris in a hurricane. A window is declared large-missile resistant after it has been exposed to repeated impacts with a piece of lumber weighing approximately 9 pounds, measuring 2" x 4" x 6 feet in size, traveling at a speed of 50 feet per second (34 mph). The product must pass positive and negative wind loads for 9,000 cycles, with impact creating no hole larger than 1/16" x 5" in the interlayer of the glass.

While hurricanes and major wind events form the basis of these code requirements, resistance to water and air infiltration is directly related to testing for structural performance. Many water intrusion problems are the result of installing windows that are not designed to resist the wind speeds in the area. For these reasons, selecting the right windows impacts not only performance in extreme conditions, but habitability and energy performance at a facility.

Energy efficiency is also a significant consideration. Several manufacturers of impact resistant windows offer windows with insulating glass assemblies that will meet or exceed EPA Energy Star standards. Energy efficiency is now a focus of most Federal agencies, and adoption of Leadership in Energy and Environmental Design (LEED) ratings is progressing within the Coast Guard. Energy efficient windows are eligible for LEED credits for new and existing buildings.

In regions where reinforced concrete and masonry construction is a standard practice, such as southern Florida, shutters have been permitted in lieu of impact resistant glazing. These products can serve their purpose very well. Outside Florida, codes and product availability have limited the use of shutters. The IBC generally limits the use of shutters or protective panels to 2-story buildings. Retrofitting shutters to an existing building may present difficulties due to the lack of an adequate substrate for fasteners at the window perimeter, and existing walls may also present space limitations for many shutter configurations. Veneers, wood frame walls, and other light framing not designed to accept shutters can present obstacles for securely attaching shutters. If removable shutters are used, the need to store and install shutters is an operational consideration.

Individuals who are familiar with building in Florida know that Florida codes have required protection of openings and impact resistance for years. Construction methods and products for southern Florida reflect these requirements, which exceed the requirements of the IBC. However, these kinds of measures are new to many areas, and new construction practices and products are needed for those locations.

Continuous Commissioning®:

SFO Galveston Building

This article describes Continuous Commissioning® and discuss its applicability and effectiveness when used in a Coast Guard facility. Continuous Commissioning® is a trademarked process of the Texas Engineering Experiment Station (TEES) which seeks to verify proper and efficient operation of a building's HVAC system, to resolve occupant comfort problems, and to do so on a continual basis. Its initial stages were attempted at Sector Field Office (SFO) Galveston, Texas during the summer of 2006, resulting in seven recommendations that, if implemented, could save as much as $2500 per year in utility bill savings, and $63k in capital cost savings in the SFO's 8300 ft^2 Administration building.

Introduction to Continuous Commissioning

Continuous Commissioning® is an ongoing process in which comfort, maintenance, and energy use problems in a building can be solved. Whereas new building commissioning focuses on bringing a building to meet design specifications of HVAC system performance, CC® optimizes building controls and operation for the existing requirements and uses of the building. In the years since Texas A&M University's Energy Systems Laboratory has developed and implemented this process, it has been put to use in over 300 buildings across the United States with an average saving of 15-20%

A pilot project to investigate an energy saving process at USCG SFO Galveston

by LT David Kowalczyk
USCGC DECISIVE

($0.21-$0.28 per square foot per year in 2003) in utility cost savings in commercial buildings, with an average payback period of less than two years for the measures implemented (1).

CC® begins with obtaining utility bills and energy consumption data for a building, to generate an energy consumption baseline. From there, the building's HVAC system's parameters are measured, maintenance problems are identified, and measures are recommended to address problems. Next, savings are documented, and the process continues, with more measures and recommendations as conditions dictate. Specific measures for improving HVAC system performance are included in the CC® Guidebook cited at the end of this article. Positive outcomes not only include energy savings, but increased occupant comfort and productivity, as well as increased maintenance staff knowledge of their system; since CC® relies on coordination and cooperation with the building's maintenance staff (1).

CC® has cut a wide swath and been applied to many types of facilities, climates, and both new and old buildings. Within Texas, CC® has been implemented across Texas A&M campuses in College Station, Corpus Christi, and Laredo; the Texas State Capitol Extension Building, the Solectron building in Austin, TX; Texas Tech University Campus in Lubbock, TX; and Brooke Army Medical Center in San Antonio, TX. Outside of Texas, CC® projects have been undertaken at the Materials Research Institute in State College, PA; the Matheson Courthouse in Salt Lake City, UT; and the Walter Reed

Army Institute of Research in Silver Spring, MD (1). Since CC® has delivered superlative results for so many other facilities, it was hard to pass up the opportunity to try this process out for the Coast Guard.

Pilot Project SFO Galveston

SFO Galveston's Admin building was the site for this study. This was a good site because of maintenance and occupant comfort concerns. The building has a 30-ton Carrier chiller serving its only air handler unit. The HVAC distribution system is a single duct variable air volume system. There are also four 1.5 ton units serving what used to be a command center on the second floor of the building. The building has approximately 8300 ft^2 of conditioned area.

The maintenance staff had several concerns about the HVAC system. The first was the building seemed hot during summer days, possibly due to the second problem; little or no airflow coming out of the downstream -- most terminal boxes from the air handler unit. The staff wanted to know if these problems could be addressed by procuring a larger capacity chiller or air handler unit. Addressing these concerns drove the process. The overarching question, however, was "Is Continuous Commissioning relevant to the Coast Guard?"

Continuous Commissioning® techniques include developing a benchmark for power use of the HVAC system, measuring the airflow from the Air Handling Unit (AHU), and checking all terminal boxes for proper operation. Conditions found led to a hand-over-hand inspection of the supply ducting, and the cooling load of the building was calculated.

The CC® measures and other recommendations developed are listed in the table below.

Recommendation	CC® Measure	Description	Funding Source	Cost Savings
1	N/A	Do not replace the Central Chiller or AHU, they are properly sized.	N/A	Not spending approx $34,400 for the Chiller and $28,700 for an AHU that don't need to be replaced.
2.	N/A	Relieve kinked duct about the station office. Plug the three supply ducting leaks, and repair damaged insulation.	Maintenance Budget	Approx $200/year of "found air" savings.
3.	Measure 4.10	Repair the electronics closet terminal box and verify proper operation of the VAV box without damaging electronics. Come to an agreement with electronics personnel regarding the operating temperature of the compartment.	Maintenance Budget	N/A, depends on temperature setting.
4.	Measure 4.8	Reattach the static pressure switch to the AHU, and verify proper operation.	Maintenance Budget	Approx $2300/year

Recommendation	CC® Measure	Description	Funding Source	Cost Savings
5.	N/A	Replace exit sign lights with 1.2 W energy saver bulbs (2).	Maintenance Budget, replace as old bulbs wear out.	Approx $100/year(utility savings only not counting re-lamping costs).
6.	N/A	Balance the ventilation system to ensure even air delivery to manned spaces.	Maintenance Budget	N/A
7.	Measure 6.1 and 3.3	Shut down the split unit systems serving the former command center. The central plant is capable of cooling the entire building at a higher SEER than the split units. Set the VAV boxes in unoccupied spaces to minimum flow.	$0	Approx $100/year

The first recommendation was driven by the cooling load calculation. The installed central chiller plant is a 30-ton unit, but according to estimation-based calculations, the building cooling load won't exceed 14 tons. The AHU's supply air flowrate was measured as approximately 6000 cfm of supply air, but all that was needed was about 2500 cfm to meet the building load. This drove the recommendation that increasing the capacity of both units was unnecessary, saving approximately $63k in capital costs. The second recommendation results from the findings of the hand-over-hand inspection of the supply ducting. Several leaks were discovered, in hard to find spots above ceiling panels and in the attic. It is estimated that the losses from these leaks, 600 cfm of 55°F air, can be valued at $212 per year in utility costs. This is not energy savings, but rather a recovery of a lost quantity.

The third recommendation refers to an electronics closet where the terminal box had been removed completely, the thermostat was set to full cooling, and the space was 63°F. The OEM of each piece of electronics equipment in the space was contacted, and of those who responded or had printed specifications, the lowest of the high operating temperatures for their equipment was 80°F. This is an incomplete picture of the cooling needs of this electronic gear, but it indicates that building maintenance personnel with electronics personnel might have some leeway in which to work together and agree on a temperature for this electronics closet. CC® Measure 4.1, which calls for adjustment of total air flow for a constant air volume system, is the closest applicable CC® measure because this room was being operated with essentially its own constant volume system (1).

Reattaching the static pressure sensor, the fourth recommendation, has by far the largest impact on utility costs. This is due to the fact that a tremendous amount of power can be saved by reducing fan speed to match the needs of the building, rather than keeping it on full power at all times as was the case before this project. The fan had been manually set near 100% to address high temperature and low flow-rate complaints by building occupants. CC® measure 4.8 is installing a Variable Frequency Drive, or VFD, on a variable air volume system, and is the corresponding measure, because even though the VFD is installed, it's not functioning unless it's connected to the static pressure sensor (1).

The fifth recommendation is not a CC® measure, but illustrates the value of CC® in providing a good opportunity to identify applicable retrofit measures. The exit sign is an unsung source for tremendous energy savings, these bulbs must be online 24 hours a day, 365 days a year. This base has 19 exit signs, and if they are relamped with 1.2w LED fixtures, the annual utility savings at today's rates will be over $100. The LED product found had a manufacturer's guar-

anteed life of 25 years (2). It is most cost effective to wait until existing lighting systems are ready for relamping to replace them with more efficient products rather than just relamping before replacement is necessary (3). Actual relamping savings will depend on the cost and frequency of replacing existing fixtures versus the recommended product.

The sixth recommendation is justified by measurement; the air changes per hour in various rooms ranged from about 2 to over 30. Not all rooms in the building are occupied at this time, and that drives the final recommendation to shut the terminal boxes in those rooms down to minimum flow. In addition, four split units were installed to provide extra cooling to a portion of the second floor that used to be a command center. These units no longer need to be on, the central chiller plant is capable of meeting the load of the entire building without the split units, and they can be shut off for an estimated savings of about $100 in utility costs per year. The corresponding CC® measures are 3.3, turn off systems during unoccupied hours, and 6.1, use the most efficient chiller, because the EER of the Central Plant is 13.5 vs. the split units which have SEER's ranging from 10-11 (1).

Split unit compressors found beneath the SFO building.

In conclusion, CC® was applicable and energy savings results were more lucrative than in the average office building. Three CC® measures applied to this building, and the total savings are estimated at $.31 per ft^2 per year, for a total annual utility bill savings of approximately $2500, using current billing rates, and a capital cost savings of approximately $63k for not replacing the chiller and AHU. Taking into account the $200 spent on meters by the CG and the $2,000 value of the TSI meter used for most measurements, the payback period using utility savings will be approximately one year. The payback period is far lower if the capital cost savings for "equipment not replaced" is taken into account. To reduce the impact of metering costs on future projects, several meters could be shared by facilities in a region. The key to wisely invoking processes like CC® in a building include weighing the size of the building, utility expenses, complexity of the HVAC system, maintenance problems present, and occupant comfort problems.

Acknowledgements: This work was performed under the supervision of Dr. David Claridge of Texas A&M University's Mechanical Engineering Department and The Texas Engineering Experiment Station's (TEES) Energy Systems Laboratory. Dr. Claridge, dclaridge@tamu.edu, is the POC for any questions about Continuous Commissioning® services from the Energy Systems Laboratory.

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LT David Kowalczyk earned his Masters of Science in Mechanical Engineering from Texas A&M in May, 2007. He is the Engineer Officer on CGC DECISIVE and can be reached at David.J.Kowalczyk@uscg.mil.

Continuous Commissioning® and CC® are registered trademarks of the Texas Engineering Experiment Station.

Sources:

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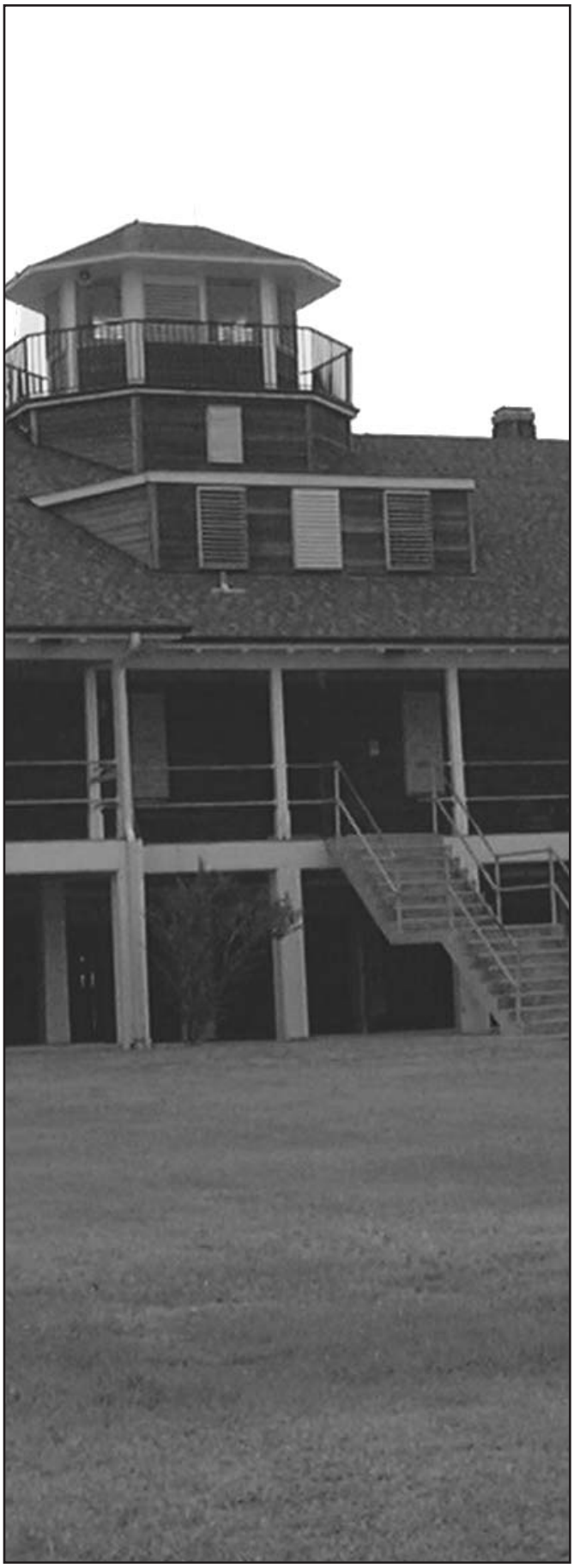


Leading the Way

by LTJG Amalia Daratsos
Office of Naval Engineering (CG-451)

The Coast Guard is transitioning to a modern business model, and in many aspects, the boat forces support community is leading the way. The Defender Class boats and 26-ft Trailerable Aids to Navigation Boats (TANB) are being integrated into a centralized outboard engine maintenance program. The program is modeled after the successful Aviation Business Model and is managed by the Engineering Logistics Center (ELC). The Honda Outboard Engine Maintenance and Logistics Support Program is commonly referred to as the Honda Product Support Integrator (PSI) Program. The PSI Program is a symbol of modernization; as it expands through all districts and Headquarters Boat Forces Units, it will be largest depot-level engine maintenance and repair program in Coast Guard history.

The Defender Class is comprised of RB-HS and RB-S boats manufactured by SAFE Boats International. The boats are powered by twin Honda BF225 four-stroke outboard engines. The TANBs are manufactured by Metal Shark and are powered by twin Honda BF150 four-stroke outboard engines. The sheer volume of these engines in the Coast Guard inventory required a plan for conducting and managing maintenance, while keeping in line with the Commandant's vision of modernization. Through a Business Case Analysis of Honda outboard maintenance, Customs and Border Protection's (CBP) repair facility National Marine Center (NMC) was evaluated, along with District

National Marine Center, St. Augustine, Florida.

Nine's maintenance program for Honda outboard engines. As a key member of the Department's Boat Commodities Council, NMC was a central point of depot maintenance and logistics, receiving, repairing, and shipping engines daily, while District Nine's model locally maintained engines, but was centrally funded. Sectors in District Nine were responsible for making repair arrangements and transporting engines while Naval Engineering Support Unit (NESU) Cleveland funded repairs and managed warranties. Although the pilot PSI program at NMC was a bit more expensive, it managed logistics support in-house and demonstrated the ability to absorb the volume of Coast Guard engines envisioned with full implementation.

In December 2005, the Coast Guard leveraged the Boat Commodities Council and signed an interagency agreement with NMC in St. Augustine, Florida, to perform all depot-level maintenance on District One and District Five Defender Class engines. The Coast Guard chose to use NMC in a pilot program for maintaining District One and Five Honda BF225 engines because they optimally maintain engine inventory and employ highly efficient management processes. As a result of the agreement between NMC and the Coast Guard, the repair facility in St. Augustine, Florida is now the largest Honda repair facility and BF225 dealer in the United States.

The pilot program was evaluated for one year and originally included Boat Forces Center, Special Missions Training Center, and Boat Force units in Districts One and Five. The pilot later expanded to include their MSSTs. During the evaluation period, NMC's shop and warehouse were stocked with the required equipment to perform depot-level maintenance on the Honda outboards. Meanwhile, sectors in Districts One and Five identified and shipped unit spare engines to NMC to establish an initial Ready For Issue (RFI) pool.

The goals of the pilot program were to evaluate cost effectiveness of the program, reduce costs by reducing the level of spare engines held in the field, maximize operational readiness and availability with a three day turnaround period, minimize mean time to repair, and validate organizational and depot-level maintenance tasks. During the pilot period, there were valuable lessons learned, but there were also many successes. During implementation in Districts One and Five, the Coast Guard reduced life-cycle costs and labor costs, and increased mean time between failures of previously repaired engines.

The Office of Naval Engineering (CG-45), the Office of Boat Forces (CG-731), and the Maintenance and Logistics Commands (MLCs) completed an in-depth evaluation of the business case analysis and data from the pilot program. They agreed that sending

engines to a centralized facility such as National Marine Center for depot-level maintenance was the best overall solution to providing optimal life cycle support. The PSI pilot's success was due in part to improved centralized warranty management, configuration tracking, supply support, failure trend analysis, and critical access to qualified technical support. Units participating in the pilot no longer had to wait in the queue for local Honda dealers for service and support, and were assured compliance with the most up-to-date service bulletins.

When depot-level maintenance is required, units request a spare engine from their forward staging point. These locations are outlined in the Honda BF225 Engine Centralized Logistics Standard Operating Procedures (SOP) Rev 2. If there are no spare RFI engines at the forward staging point, the servicing NESU sends a request to NMC for an RFI engine. When the engine is received by the unit, the non-RFI engine is sent back to NMC in the same approved shipping container the RFI engine was sent in. This process ensures unit operational availability and reduces the requirement for specialized training at minimally-manned Coast Guard stations. The IT tool, Custom Automated Maintenance and Inventory Tracking System (CAMITS), is used by the NESU to enter changes in engine status. Since engines are serialized for tracking, significant component history, and inventory management, the exact location of each engine is clearly evident to the NESU.

In July 2007, NMC and the Coast Guard agreed to expand the program Coast Guard-wide. Depot-level maintenance of Honda BF150s, which power the standard 26-foot Trailerable Aids to Navigation Boat (TANB), were then added to the program. Districts Seven and Eight have since been inducted into the program. Due to the large quantity of engines in District Eight, implementation of the remaining sectors is taking longer than anticipated. The remaining districts will be inducted by December 2008. At full implementation, over 1,000 BF225 engines and over 150 BF150 engines will be enrolled in the program.

The program is striving to embody the "power by the hour" concept, which is utilized by the aviation community and is attributed to their success in managing assets. The meaning of "power by the hour" is that the exact price to operate an asset is known, including maintenance. This allows the operator to anticipate a standard level of maintenance to be completed by a contracted source for a fixed price based on a set number of operating hours. The Coast Guard and NMC are working

towards determining a fixed price to repair BF225 or BF150 engines based on operating hours to ensure the Honda PSI Program fulfills the "power by the hour" concept.

The Honda PSI Program is an integral part of the Coast Guard's modernization future. Our partnership with Customs and Border Protection's National Marine Center influences the key relationships of the Department's Boat Commodities Council and increases efficiency within our organization. The program verifies centralized maintenance as the key to ensuring a standardized fleet of boats to perform the mission at a moment's notice.

New Multi-Mission Capable MH-65C

by LCDR Tamara Koermer
HH-65C Systems Manager
Office of Aeronautical Engineering (CG-41)

In late summer of 2007, even as technicians torqued the last bolt on the final HH-65C Arriel 2C2 during re-engining modification, the Coast Guard was purchasing new components for the next step in the H-65 evolution. The result was designated as the MH-65C by Department of Defense (DoD) authorities. Still called by its common name "Dolphin," the MH-65C incorporates the changes that transform the aircraft into a multi-mission Airborne Use of Force (AUF) asset.

Much more than just adding firepower, the MH-65C is a big step forward in airborne communications interoperability. The design and integration work was done primarily at the Coast Guard's Aircraft Repair & Supply Center (ARSC) in Elizabeth City, NC, in partnership with longtime avionics collaborator Rockwell Collins and other vendors such as Wulfsberg Electronics and FLIR Systems. The upgrade package includes replacing four legacy communication components with state of the art systems to include satellite and High Frequency Automatic Link Establishment (HF ALE). The MH-65C also integrates best-in-class sensors such as the DF-430 radio direction finder and the FLIR Systems' electro-optical/ infrared (EO/IR) system to make the MH-65C a far more capable detection platform for all missions. Designed specifically to U.S. Coast Guard specifications, FLIR System "ESS" model is so advanced that it has gained the interest of DoD. Weaponry includes the M240 automatic machine gun on a fixed mount and a shoulder-fired .50 caliber rifle for precision disabling fire. The MH-65C prototype,

Figure 1. MH-65C with M240 machine gun and precision fire weapon deployed.

CG6599, was built from a new airframe already in the USCG inventory (see Figure 2). Fully constructed at ARSC, it is the first U.S. Coast Guard-built helicopter. CG6599 flew its first flight as an MH-65C on 02 February 2007 (see Figure 3). Extensive electromagnetic testing and verification was completed at Naval Air Systems Command in Patuxent River, MD, (see Figure 4) during summer and late fall. The first production aircraft was delivered to HITRON Jacksonville, FL, in October 2007. ARSC is producing roughly two MH-65Cs per month and met the requirement to deliver six airframes to HITRON before 30 January 2008 when the Agusta MH-68 aircraft lease expired (see Figure 5).

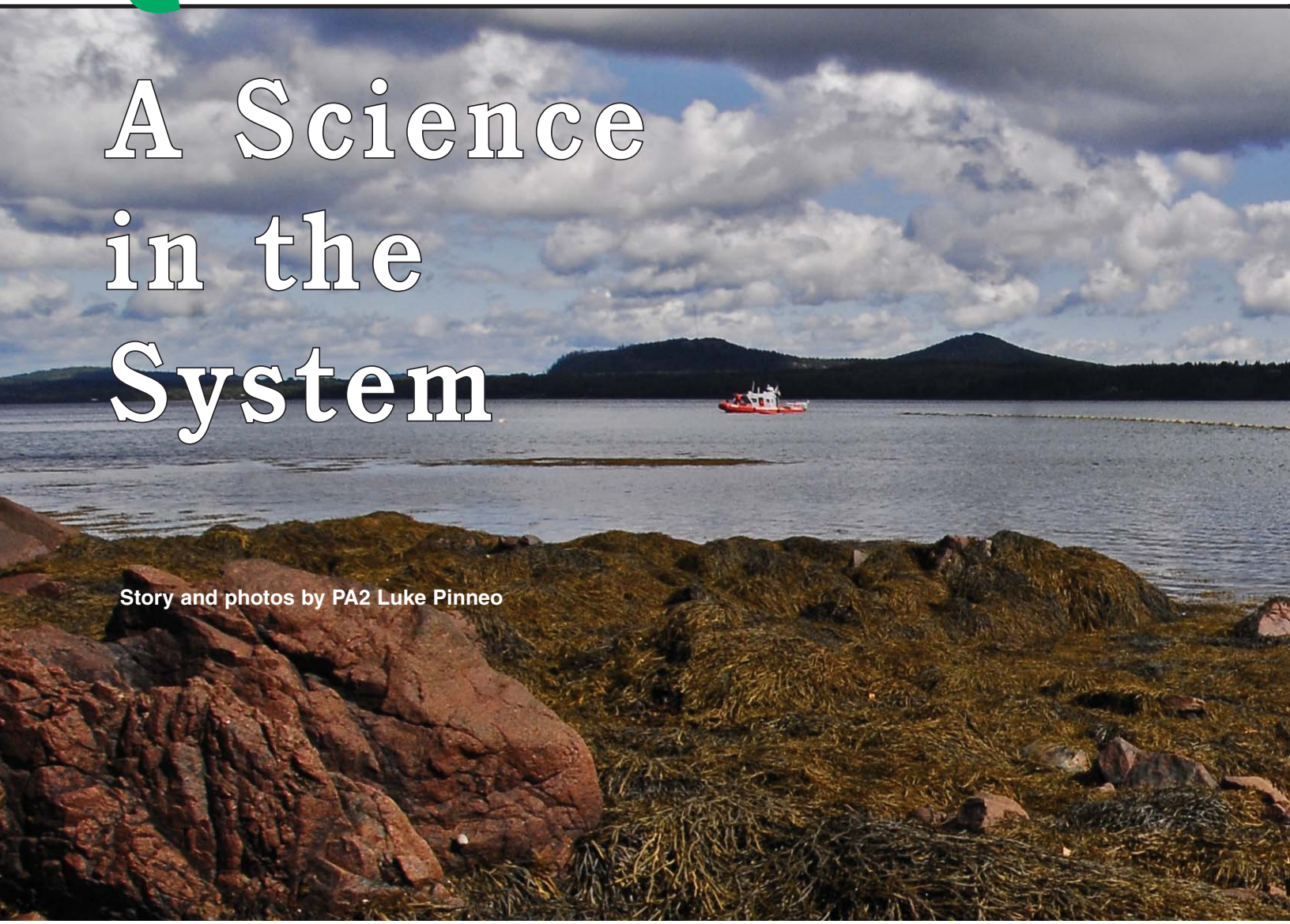
Following HITRON, the MH-65C will be delivered to the fleet through 2011 at a rate of twenty-two airframes per year. Air Stations Atlantic City (supporting the National Capital Region Air Defense (NCRAD)), Port Angeles, San Francisco, Houston and Savannah will all receive the new MH-65C in 2008.

Figure 2. MH-65C in assembly at ARSC.

Figure 3. CG6599, MH-65C inaugural flight 2 February 2007 prior to final paint.

Figure 4. ARSC supporting the fleet! AET2 Brad Young and CG6599 in the frequency testing chamber at Patuxent River, MD for electromagnetic sensitivity testing (NOTE: this photo was digitally altered to remove the crane and cables that suspend the aircraft).

Figure 5. CG6599 in flight during final verification testing.



A Science in the System

Story and photos by PA2 Luke Pinneo

Here, there are systems within systems. There is order, development -- and there is evolution.

It is organically structured within a flexible membrane that allows for change. When placed under stress, all elements morph and adapt until the entire system restructures itself toward higher levels of productivity.

What sounds like something described in a field ecologist's notebook, is instead an emergency response strategy designed and used by U.S. government officials. It is the Incident Command System, and is known to many responders simply as the ICS.

Though it has many uses, a common application of the ICS is responding to oil spills.

In such cases, scores of agencies will flock together to form structures that upon close inspection will often ironically resemble the ecosystems they were formed to protect.

Here, in the case of a spill, there are many diverse parts with different functions: state and local, community groups and trustees, federal agencies -- all fused together with a common cause: protect the marine environment. In some cases, the differences between agencies are subtle. Other times, they are more obvious, especially if a spill occurs in a body of water near the border of two countries.

The Passamaquoddy Bay, which empties into the Bay of Fundy, Canada, to the north and into the Gulf of Maine to the south, is a crystal clear example of where this becomes a paramount issue.

"Fish and other marine life don't recognize the border so if there's extreme impact on one side versus the other, everybody's resources are impacted," said U.S. Coast Guard CDR Wyman Briggs, of the Coast Guard First District in Boston.

Briggs is the assistant chief of the incident management

SAINT ANDREWS, New Brunswick, CANADA - A US Coast Guard 25-foot response boat from Station Eastport, Maine, manages a length of oil-containment boom during a cross-border contingency exercise on Passamoquaddy Bay 12 September 2007 in St. Andrews, New Brunswick, Canada. The training focuses on protecting the delicate marine environment and ecosystems from potential oil or other hazardous material spills. (Coast Guard photo/Luke Pinneo)

branch of the First District, which spans from New Jersey to the Maine/Canada border.

In his job, if there were ever an oil spill in or even close to the Gulf of Maine – it would be his business.

Briggs has served with the Coast Guard for nearly 20 years, half of which he's devoted to the service's environmental protection mission. Armed with an environmental science undergraduate degree and an environmental policy masters degree from Harvard University, he has battled such monster spills as the *Exxon Valdez* in 1989, and others ranging from 60,000 to 100,000 gallons, each in geographically diverse environments.

His connection to the Gulf of Maine has deeper roots than just the job. As a boy, he said he spent many summers along the coast of Maine fishing, hiking, and absorbing the natural splendor of the land.

It made such an impression on him that he chose to stay. He now works at the district building in downtown Boston, and at the end of every day he drives nearly three hours north -- back home to Portland, Maine.

The job provides him with a chance to give back to the land. Recently in September 2007, he, other Coast Guardsmen, and a number of agencies and responders from both sides of the U.S./Canadian border met for a week in New Brunswick to train in a true-to-life oil spill scenario. The exercise was designed to resemble a real oil spill where many agencies from the U.S. and Canada would respond. The real challenge that was soon evident to Briggs and others was that the ICS was not used during the

drill, but rather Canada's brand-new RMS (Response Management System).

Briggs admitted the RMS was about 80 percent the same as ISC in both structure and function, but the enormous drawback was that it conflicted with one of the main traditional ideas of the ICS: common terminology.

The example of communication breakdown Briggs provided was when the U.S. Coast Guard refers to "public affairs," they speak for the most part of that element within the ISC that handles media affairs.

The Canadian agencies refer to the media affairs group as the "communications" unit. That is to say the group or unit that will communicate the situation or event to the public and the media.

But in ICS lingo, the term "communications" is usually associated with hand-held radios, telephones, Internet connection and other means of "communications."

Same word, entirely different interpretations, and that's simply one example.

The use of common terms is essential in the clutch. When many people, from many groups with different agendas show up -- under stress -- at a spill, the need for clear interpretation is obvious and yet the likelihood for misinterpretation is high.

As it is with ecosystems, in the ICS, communication flow and a fluid exchange of information from one part to another is vital to the successful production of the whole. And although the ICS was designed to use common terminology, there still are several instances of misunderstanding.

According to Briggs, one way the U.S. Coast Guard overcomes some of the terminology challenges that arise during an ICS guided response, is through the use of Scientific Support Coordinators (SSC).

The SSCs are representatives from the National Oceanic and Atmospheric Administration and they are, in essence, translators -- translators of the language of science.

During a spill, the SSCs rise to the surface and form a bond and communication loop between the responding scientists, the on-scene coordinators, and the command.

Steve Lehmann is the SSC for New England, and is quick to etch a clear line between what the SSCs are and what they are not.

"I'm not a biologist, or an ecologist. My job is to coordinate science and to interpret science."

Like Briggs, Lehmann, works in downtown Boston. In his quiet and sun-filled office, his walls are a testament to both his love of nature and his passion to protect it. A historic and colorful collection of photographs, most of which he took, feature a blend of pristine natural landscapes contrasted by other documentary images of oil spills, vessels oozing with black sludge, and pollution disasters of the past.

Lehmann elaborated on his role of protecting the environment as a scientific coordinator.

"To a large degree we don't always try to be the smartest people in the room, but we always know who the smartest person is," he said, with a half smile. "We speak softly and carry a big Rolodex."

He is a vital link.

He said Coast Guard responders, especially those that occupy the command element, must have a clear picture of what's happened, what is still happening, and how it will effect the environment in the near and long-term future. It's the SSC's role to know which scientists can provide the most accurate information about the situation, and to relay that data back to the command.

Without a full understanding of each cause and its effect, it's possible that some command choices could be more harmful than helpful.

Briggs agrees.

He suggests hypothetically that during an ICS oil spill cleanup, after the Coast Guard boat crews have recovered all the oil from the water, a command decision is made to start cleaning oil from the shoreline.

Seems like a logical next step. Or is it?

Briggs argues that in some cases, to have cleanup crews trudging and stomping through fragile marshes or wetlands might be devastating to the nesting wildlife and ecosystems that live and produce there. At times, it makes more sense to let nature break it down over time, or let the tides capture it where it can be cleaned from the water.

Either way, responders are left to make tough choices. At best, they need to be able to make informed and educated decisions.

Lehmann said in cases like those, and others where scientific data and prediction models are crucial to an effective response, the Coast Guard leans heavily on the SSC.

He adds that when a spill happens, the conch calls on

nearly every branch of science to respond. “Big oil spills are the most scientifically interdisciplinary event you’ll ever run across.”

He describes a concert of scientists including marine biologists, ecologists, physicists, chemists, geographers, and others.

Once all of the components -- scientific, government, private, community -- are in place, the challenge Lehmann sees time after time is getting consensus. “One man’s ceiling is another man’s floor,” he said.

In some cases, there are environmentalists screaming on one side and the responsible party, or spiller, screaming on the other. Lehman said that the Coast Guard and the SSCs are usually wedged tightly in the middle.

“When you have two scientific or two political groups that are screaming really hard, there’s probably a little truth in what each of them is saying, and it’s our job to meter in between.”

It then becomes a goal of achieving balance.

A U.S. Coast Guardsman from the Atlantic Strike Team looks out over Passamaquoddy Bay during a US and Canadian cross-border contingency exercise September 12, 2007, in St. Andrews, New Brunswick, Canada. The training focused on protecting the delicate marine environment and ecosystems from potential oil or other hazardous material spills. (U.S. Coast Guard photo/Luke Pinneo).

“If you look at an ecosystem, nobody set it up that way,” said Lehmann. “It’s that way because it’s balanced. Sometimes it gets out of balance, but it usually gets itself back into balance. It may take some time, but it finds its own balance -- it finds its equilibrium.”

Command structures, he observes, are the same way. He said he frequently refers to the organizational structure of a command as being organic.

“You can impose a system on top of it. You can impose this Incident Command System -- which is a very good system -- but if you try to hold that system too tightly, it’s going to finally break around the edges because it’s not allowed to grow. If you give it some flexibility, which is how it’s designed to be, then slowly and sometimes rapidly, that spill command structure morphs into what is needed.”

He said it almost always happens.

“When it doesn’t happen is when it’s not allowed to do that -- when there is some human force preventing that from happening,” he said.

That force, he said, is rigidity.

And sometimes the response is not successful. As he illustrates, there are also ecosystem that don’t make it at first, but they evolve until they’re productive.

The same is true of an oil spill response using the ISC.

“A spill that is going to go on for a while -- it evolves into its own management structure,” he said. “It finds an equilibrium with the spill.”

Is it any wonder, that our man-made systems and our structures and our models and methods mirror those of ecosystems, and the natural order of the planet in general?

It shouldn’t be. Given the chance to step back and observe from a clearer viewpoint, one can easily see that we’re all part of one big picture.

And, as Briggs noted, it’s a pretty picture and a precious one. “It’s amazingly productive, as long as we don’t abuse it.”

Yard "Outstanding Facilities Engineering Organization" for 2006

CDR John Slaughter Leads Shipyard Facilities Management Division to National Recognition

Under the leadership of Commander (CDR) John Slaughter, Chief, Facilities Management Division of the Coast Guard Yard in Baltimore, Maryland, the shipyard recently received the U.S. Coast Guard Cowart Plaque as the Service's "Outstanding Facilities Engineering Organization" for 2006. The annual award is bestowed by the Society of American Military Engineers and named in honor of the late Vice Admiral Kenneth Cowart, Chief Engineer of the Coast Guard from 1950 to 1958. CDR Slaughter has served as the Yard's Chief Facilities Engineer since summer 2006.

The Yard's Facilities Management Division is the Coast Guard's third largest shore facility. CDR Slaughter supervises a staff of 13 Coast Guard military and civilian employees who, under his direction, achieved significant civil engineering goals at the Coast Guard's only, century old shipyard last year.

Taking substantial effort as a federal agency to become less dependent on foreign, non-renewable sources of energy, the Yard established a Memorandum of Understanding with the City of Baltimore that will result in the recovery of landfill methane gas for future use as Yard electricity and steam energy. Capture of the methane gas generated by a nearby, city-owned landfill will serve as a renewable source of energy for the shipyard over the next two decades as well as remove potentially dangerous greenhouse gases from the environment.

Other facilities engineering achievements include receipt of the 2006 Department of Homeland Security Environmental Achievement Award and the 2006 Coast Guard Environmental Award.

2008 Coast Guard Engineer of the Year Named

Commander John Slaughter

Commander John Slaughter, Yard Facilities Engineer, is the 2008 U.S. Coast Guard "Engineer of the Year." The Commander's civil engineering expertise, visionary outlook, and strong leadership fueled the success of such projects as the Yard's new Land Use Plan and the contract for the Landfill Gas Co-Generation Plant.

The former initiative will enhance the industrial capabilities of the Yard and study the consolidation of the Engineering Logistics Center's operations. The Landfill Gas Co-Generation Plant construction project will convert nearby landfill methane gas into electricity and steam for the Yard for the next two decades. The Commander's management and engineering skills have positively moved forward the study and clean-up of the Yard's Superfund sites. He has proactively reached out to the community with consistent, updated information on the project's progress. During Commander Slaughter's tenure as Chief of the Yard's Facilities Management Division, the Yard has received the Coast Guard's "2006 Outstanding Facilities Engineering Organization," the "2006 Department of Homeland Security Environmental Achievement Award," and the "2006 Coast Guard Environmental Award For Pollution Prevention."

Commander Slaughter came to the Coast Guard Yard after serving as Executive Officer for Civil Engineering Unit (CEU) Miami where he managed major maintenance and improvement projects for Coast Guard units in the southeastern United States. During his tenure, he coordinated civil engineering response to eight major hurricanes including Katrina, Rita, and Wilma in 2005.

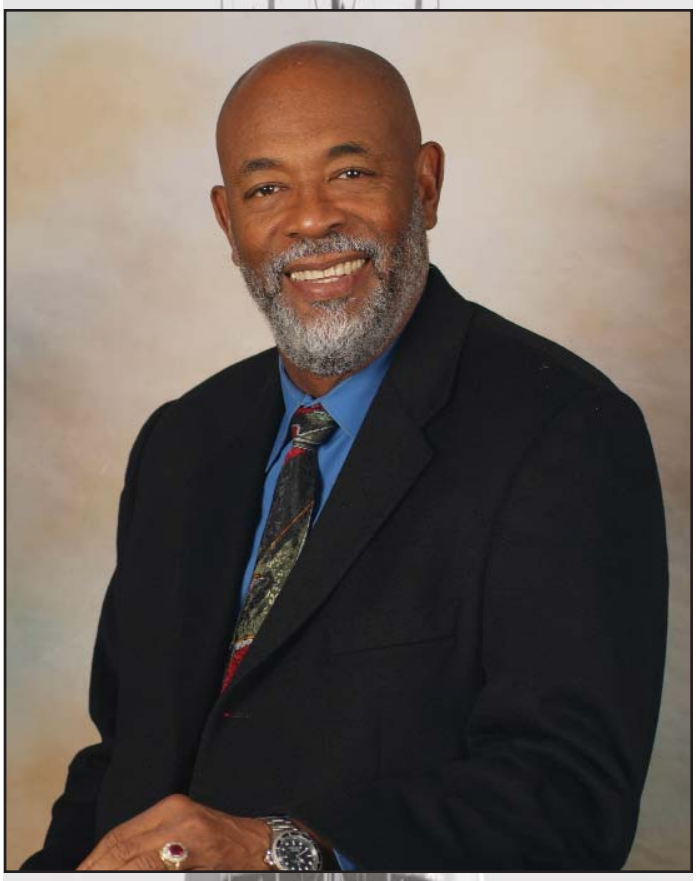
The Commander's prior assignments include Engineer Officer at the Greater Antilles Section, San Juan, Puerto Rico; CEU Cleveland; Naval Engineering Support Unit Miami; and student engineer and damage control assistant aboard the Coast Guard Cutter DAUNTLESS.

Commander Slaughter graduated with a degree in Civil Engineering from the Coast Guard Academy in 1990. He received a Masters Degree in Ocean Engineering from Florida Atlantic University in 1997 and a Masters in Business Administration from Regis University in 2001. He was awarded the American Society of Military Engineers' Oren Medal for outstanding contribution to the Coast Guard Civil Engineering Program in 1999. The Commander is a registered Professional Engineer in the State of Florida.

Commander Slaughter hails from Gladstone, Oregon. He and his wife, Vivian, are the proud parents of two sets of twins: Lucas and Katerina, age five, and Gwen and Lily, age two. The Slaughter family resides in Pasadena, Maryland.

The Commander was honored at the National Press Club in Washington, D.C. when recognized as the 2008 Engineer of Year for the United States Coast Guard during ceremonies on February 21, 2008.

Coast Guard Civil Rights Service Provider of the Year



Les Delney

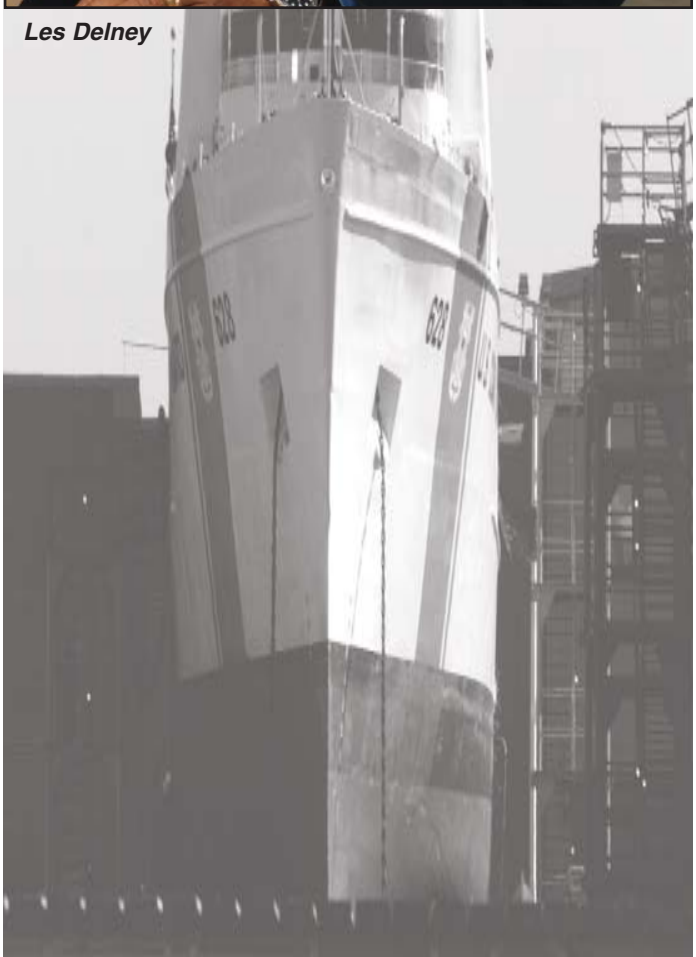
Les Delney, Yard Equal Employment Opportunity (EEO) Specialist, is the U.S. Coast Guard Civil Rights Service Provider of the Year (Full-Time). Demonstrating command leadership in civil rights, Delney professionally resolved over 120 contacts at the lowest level this past year with none resulting in a formal complaint of unlawful discrimination.

He communicated the need to Yard management to promote diversity when filling position vacancies in order to enhance actual and perceived fairness and due process regarding promotions. Despite an intense industrial production schedule, Delney ensured the successful training of the Yard's workforce in Human Relations Awareness and Sexual Harassment Prevention.

An enthusiastic proponent of community outreach, he teamed with colleagues from the other Baltimore Area Coast Guard commands to produce several special observances and ethnic heritage celebrations that were attended by the Yard campus personnel and members of the community throughout the year.

He has devoted countless hours to the Coast Guard's Partnership in Education program in Baltimore and has teamed with the Yard's Chaplain to create abundant opportunities to foster a positive public image of the Yard.

Born in Haiti, Delney served six years in the United States Marine Corps and brought 20 years of experience in the equal employment opportunity field when he came to the Yard in 1997. He has served as the Yard's EEO Counselor since 2004.



CWO Denise Worden

Coast Guard Education Services Officer of the Year

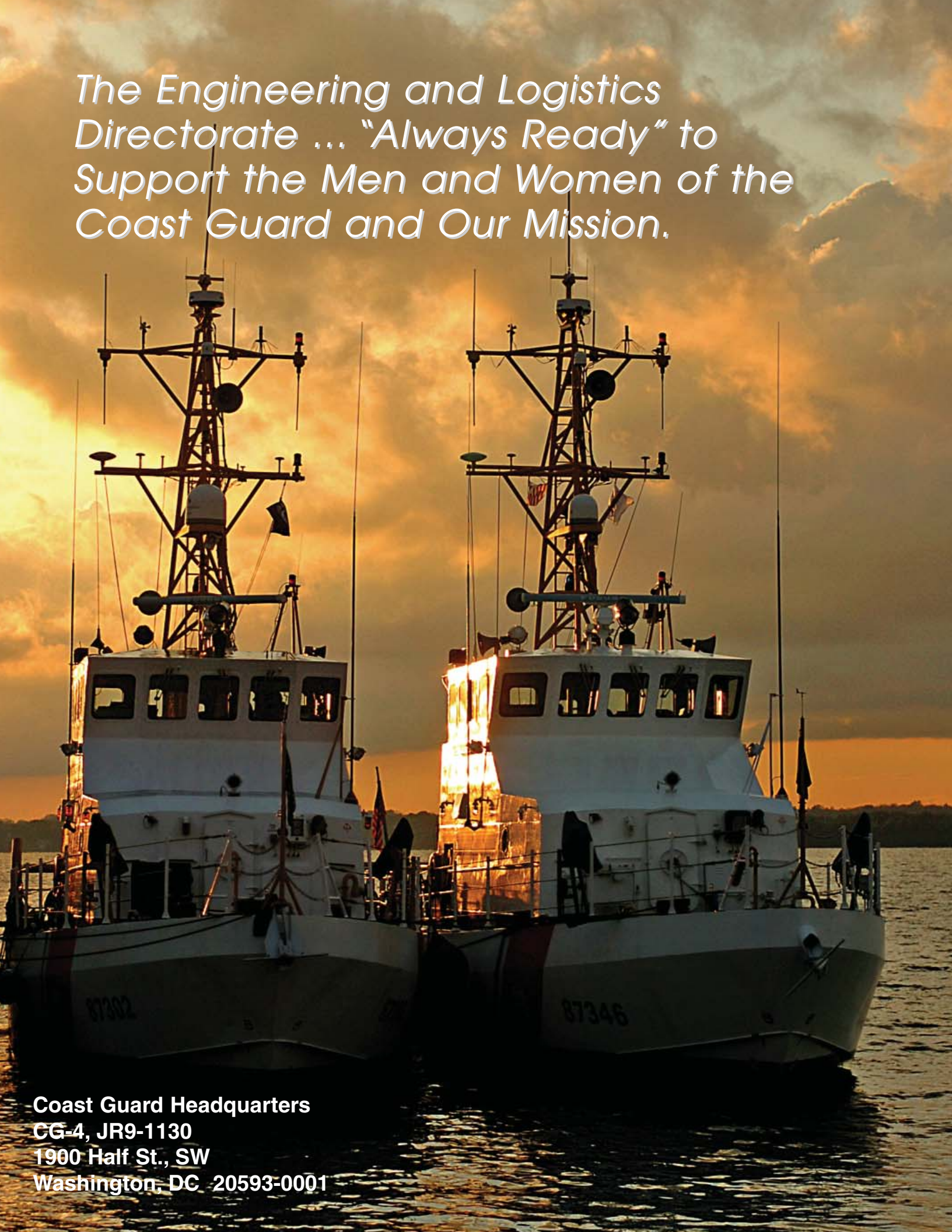
Chief Warrant Officer Denise Worden, Chief, Yard Military Personnel Branch, is the U.S. Coast Guard Outstanding Education Services Officer (ESO) of the Year (Medium Ashore Unit/Collateral Duty). The award recognizes those Education Services Officers who made extraordinary contributions to the educational development of Coast Guard members within their command's area of responsibility.

CWO Worden created a newsletter entitled *ESO Update* discussing, among other topics, Coast Guard and Department of Defense news, testing schedules, and tuition aid programs. She disseminated the newsletter to 13 tenant activities at the Yard.

CWO Worden mentored junior officers and collateral duty ESOs regarding ESO responsibilities. In the absence of other commands' ESOs, she stepped up and provided their military members and civilian employees with career guidance and test administration services as well as managed officer accession interview boards.

CWO Worden handles education services for visiting ships undergoing repairs at the Yard. She proctored college exams for Yard civilian employees and was the only Baltimore area ESO to administer the Armed Services Qualifications Test -- In Service retest.

CWO Worden is a 23 year veteran of the Coast Guard. Hailing from Worcester, Massachusetts, she has been stationed at the Yard since 2005.



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