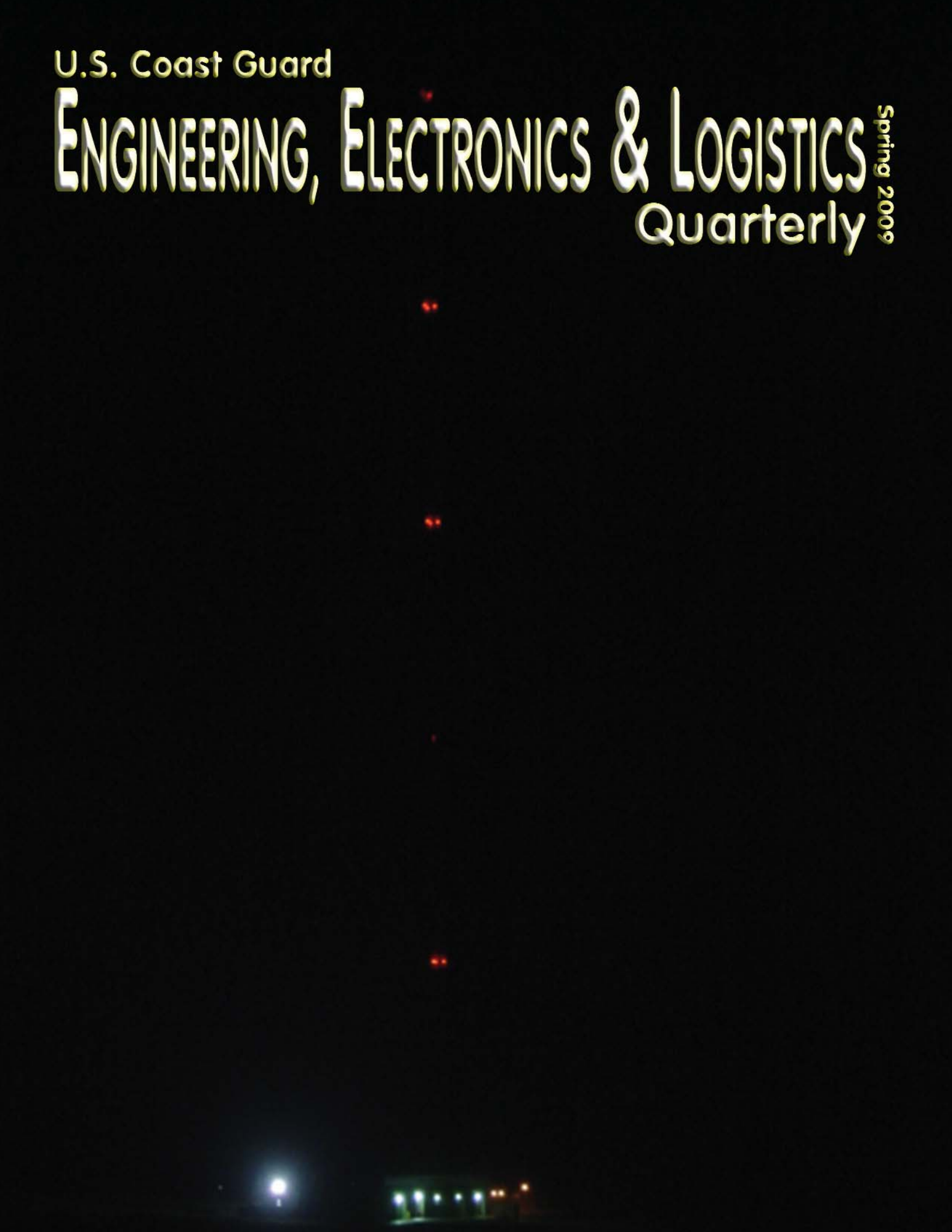
U.S. Coast Guard

Engineering, Electronics & Logistics Quarterly

Spring 2009



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The *U.S. Coast Guard Engineering, Electronics and Logistics Quarterly* is published quarterly by the Assistant Commandant for Engineering and Logistics. This publication is unofficial and not authority for action. Views and opinions expressed are not necessarily those of the U.S. Department of Homeland Security or the U.S. Coast Guard. We encourage readers to submit articles and letters to the editor. Authors are encouraged to submit articles through the Program Representative. The *U.S. Coast Guard Engineering, Electronics and Logistics Quarterly* Editor and the Engineering and Logistics Directorate Management Board retain final approval authority for the publication or non-publication of all article submissions. We will make every effort to publish all submissions. We also reserve the right to edit submissions for length, accuracy and grammar. All letters to the editor must be signed along with current address and telephone number.

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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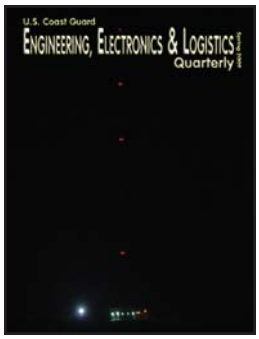

***On the Cover*: Night view of LORAN Station Kodiak's new LED lighting system.; read more on page 40.**

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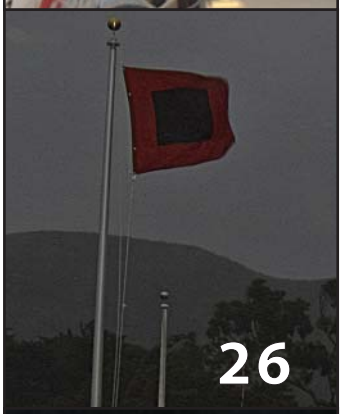

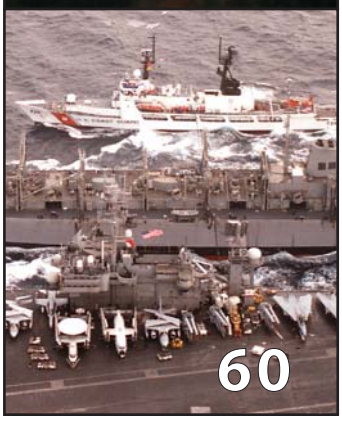

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From the Assistant Commandant

As we transition to the Coast Guard business model, the Product Line Manager will become one of the most critical roles in the modernized Mission Support Organization. The Product Line Manager will be responsible for the planning, budgeting, and execution of all system support for their asset type. They will serve as the one-stop support shopping point for field units in the modernized Coast Guard.

A product line is a concept that originated in the private sector and is defined as a group of closely related products with similar attributes. Product lines are used by service organizations as a means of providing superior support to customers, while internally capitalizing on the economies that come from grouping similar products together. They are essential to the foundation of our new logistics support model.

Product lines are formed early in the life cycle of a program and initially reside within the Asset Project Office (APO). Once a new capability or asset becomes fully operational, the associated product line moves from the APO to the designated logistics or service center, continuing life cycle support until the asset is retired. A product line is organized to meet all asset or capability needs. The engineering branch responds to technical service requests, develops and maintains all maintenance procedures, maintains asset configuration data, approves all parts for use, and conducts reliability analyses. The supply branch concerns itself primarily with supporting the budgetary and supply management needs for the asset, including spare parts provisioning and procurement services. The programmed depot maintenance branch of the product line plans and manages all depot level maintenance activities, both in-house and commercial.

Our aviation program adopted the product line construct in the late 1990s and today the Aviation Logistics Center employs product lines focused on their four mission areas: short range rescue, long range rescue, medium range surveillance and long range surveillance. Each of our new logistics and service centers will adopt the product line construct for product families within their respective asset portfolios. Many will be familiar as previously identified Coast Guard asset classes (e.g., WMEC) or types (e.g., small boats). On October 1, 2008, the Coast Guard established the Small Boat Product Line (SBPL); the first tangible step in applying proven aviation processes to surface assets.

CAPT John Bragaw is the Small Boat Product Line Manager. In this capacity, he is solely responsible for all engineering and logistics for all of the Coast Guard's 1,800 boats. On a day-to-day basis, John and his staff field calls from field engineers seeking technical advice on engine failures, structural problems, and supply chain issues to name a few. In addition to the interaction with the field, the Small Boat Product Line is overseeing the development of standardized maintenance procedure cards for all boat types, setting up repair and procurement contracts for small boat parts, and developing time compliance technical orders. The product line is also developing process guides that will streamline maintenance and repair. Where in the recent past a station EPO may have had to choose between the type desk, OEM, or a local marina, the entire spectrum of mission support is now consolidated into one place … the Small Boat Product Line.

The Small Boat Product Line is making continual forward progress in boat reliability. Working with the RB-S original equipment manufacturer (safe boat), the SBPL examined and modified existing preventive and corrective maintenance procedures for RB-S collars, identifying potential low-cost design improvements. To assist in this effort, safe boat will observe a select number of collar replacements that occur in the field (following a failure), and provide recommendations to the Coast Guard based on these repair activities and the observed condition of the collars and mounting surfaces at failure. In this way, we can identify reasons for the large amount of collar failures, and work to design a solution.

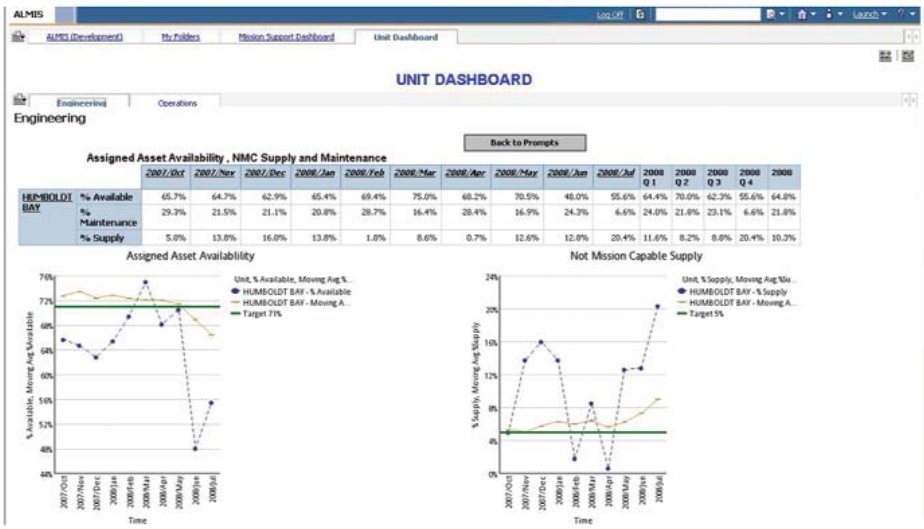
As I've noted, the Product Line Manager will play a critical role in the future of the Coast Guard. For those of you looking for leadership opportunities in the Mission Support Organization, the Product Line Manager is the penultimate position. The Product Line Manager will be directly responsible for operational availability and cost effectiveness of the assets under them. They will control large amounts of funding, significant workforces, and will have unlimited opportunities to exercise leadership, engineering, logistics, acquisition, and business acumen. These will truly be developmental positions for our future senior leaders.

Thomas Ostebo RDML, USCG
Assistant Commandant for
Engineering and Logistics

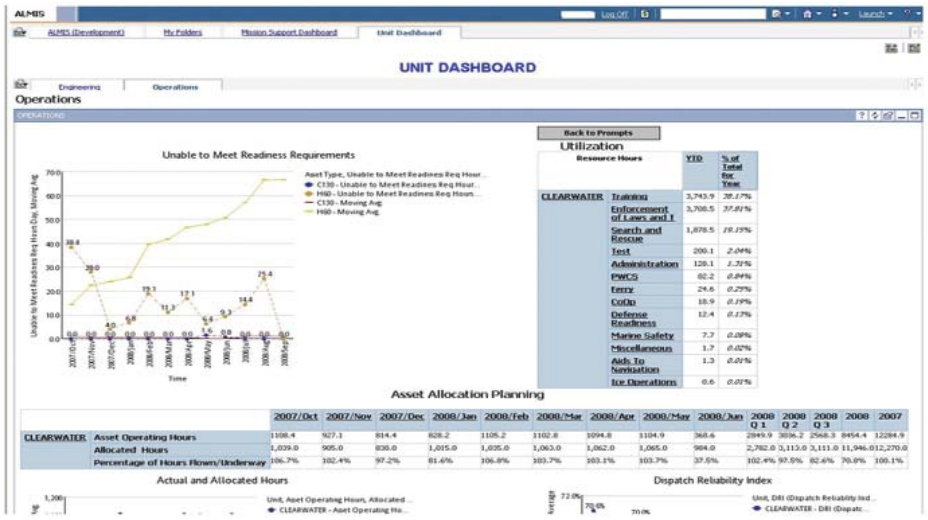
CG ALC begins ALMIS DSS Unit Dashboard Rollout
(Aviation Logistics Center)

In February 2009, the Asset Logistics Management Information System (ALMIS) Decision Support Team began rolling out a series of upgrades to the Decision Support System (DSS). Part of this upgrade includes dashboards that are designed to support the Coast Guard's Logistics Transformation goal to achieve Total Asset Visibility (TAV). TAV is the ability to provide timely and accurate information on key performance indicators such as status, location, personnel, equipment, and supplies essential for successful mission execution. The first two dashboards are the Engineering and Operations dashboard and contain the following measures:

The Engineering Dashboard:
- Assigned Asset Availability
- Not Mission Capable Supply
- Not Mission Capable Maintenance
- Dispatch Reliability Index - Maintenance
- First time Fill Rate of Allowed Inventory
- Cannibalization Rate



The Operations Dashboard:
- Unable to Meet Readiness Requirement Hours by Asset
- Resource Utilization by Mission
- Actual and Allocated Resource Hours
- Dispatch Reliability Index
- Recurrent Training Status



For more information and the current status of future dashboard releases as well as other ALMIS news, please visit the ALMIS Blog at http://cgweb.arsc.uscg.mil/alcblog/.

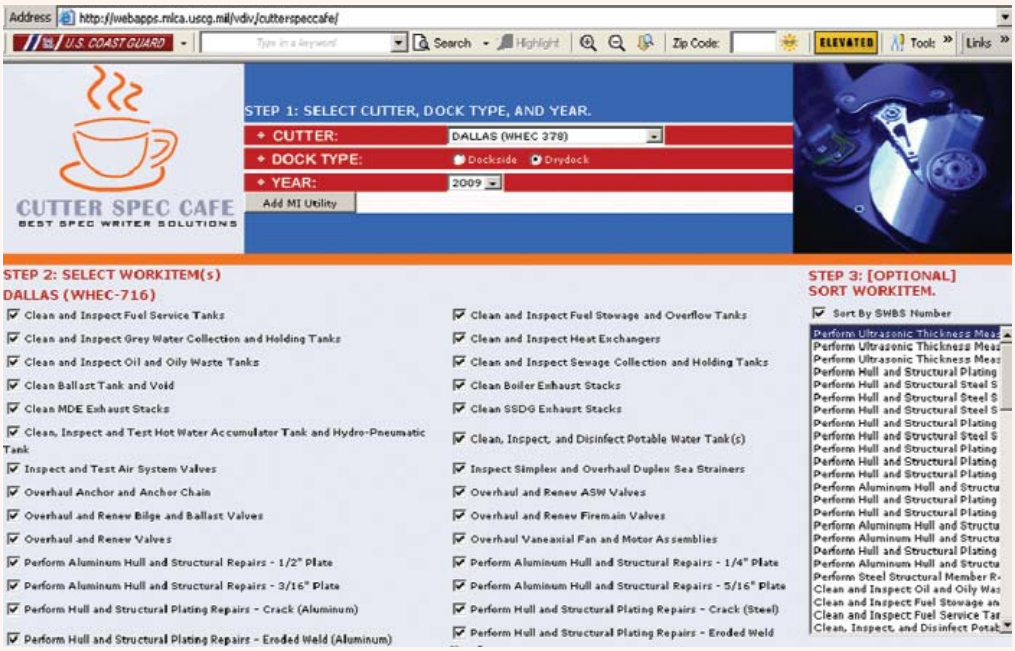
SPEC CAFÉ

Ongoing Modernization: A Grassroots Activity

As the Coast Guard modernization moves forward, so do many parallel efforts initiated to facilitate this goal. One such example is the Maintenance and Logistics Command's creation of a technical specification writing web-application called Spec Café. This e-Tool has been jointly developed by the Specification Branches of the Atlantic and Pacific Naval Engineering Divisions, with support of IT staff, as part of the on-going process alignment between the Engineering Logistics Center and MLCs. The Spec Café is an e-Tool used to generate specifications for Coast Guard cutter and boat depot level maintenance and repair on the fly. The new tool is a more automated and advanced specification development process than the Boat Spec Café, which was the 2004 Captain Niels P. Thomsen Innovation Award winner in the Administration, Training, and Support category. The Spec Café greatly enhances the specification developmental process by removing time-consuming manual steps, providing real-time generation of standardized documents, and the converging of cutter and boat spec-writing processes via a Coast Guard intranet connection and web-browser.

Organizationally there are many benefits to this standardization of vessel repair specifications, the development process and compilation tool. Standardization enables a uniform methodology for managing depot level cutter and boat maintenance processes across organic services as well as hundreds of commercial contractors around the world. The basic technical requirements and format of each specification is the same whether the vessel repair is conducted by a Coast Guard Industrial activity in Alaska, a private shipyard in Florida, or an international contractor supporting our PATFORSWA assets. The Spec Café also forcefully unifies and ensures ship-repair and specification documentation standards across projects and vessel product lines, in keeping with the evolving nature of Coast Guard modernization.

The Spec Café's is extremely user-friendly, with its data centrally located and managed to facilitate swift and easy updates. After accessing the Spec Café webpage, the user simply selects a cutter or boat NAME, YEAR, & DOCK TYPE. This selection immediately activates a menu of recurring work items particular to the platform selected. The user selects work items from the menu, presses the generate-spec



button -- and they're done; it's that simple. The entire process takes about 15 seconds to compile the detailed technical specification; a major improvement over minutes to hours for other applications. Better yet is the simplicity of almost instantaneous record updates!

Engineering personnel also have the ability to upload existing specifications for deconstruction/reconstruction; i.e., the ability to add or delete a work item at a moments notice. The Café is truly a dynamic integration of subject matter expert knowledge that empowers those who assemble specifications to rapidly respond to the demands of Coast Guard surface forces with high quality and accurate technical specifications.

The Spec Café provides the Coast Guard's modernization efforts a highly effective and standardized e-Tool that can be made available to any unit or product line personnel. That's what we call an ideal example of ongoing modernization at the grassroots level.

Yard Takes Skills "On the Road" (Yard)

The Yard traveled to the west coast on September 21, 2008 to begin a two week critical repair on the newly commissioned Coast Guard Cutter BERTHOLF, homeported in Alameda, California. The Engineering Logistics Center tasked the Yard with modifying the BERTHOLF's aviation fuel service system, a crucial fix for execution of the cutter's operational missions.

In mid-August, the Yard received word that BERTHOLF was unable to deliver the correct fuel pressure when refueling helicopters due to pressure fluctuations in the JP-5 service system. Unfortunately, this prevented the cutter from attaining critical Coast Guard and Navy helicopter deck certification.

Within eight weeks, the Yard, in partnership with the Engineering Logistics Center, modified drawings; ordered parts and tools; assembled a road team; arranged for cross-country travel; and then completed the needed modifications in 14 days. The seven member Yard road team installed a JP-5 service pump, a new accumulator, and a flow meter. The team returned to the Yard on October 4, 2008; "Mission Complete."

The U.S. Coast Guard's first National Security Cutter BERTHOLF arrives in San Francisco, California, on July 23, 2008. Homeported in Alameda, California, the BERTHOLF will eventually replace the aging 378 foot cutter class as the Coast Guard's long-range patrol asset. (USCG photo by Petty Officer Jonathan Cilley)

Pipefitter Supervisor Tyrone McNeill served as the leader of the BERTHOLF road team. Other members included Karoly Banlaki, Electric Shop; Darren Conrad, Welding Shop; Charles Bare and Nelson Sapunar, Pipe Shop; Tommy Minor, Rigging Shop, and Ronnie Applebee, Machine Shop.

"Our skills can be tailored to fit almost any Coast Guard need. We quickly realized the significance of the BERTHOLF's modifications, so we shifted priorities to start on the project right away," commented LCDR John Whittemore, Deputy Project Manager. "This project highlights the Yard's unique value and demonstrates its ability to provide the right resources, on target, under a very short fuse."

"Service To The Fleet!"

Yard road team members Tommy Minor (left), Rigging Shop, and Ronnie Applebee, (right), Machine Shop, work on installation of the BERTHOLF's JP-5 pump in the Cutter's home-port of Alameda, California.

VIDEO: Logistics Transformation: The Future of Semper Paratus (LTPIO)

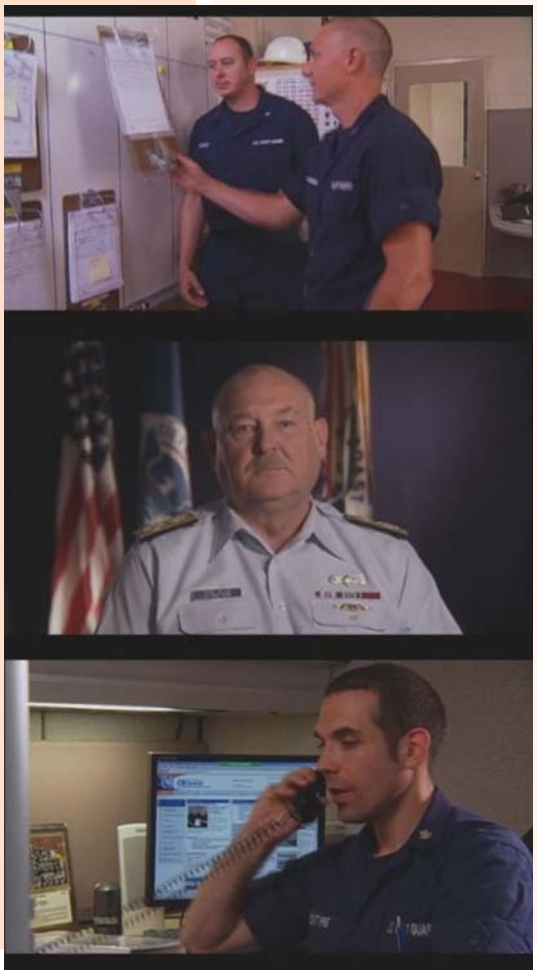
The Logistics Transformation Program Integration Office (LTPIO) recently released its new video, "Logistics Transformation: The Future of Semper Paratus". The video highlights the logistics transformation efforts, especially as they apply to unit day to day operations. It communicates how logistics transformation will improve efficiency and mission readiness through the daily activities experienced in transformed sectors. The video explains the new logistics business model and the four cornerstones of that model: Configuration Management, Total Asset Visibility, Bi-Level Maintenance, and the Product Line. Also demonstrated are the new IT tools, such as the Electronic Asset Logbook, ALMIS, and color-coded electronic forms. Finally, the video explains how the new logistics model is the future of the Coast Guard and how it will better support mission execution. (Approximately 14 minutes.)

This video can be accessed at the following links:

Coast Guard Visual Imagery:
http://cgvi.uscg.mil/media/main.php?g2_itemId=460327

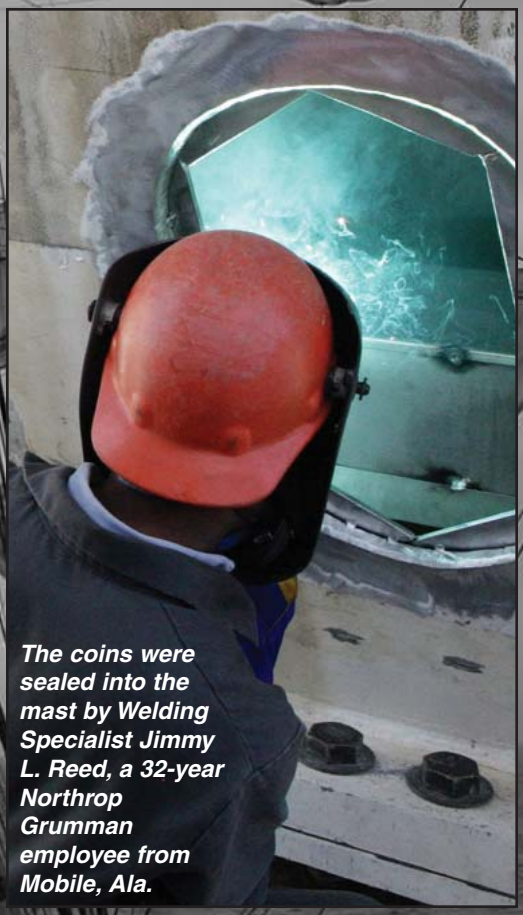
CG Central: Strategic Initiatives> Logistics Transformation> A. LTPIO Overview> 00.**NEW** Logistics Transformation: The Future of Semper Paratus Video

YouTube, CG Channel:
http://www.youtube.com/watch?v=4u7ACBrku_o



Screen shots.

(Left to right) CAPT Lance Bardo,USCG, Prospective Commanding Officer for NSC 2, and Mike Duthu, U.S. Coast Guard program manager, are shown holding coins to be sealed into the mast as part of a time-honored custom dating back to the ancient Greeks.



The coins were sealed into the mast by Welding Specialist Jimmy L. Reed, a 32-year Northrop Grumman employee from Mobile, Ala.

U.S. Coast Guard Photo by Petty Officer 3rd Class Jetta H. Disco.

Mast Stepping Ceremony Marks Latest Milestone for WAESCHE

Courtesy of Deepwater News Flash

PASCAGOULA, Miss. – The mast stepping ceremony for National Security Cutter WAESCHE (WMSL-751) was held Tuesday, November 4, 2008, at the Northrop Grumman Shipbuilding facility in Mississippi. The ceremony marks the latest milestone for the second NSC.

Mast stepping ceremonies date back to the sailing ships of Greek mythology. Once the mast was placed into the hull, it signified the shell truly becoming a ship. The Greeks were said to have marked this event by placing coins in the step under the mast. It was thought that these coins would help the ship's crew pay their way home should they become shipwrecked.

"The placing of the coins into the mast signifies that we are one step closer to bringing this great ship to life and placing her into service," said CAPT Lance Bardo, Prospective Commanding Officer, WAESCHE. "As a representative of my entire crew, I'm proud to have played a small part in this tradition. We all look forward to sailing WAESCHE very soon."

The value of the coins placed in the mast represents a ship's hull number; in the case of WAESCHE it is $7.51. Each coin commemorates a significant date in the life of the ship, the military service, or its namesake, Admiral Russell Randolph Waesche.

Silver Dollars:

1886 Presented by Ship's Sponsor, Marilla Waesche Pivonka, for the date of January 7, 1886, representing RRW Sr.'s date of birth.
2003 Presented by Department of Homeland Security, commemorating the establishment of the department on March 1, 2003.
2005 Presented by Integrated Coast Guard Systems LLC for the date of January 3, 2005, the date upon which the joint venture signed the contract to begin construction of the second National Security Cutter.
2006 Presented by President of Northrop Grumman Shipbuilding, Mike Petters, commemorating the Laying of the Keel of WAESCHE (WMSL 751) on September 11, 2006.
2007 Presented by USCG, commemorating the establishment of the USCG Acquisition Directorate on July 13, 2007.
2008 Presented by USCG Project Residence Office, commemorating the launch of NSC 2 which occurred on July 11, 2008.

Fifty-cent:

1911 Presented by Prospective Commanding Officer, Captain Lance Bardo, USCG, representing Admiral Waesche's first command, the United States Revenue Cutter (USRC) Arcata.
1936 Presented on behalf of the Waesche family, June 14, 1936 represents Admiral Waesche's appointment to Commandant.
2007 Presented by United States Coast Guard in recognition of achieving the milestone of saving 1 million lives on August 4, 2007.

Penny:

1932 Presented by the Prospective Crew of WAESCHE (WMSL 751) representing Admiral Waesche's lead role reorganizing the field commands to make up the current day Coast Guard.

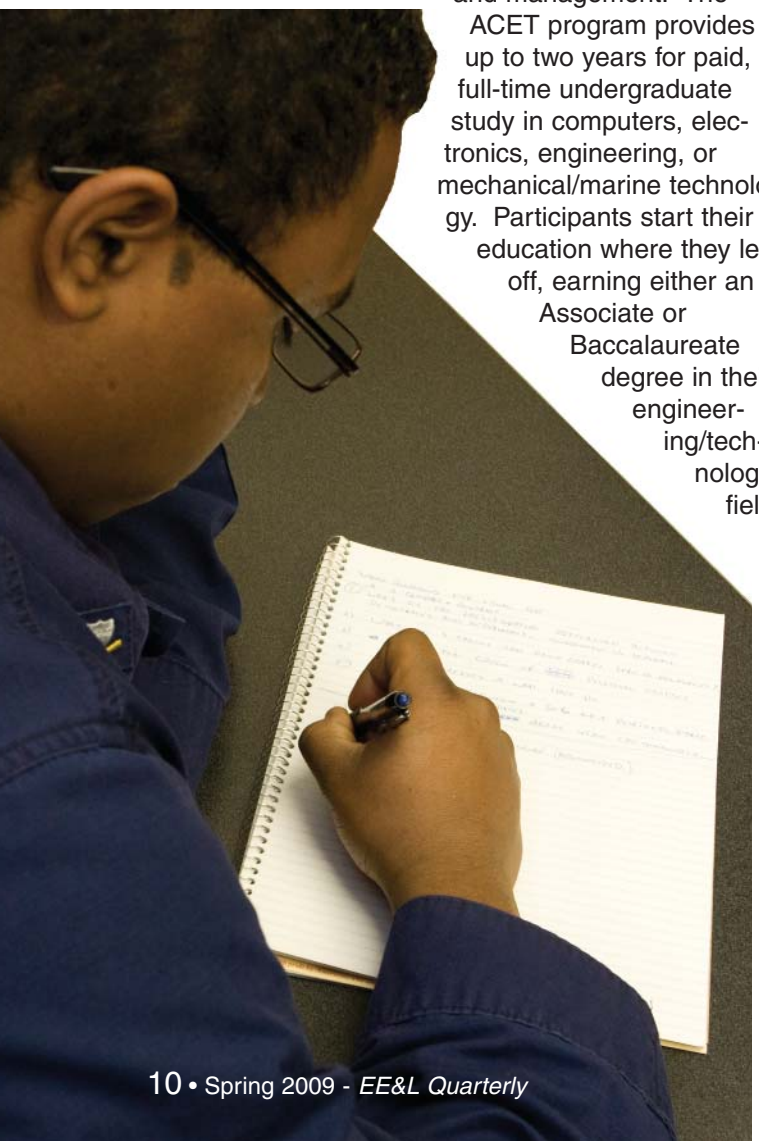
Undergraduate Advanced Education Opportunity

Looking for a way to get finish your undergrad degree or get started on one? Your work schedule is just not letting you go to school off-duty? You know you need to take that next step and get or finish that degree, but just can't find the time? Well then, the Coast Guard may have a program for you!

The Coast Guard has three undergraduate programs for Engineering, Electronics, and Technology just for enlisted.

- ✘ Advanced Computer, Engineering, and Technology (ACET)
- ✘ Aviation Maintenance Technology (AMT)
- ✘ Damage Control Industrial Technology (DCIT)

The Advanced Computer, Engineering, and Technology (ACET) Education Program prepares experienced, skilled technicians for greater responsibilities in computers, electronics, and engineering systems design, maintenance, and management. The ACET program provides up to two years for paid, full-time undergraduate study in computers, electronics, engineering, or mechanical/marine technology. Participants start their education where they left off, earning either an Associate or Baccalaureate degree in their engineering/technology field.



The ACET program is available to senior petty officers, E-6 to E8, in the Electronics Technician (ET), Information Systems Technician (IT), Electrician's Mate (EM), Avionics Electrical Technician (AET) and Machinery Technician (MK) ratings.

The Aviation Maintenance Technology Program prepares experienced, skilled aviation technicians for greater responsibilities in aviation maintenance management and technology. The AMT program provides up to two years for paid, full-time undergraduate study at Purdue University, culminating in a Baccalaureate degree. The AMT program is available to senior petty officers, E-5 to E7, in the Avionics Electrical Technician (AET) and Aviation Maintenance Technician (AMT) ratings.

The Damage Control Industrial Technology Program prepares experienced, high performing Damage Controlman for greater responsibilities in Fire Science, Industrial or Civil engineering, and vessel/facilities maintenance. The DCIT program provides up to 24 months, paid, full-time undergraduate study at select colleges. The DCIT program is available to senior petty officers, E-6 to E8, in the Damage Controlman (DC) rating.

Selection is on a "best qualified" basis; the selection panel weighs all the information in the application as well as your permanent headquarters record. Specific application instructions and deadlines can be found in ALCGENL 017/09. Separate program announcement ALCOAST's also provide further details and requirements, they are released in mid to late February.

What Can I Study? The degree you pursue depends on several factors; including your previous academic experience, rating/specialty, location, funding available, and needs of the service. Personnel are required to pursue a degree that aligns with the program and their rating. These programs are strictly for undergraduate study, members may pursue the degree levels listed below:

- ✘ Associate in Science (AS)
- ✘ Associate in Applied Science (AAS)
- ✘ Associate of Engineering (AE)
- ✘ Bachelor of Science (BS)

The majors most commonly associated with each rating are listed below. This list is only a guide, because schools provide several variations to degree names and concentration areas. Each proposal is individually reviewed and approval is based on the factors listed earlier.

Rating	Degree Fields
AET	Avionics Engineering/Technology, Electrical/Electronics Engineering/Technology or Computer Engineering/Technology(hardware), Aeronautical Technology (in AMT program)
EM	Electrical/Electronics Engineering/Technology, Engineering Technology or Electromechanical Engineering Technology
ET	Electrical/Electronics Engineering/Technology, Computer Engineering/Technology (hardware), Engineering Technology, or Electromechanical Engineering/Technology
IT	Electronics Engineering/Technology, Computer Engineering/Technology, Computer Science, Network Engineering, Telecommunications Engineering/Technology, or Information Systems/Technology
MK	Mechanical Engineering/Technology, Engineering Technology, Electromechanical Engineering Technology, Marine/Naval Engineering/Technology, or Industrial Engineering
AMT	Aeronautical Technology
DC	Fire Science, Industrial Technology, or Civil Engineering Technology

Where Can I Go to School? There are no specified or pre-approved schools, except for AMT. Most junior colleges and universities offer programs that will meet the Coast Guard's needs. The college or university proposed must be accredited by a recognized regional accreditation organization. It is also desired that the program be accredited by the Accreditation Board for Engineering and Technology (ABET). College selection is not a free-for-all; needs of the service, cost, curriculum, location, previous history with the school, and reputation all play a part in the final selection.

While in an advanced education program you are still on Active Duty and receive all normal pay and benefits. Going to school is your full-time job, as such, you are required to attend classes full-time, usually 12-15 term hours, every term classes are offered -- this includes summers. Since going to school is your job, your grades are your performance measure. Members participating in the advanced education programs are required to maintain academic proficiency. Members must successfully complete all attempted classes and maintain the minimum GPA to remain in good academic standing at the institution.

How Do I Apply? Solicitations for all programs are normally publicized in late mid February via ALCGENL and ALCOAST messages. The application deadline will be in mid summer - the actual date depends on other board schedules and service needs - make sure you read the solicitation message for the actual date. Panels convene between July and September, with selection notification published shortly thereafter.

Detailed eligibility criteria and application process are included in the messages. However, one requirement for all programs, that interested members should complete now, is the SAT or ACT exams. The SAT/ACT is a requirement. Exam results must be less then 5 years old and must be included with your application. Minimum service obligation (payback) for participation in the program is three months per one month for the first year and 1 month for 1 month thereafter.

All three programs are managed by the Office of Workforce Management for Engineering, Logistics, & C4IT; Commandant (CG-481). For more information about the programs, visit our Advanced Education site on CG Central under the Learning Tab @Learning > CG Advanced Education Programs, look for CG-481 and the Program Name in the resulting list. Or you may contact Ms Mary Fuata Mary.K.Fuata@uscg.mil, the Advanced Education Manager or your Rating Force Master Chief.

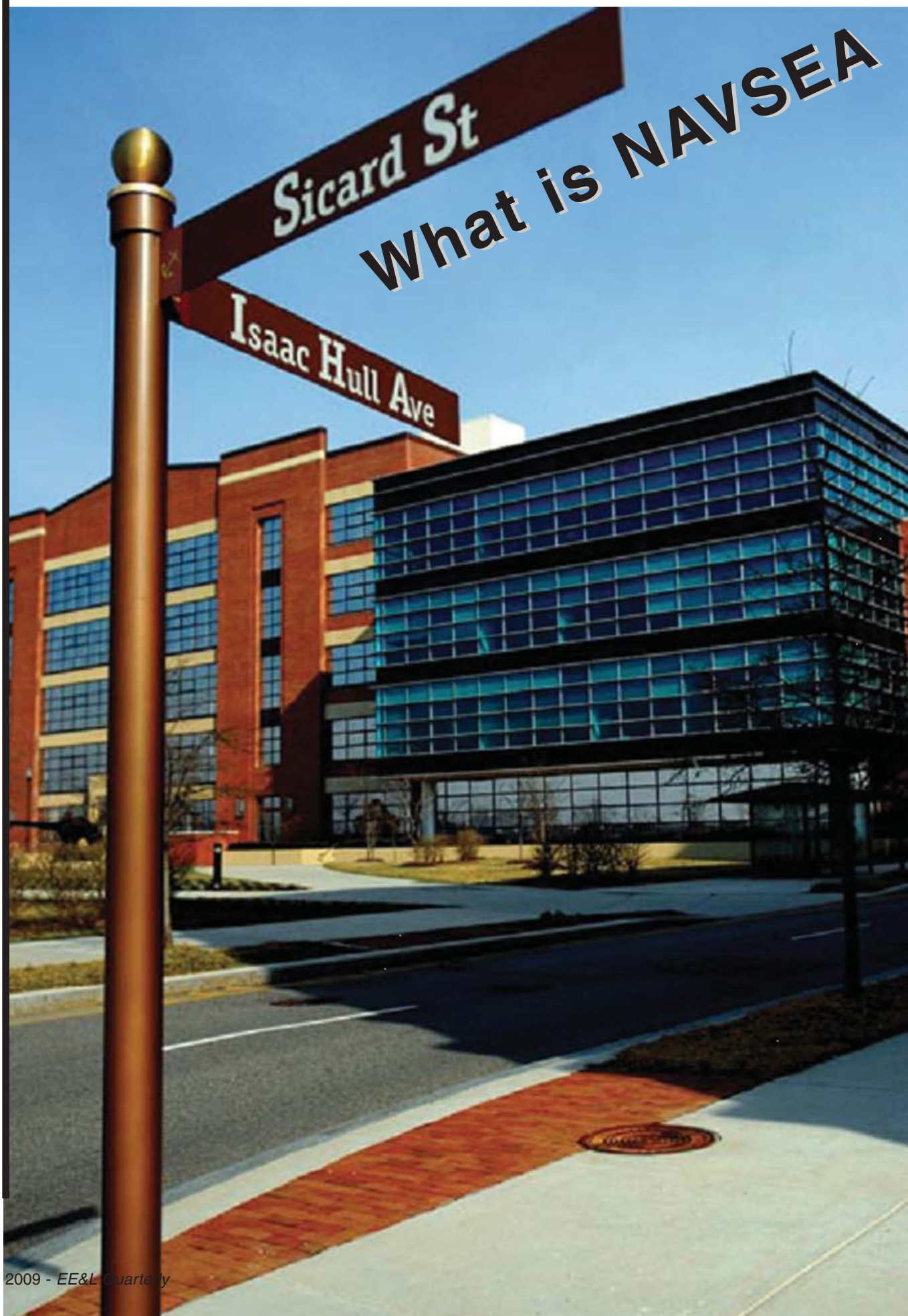
Similar programs are available for Junior Officers (O1 - O3) who were formerly enlisted and have not yet earned a Bachelor's degree and Chief Warrant Officers. Announcements and solicitations for all programs are made in early spring via ALCGOFF and ALCOAST messages, so keep an eye on the message boards. Or you can go to CG Central under the Learning Tab @ Learning > CG Advanced Education Programs.

Time to Start Planning for Your Advanced Education Application!

Look for the upcoming ALCOAST outlining advanced education opportunities sponsored by CG-4/CG-6 (it should be out around March). These include Aviation Engineering, Aviation Structure, Aviation Project Management/Avionics, Industrial Management, Civil Engineering, Civil Engineering with MBA, Ocean Engineering, Naval Engineering, Computers and Electrical Engineering, Information Technology, ACET for Officers, and Naval Engineering Technology. These programs are a great opportunity to expand your professional competencies. Also, following the ALCOAST, keep your eyes out for a message from OPM explaining the application process. As a reminder, all of these programs require some form of entrance exam (postgraduate programs require a GRE, ACET an SAT, etc.), so start planning now to have these tests completed by application deadline. If you have questions about any of these programs, take a look on CG Central: Learning > CG Advanced Education Programs.

NAVSEA

What is NAVSEA



& what do they do?

by LCDR Jay Main, NAVSEA Liaison

In my last article "**There's a new CG-4, CG-9 NAVSEA 05 MOA in town**," I discussed establishment of a NAVSEA front door for Coast Guard requested engineering services, but exactly what is behind this door?

The Naval Sea Systems command, referred to in most contexts as NAVSEA, is the largest of the Navy's five systems commands. The NAVSEA organization has 33 activities in 16 states and is host to a dedicated workforce of approximately 53,000 civilian, military, and reserve personnel. NAVSEA engineers build, procure and maintain the vast fleet of Navy's ships and submarines as well as all of these war fighter's combat systems. They manage in one way or another more than 150 acquisition programs. Further, NAVSEA has the sole responsibility of establishing and enforcing technical authority in ship and combat system design and operation. These technical standards ensure ships and systems are engineered effectively, and that they operate safely and reliably.

NAVSEA headquarters, located at the old Navy Yard in Washington, DC, is comprised of a command staff and eight directorates, plus five affiliated Program Executive Offices (PEOs). What is remarkable about the execution of the organization's mission, visions and goals is that 95 percent of all people work in field activities, including Warfare Centers, Naval Shipyards, and Supervisors of Shipbuilding. Each serves a unique and fundamental role in executing NAVSEA's strategic business plan.

One of the eight functionally aligned directorates, the Naval Systems Engineering Directorate (NAVSEA 05) provides risk-based engineering solutions for in-service platforms and systems and for acquisition programs. This directorate is the independent Technical Authority in support of the PEO's acquisition and in service fleet responsibilities. Their goal is improving fleet readiness and ensuring acquisition programs deliver assets that will sustain the long-term operational objectives of the United State Navy and other Department of Defense (DoD) integrated components.

NAVSEA's five affiliated PEOs (Ships, Carriers, Subs, Littoral and Mine Warfare, and Integrated Warfare Systems) are responsible for all aspects of life-cycle management of their assigned programs. PEOs report to the Assistant Secretary of the Navy for Research, Development and Acquisition for acquisition-related matters, and to the NAVSEA commander for planning and execution of in-service support. Team Ships, as they call themselves, comprised of PEO Ships and the NAVSEA Naval Systems Engineering Directorate, has "cradle to grave" responsibility for all non-nuclear surface ships, ensuring the most advanced technologies, weapons, and defensive systems are acquired and sustained within cost, performance, and schedule parameters.

NAVSEA's field activities include nine warfare center divisions, the nation's four naval shipyards, four supervisors of shipbuilding, and various subordinate support activities.

Everyday the Navy continues to team with the Coast Guard, as together we carry out the maritime defense strategy. Jointly we are looking ahead at ways to expand the capabilities of this maritime joint force as it defends our coasts, protects global commerce, combats illicit activities, and mitigates human suffering.

Look to future articles describing more about the NAVSEA organization and services available to the Coast Guard. If you are potentially interested in using NAVSEA services, please see your NAVSEA liaison LCDR Jay Main.

USCG photo by Senior Chief Timothy Santmyer.

Risk-Based Mission Support for Shore Infrastructure Management

The Shore Facilities Project Prioritization Process

by CDR Jack Poling PE, TRACEN Cape May; CDR David Savatgy, CEU Juneau; Richard Tremaglio TEC Inc., and Jeffrey Villnow TEC Inc.

Shore facilities system risks are long-term, unmeasured, and rarely considered as a risk to mission, potentially resulting in significant vulnerabilities.

A Case for Change

In a constrained budget environment, gross inefficiencies occur when we prioritize the wrong project; when a functional office space is renovated, while a mission-critical pier rots in the water, when the cutter exterior is painted a gleaming extra coat of white instead of repairing the main diesel engine that continuously fails due to unserviceable parts; or when functioning non-skid is renewed yet again, while the cooling supply to critical electronics is no longer supportable.

Coast Guard personnel rely on uninterrupted use of facility systems to meet operational objectives. Yet the maintenance of reliable shore facility systems remains discretionary. One person's choice over here might unintentionally increase mission risk over there. The inconsistent framework in which scarce facility sustainment resources are prioritized and allocated results in a cluttered, inconsistent and somewhat indefensible array of facility investments when viewed nationally over time. Even worse, there is no systematic measure of the risks to mission performance by not accomplishing all of the needed sustainment, restoration or modernization requirements. In the current process, there is no documented incentive for engineers and facilities managers to find the most cost-efficient, early interventions to prevent system degradation and preserve functionality. There is no mechanism for engineering leadership to pursue facilities management objectives in a manner that is consistent, comprehensive, and auditable across the entire portfolio.

Adding to the need for change are the Chief Financial Officers Act and Executive Order 13327 Federal Real Property Asset Management, both of which demand better accountability and stewardship in our Facilities Asset Management (FAM) approach. Leadership recognizes these vulnerabilities and has charged the Civil Engineering Program with prioritizing FAM investments based on mission effectiveness at the lowest possible cost. Commandant Intent Action Order (CIAO) 4, Logistics Organizational Alignment, calls for development and implementation of mission-focused support structures, including FAM engineering and logistics business processes modeled after internal best practices currently utilized in the aviation program. Toward that end, decision support tools and performance metrics have been developed to evaluate the mission alignment of the shore plant, and the risks associated with changes in asset investment levels.

The Shore Facilities Project Prioritization Process - A New Paradigm

The Shore Facilities Project Prioritization (SFPP) process was developed to facilitate a mission-risk oriented shore infrastructure investment philosophy. It draws on best practices from methods developed by the Coast Guard's Aviation, Electronics and Aids-to-Navigation programs; Department of Defense (DoD); National Aeronautics and Space Administration (NASA); and the Veteran's Health Administration. The SFPP process formalizes a number of traditional Coast Guard Civil Engineering project prioritization concepts, as practiced in the current Planned Obligation Priority (POP) process, and builds on the body of work referred to as the Regional Allocation Process (RAP) to emphasize identification and efficient management of mission risks. With its transparent, auditable, risk-based decision framework, the SFPP process is a tool that supports risk-based FAM decision making at an enterprise level. It complements the POP approach but does not replace it.

The overall objectives of the SFPP process are to direct limited AFC43 resources to the most important investment opportunities using risk-to-mission concepts, encourage sound engineering practices, and capture/communicate the impacts of funding decisions to Coast Guard leadership in understandable terms. The SFPP provides decision makers (i.e., POP Boards) with a full picture of all investment opportunities and their associated risk implications. Benefits of the SFPP process include:

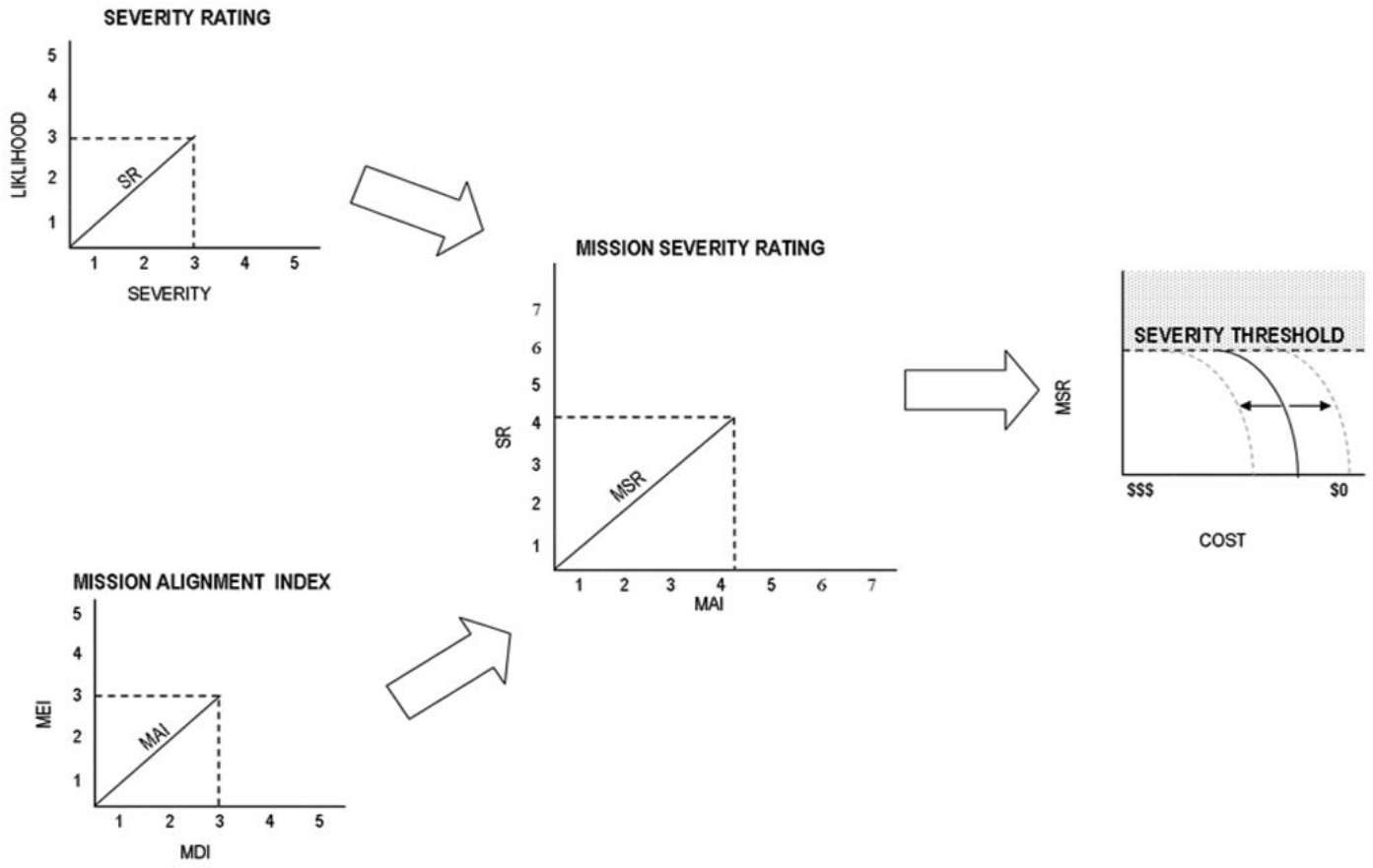
- ✔ Repeatable and auditable prioritization of candidate AFC43 investments across the enterprise;
- ✔ Improved mission focus for FAM decision makers;
- ✔ The ability to allocate funds based on risk-reduction instead of fair share;
- ✔ Comprehensive annual evaluation of the entire backlog in a way that supports requirements of the CFO Act and EO 13327;
- ✔ Data-supported methodology used to justify additional shore infrastructure budgetary resources; and
- ✔ Significant manpower savings in POP preparation time through the use of readily available risk-based metrics and proxies.

SFPP Process - Leveraging Existing Metrics for Simplicity

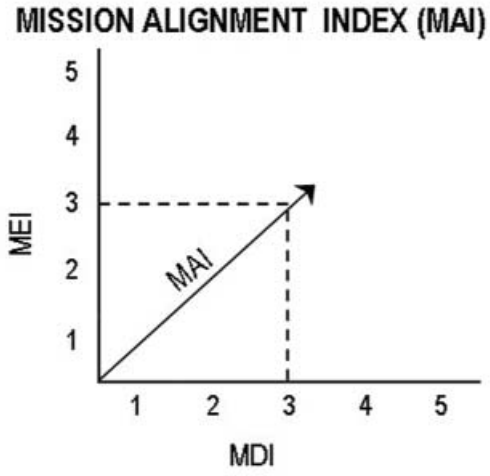
The SFPP process builds on industry best practices and Coast Guard operational risk management decision making to create a simple, flexible risk management approach for prioritizing investment opportunities. It leverages existing data and metrics to the greatest extent possible, while minimizing the collection of "new" data specific to the process itself. The process is flexible and allows straightforward substitution of new metrics as they become available in the future. Although developed initially for the AFC43 funding stream, it is readily expandable to other programs' (i.e., AC&I, EC&R, AFC41, AFC42, AFC45) use.

Simply put, effective management of mission risks related to shore infrastructure comes about by doing everything possible to ensure disruptive system failures never occur -- particularly in the most mission sensitive assets. In order to accomplish this objective, the SFPP process:

- ✔ Identifies in relative terms the most important mission capabilities and enabling assets using auditable and repeatable Mission Alignment Metrics. The Mission Alignment Metrics determine how well aligned a particular shore asset is with one or more essential Coast Guard mission capabilities.
- ✔ Assesses the likelihood and severity of a given facility system failure using a Severity Rating. This rating quantifies the relative amount of building system level risk associated with a given investment opportunity such that the FAM decision maker can begin to consider the implications of the cumulative system risk associated with the entire AFC43 backlog.
- ✔ Combines the concepts of mission alignment and severity rating to evaluate the relative Mission Severity Risks associated with FAM shore infrastructure investment decisions.



✔ Provides a methodology for measuring "return on investment" as the relative amount of risk mitigated per FAM dollar invested.



Mission Alignment Index

The key to improved mission-oriented facility asset management decision making is the methodology used to link shore assets with mission requirements. The Coast Guard's ongoing work with the Mission Dependency Index (MDI) and Mission Essentiality Index (MEI) was leveraged for this purpose.

In brief, the MDI is a tactical level perspective that measures the relative importance of one facility to another. It does this through a structured survey process that associates standardized "functional elements" with every Real Property Facility (RPF) and evaluates each functional element's relationship to the unit's mission readiness. A functional element is defined as a dedicated physical space at a shore facility that has a definable, mission related function. Functional elements may also be a critical infrastructure node or an item of mission critical equipment. Within the context of the MDI, a functional element represents the smallest portion of a shore asset for which an MDI rating is calculated.

The MEI complements the MDI concept with a strategic level perspective. Like MDI, MEI uses a structured survey process to measure the relative importance of investing limited FAM dollars in alternative Mission Essential Capabilities (MECs) and supporting facility infrastructure, or so-called Mission Essential Facilities (MEFs). MECs are organized multi-mission systems; all Coast Guard Operation Facilities Codes (OPFACs) are grouped into one of eight MECs. MEFs are specific facility categories; all USCG Facility Category Codes are grouped into one of six MEFs. Because the

MDI and MEI surveys are structured and make use of standardized lists of functional elements, MECs and MEFs, the surveys themselves are repeatable and auditable. The higher a facility's MDI and MEI ratings, the more closely aligned it is with important Coast Guard Missions.

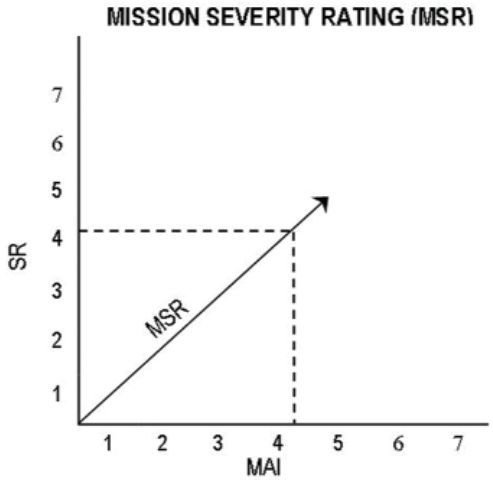
Severity Rating

Risk is defined by the combination of the Likelihood and Severity of a specific event being realized. A framework of Likelihood and Severity can be applied to FAM analyses subjectively using the judgment of a panel of experts, or in a more objective fashion using data from tests, life-cycle maintenance data and other sources. The SFPP process relies on a combination of subjective and objective methods to estimate the Likelihood and Severity of disruptive building system failures to determine a Severity Rating. It does this in a straightforward manner by selecting simple proxy indicators of Likelihood and Severity for use in a facility asset management setting from readily available CG data. As better proxies are developed, they can replace old metrics without the need to substantially revise the SFPP process itself.

To effectively manage system risks across the enterprise, the SFPP process must consider the differences between investment types and still maintain consistency in its approach to identifying and analyzing risks. For example, different AFC43 investment types (as expressed via MACID codes) have very different drivers and are therefore deserving of different Likelihood and Severity indicators when identifying the risks associated with each. Despite the differences in investment types, the SFPP process' analytical consistency allows measurement of total mission risk (in a relative sense), and direct comparison of the risk consequences of alternative enterprise-level investment strategies on a product line, geographic, or command basis.

Mission Severity Rating

In so much as the Mission Alignment Metrics (i.e., a combination of MDI and MEI ratings) provide an indication of the degree of alignment between shore facility assets and important Coast Guard missions, and the Severity Rating provides a measure of the relative severity of a negative event associated with a building system or functional failure, the SFPP process still required a methodology to more directly relate potential operational mission impacts to building system or functional failures.

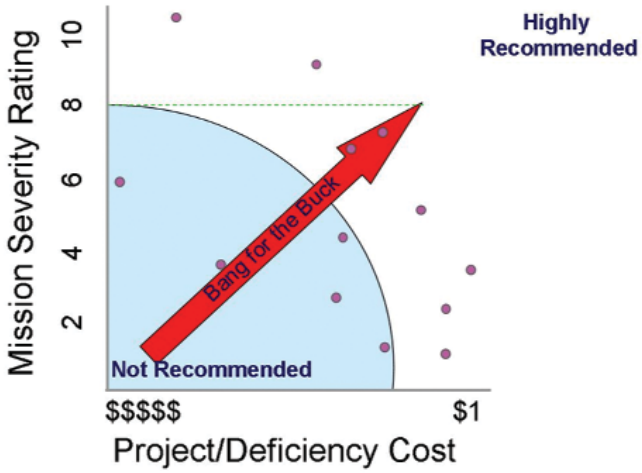


Specifically, the combination of the MAI and severity ratings can be used to provide an indication of the relative impact of a facility management decision on operational mission performance. The more closely aligned an asset is with a mission requirement (as measured via relatively high MDI and MEI ratings), and the more severe the potential system failure is perceived to be (as measured via relatively high likelihood and severity ratings for system risk), the greater the potential impact on operational performance.

Mission Risk Mitigation as a Measure of Return on Investment

The final component of the SFPP process involves a cost-benefit analysis of competing investment opportunities, where benefit is defined by the relative amount of risk mitigated by each competing investment opportunity. The CE Program has adopted a definition of a successful shore facility investment strategy as one that minimizes risk to mission success over time stemming from shore facilities. Accordingly, the process was designed to preferentially seek out investment opportunities that mitigate the greatest amount of relative risk per dollar invested. It does this in a systematic way by plotting each investment opportunity's Mission Severity Rating against its estimated costs.

Although the process is intentionally focused on mitigation of operational risk associated with the shore plant, it should be remembered that the SFPP outcome is just a baseline investment strategy for consideration by the POP Board. Human judgment and management of the SFPP results occur in the POP Board, and during the evaluation of mission alignment. This human interaction allows leadership to articulate other non-operational mission priorities (e.g., projects designed to improve morale and attract qualified officers) if desired such that the entire shore plant can be managed from a holistic risk perspective.



SFPP Concept of Return on Investment

Mission Oriented FAM Investment Planning

Figure 1 illustrates example SFPP output for a single Coast Guard District. In general, the projects within the blue oblong circle are believed to be the most deserving of the POP Board's scrutiny. That is, projects above and to the right of that band (blue dots) are considered desirable high risk, low dollar projects that allow maximum "return on investment," while those below and to the left (brown dots) offer less risk reduction per dollar spent and are therefore less desirable in a constrained budget environment. Projects in the circled band fall within the range of the funding cut line, and are clearly deserving of additional professional judgment by the POP Board. For any given investment alternative, the project's vertical axis coordinate provides an indication of the relative amount of risk that can be "purchased" by completing the project, and its horizontal axis coordinate (as measured from the right hand side of the graph) indicates the purchase "price."

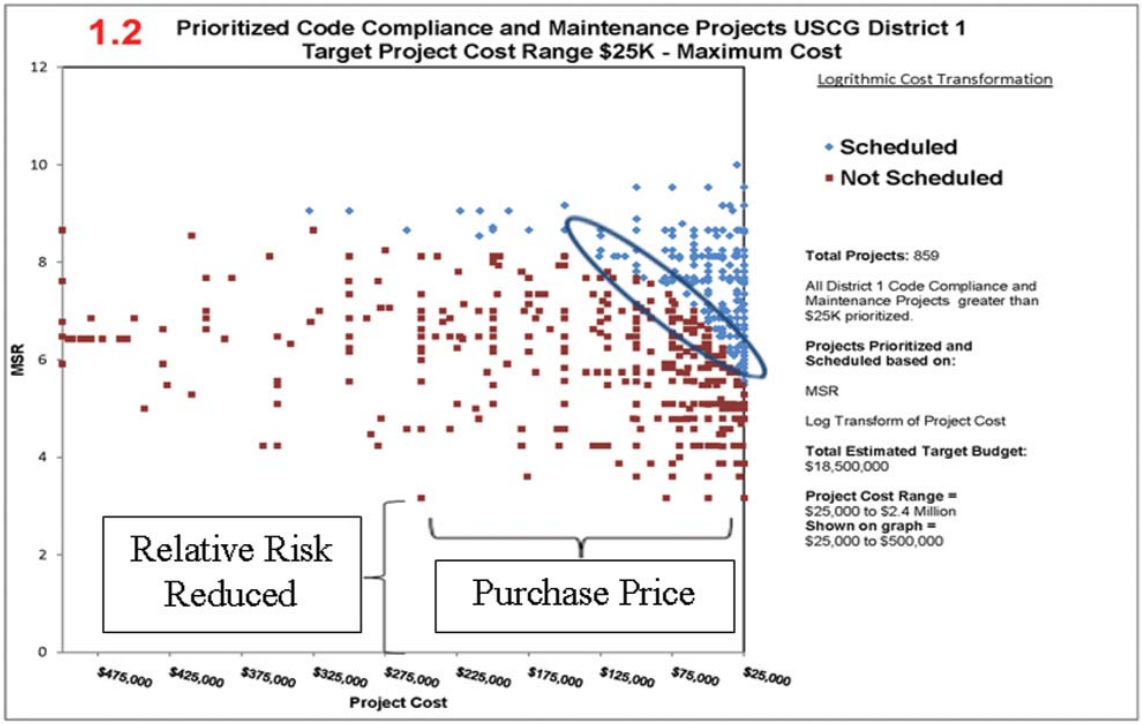


Figure 1. Example SFPP output illustrating most likely investment candidates (blue) and least likely investment candidates (brown) based on FAM risk mitigation concepts.

Taking this concept a step further, the relative risk that can be bought down for a dollar of investment can be summed across all investment opportunities to provide an indication of the rate of risk mitigation possible in any given project type, geographic area, product line, etc. Figure 2 displays an example of this calculation. In this case, available FAM funds can be shown to "buy down" nearly 115 relative Mission Risk Units (MRUs), leaving an additional 17 MRUs on the table. Furthermore, the slope of the line in this figure suggests that the funding allocated to mission reduction for the group of candidate investments is about right.

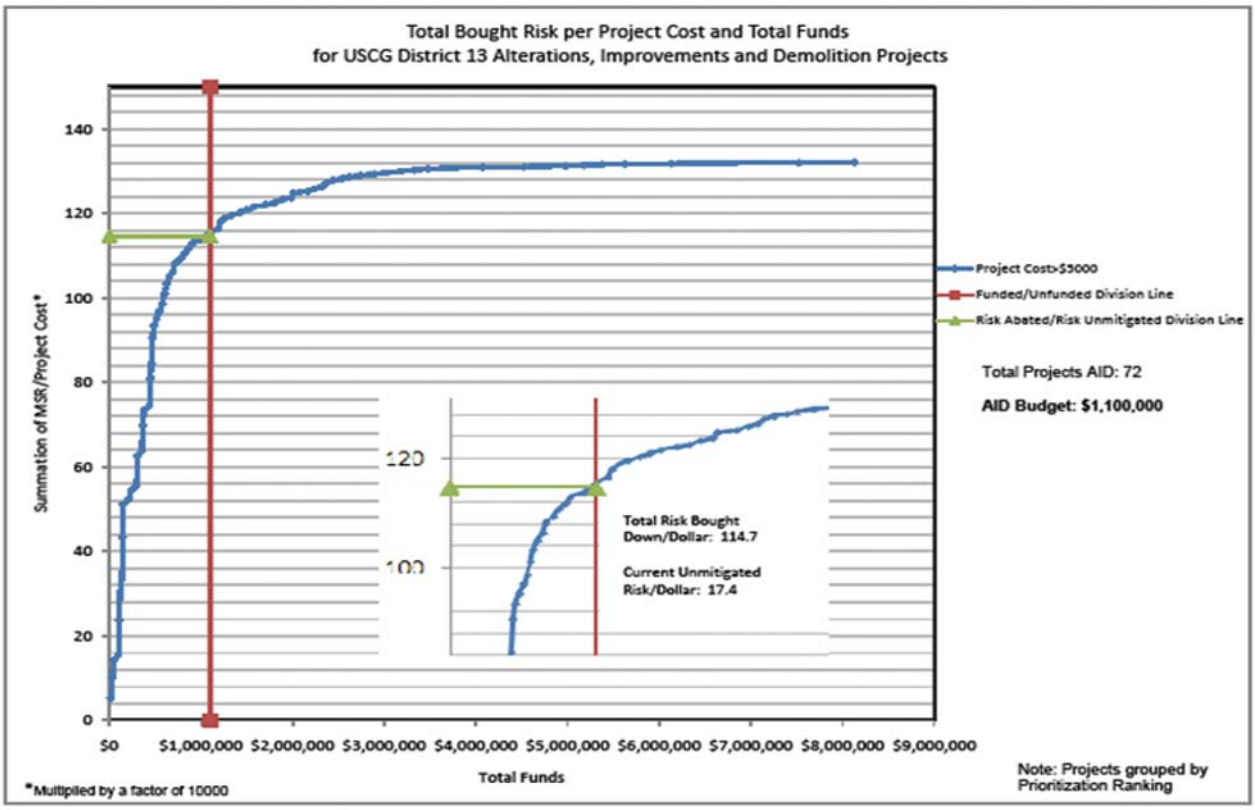


Figure 2. The Concept of Risk Buy Down.

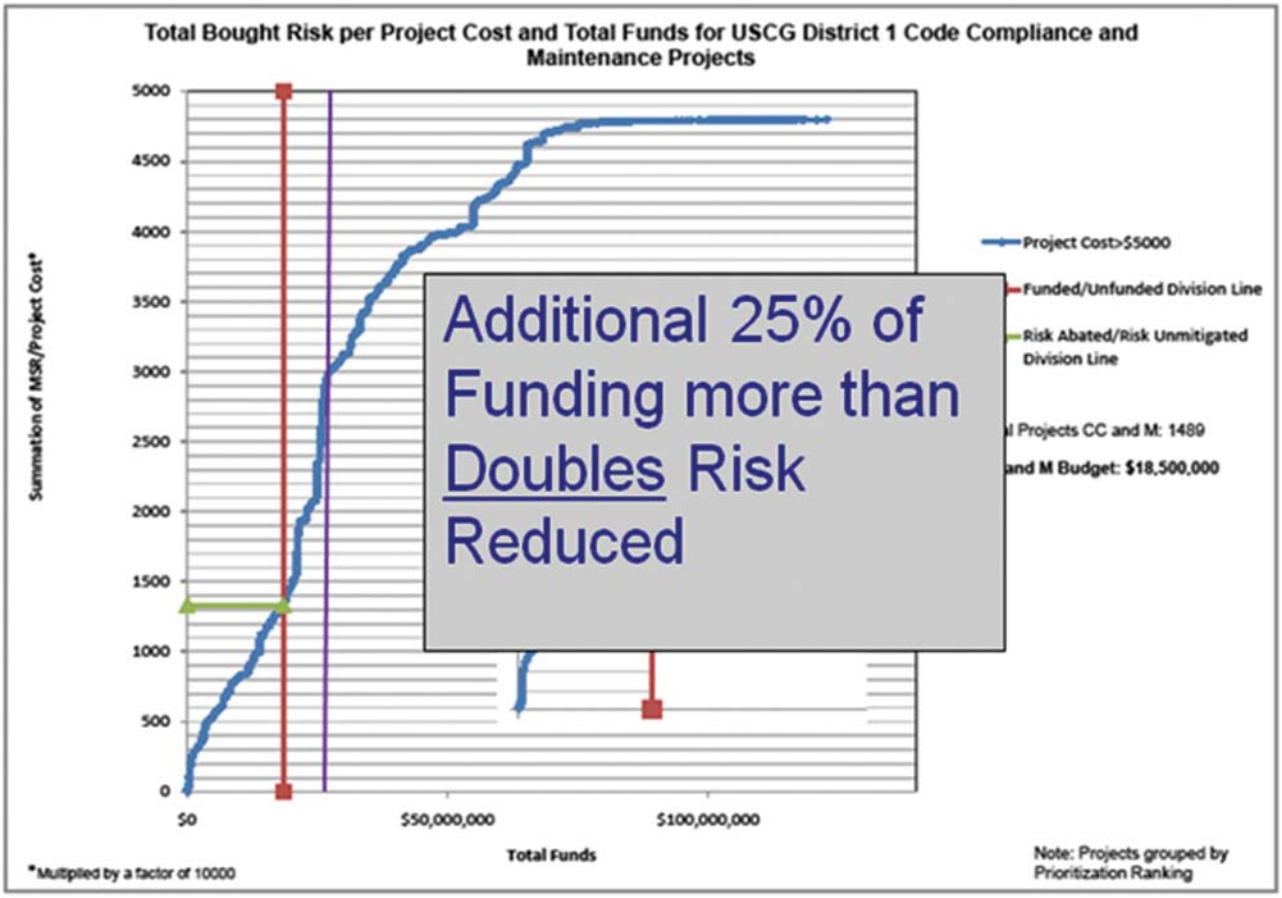


Figure 3. Using SFPP Output to Advocate for Additional Funds.

In comparison, Figure 3 illustrates a situation in which the SFPP output suggests that additional funding could substantially improve the "return on investment," or in other words, the reduction of risk. In this case, an additional 25% funding has the potential of doubling the relative risk that can be bought down. FAM decision makers can now make an informed, data-driven decision about where to place their limited dollars. More importantly, over time the program can document changes in the capability of the shore plant to effectively support missions using risk concepts and this information can in turn be used to advocate for changes in funding levels.

Summary and Conclusions

The fundamental SFPP mission risk concepts and analytical approaches were developed by Civil Engineering (CE) Program subject matter experts who began by identifying and evaluating best practices in the Coast Guard (CG), other agencies and the private sector. The straightforward risk concepts of likelihood and severity were adapted for use in a FAM setting by selecting simple proxy indicators for each from readily available CG data as much as possible. As better proxies are developed, they can be dropped straight into the process and applied as-is rather than throwing the entire process out and starting over.

The SFPP process recognizes that different FAM investment types have different drivers and are therefore deserving of different likelihood and severity indicators. The simplicity of the process is further reflected in its ability to address these differences while still maintaining consistency in its analysis of mission risks. This analytical consistency allows measurement of total mission risk, and direct comparison of alternative enterprise level investment strategies on a product line, geographic, or other basis as may be defined in the future.

The SFPP process output is a straw man list of prioritized investments that can be used as a starting point for consideration by the POP Board (or equivalent) in the fully modernized CE organization. Application of the SFPP process to test cases revealed the possibility of using the CG's shore facility inventory and valid AFC43 backlog as tools to advocate for additional resources.

As the risk-based SFPP process evolves, the SFPP IPT Team expects to see the desired outcome of achieving lower and lower risk to mission.

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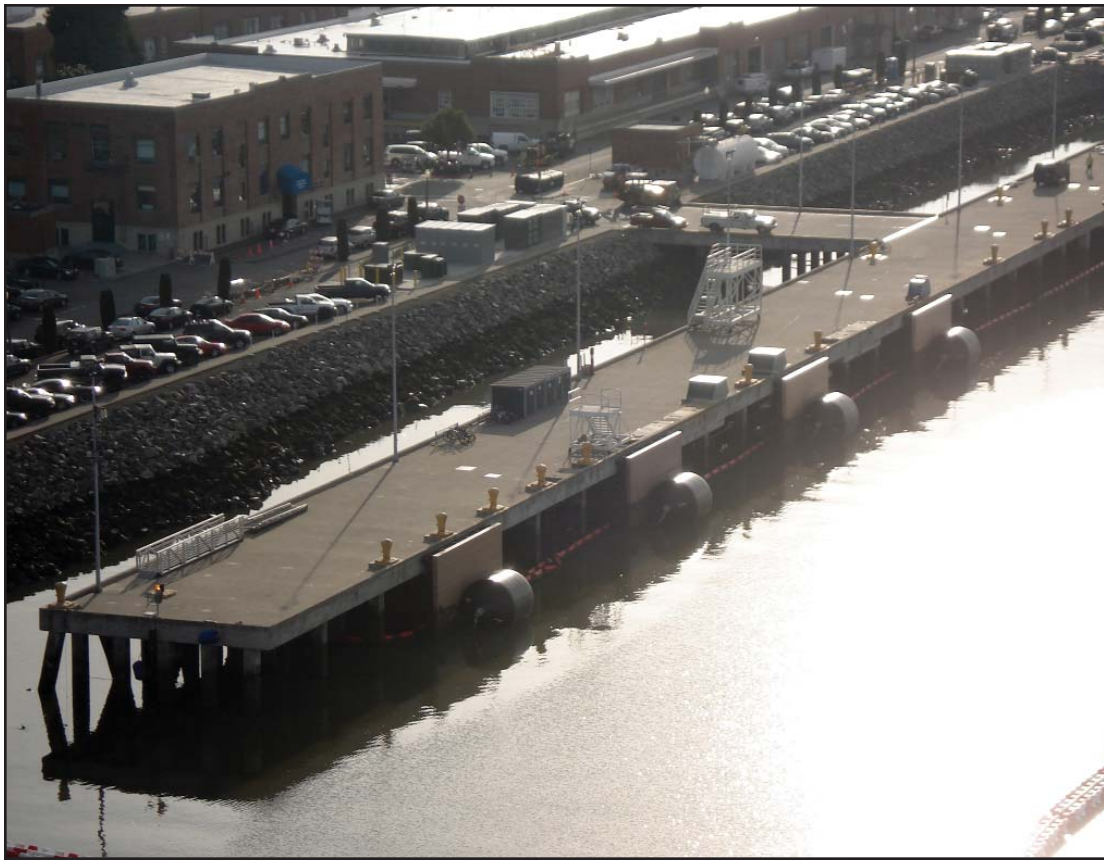
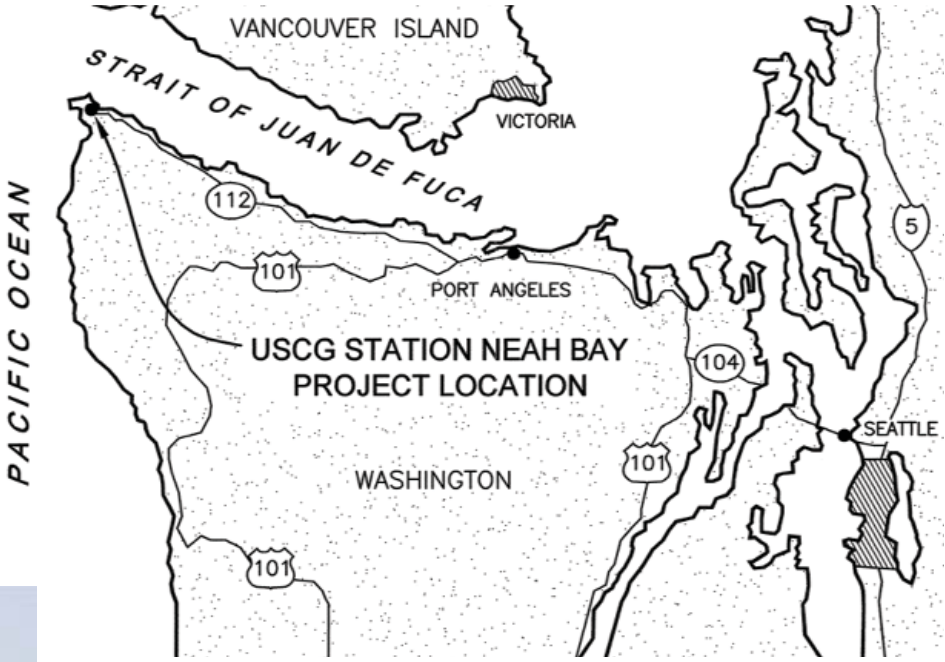


US Coast Guard Photo.

Neah Bay Breakwater, Station Neah Bay

by Pooja Jain, Susan Tonkin, Mike Hemphill (Moffatt & Nichol) Francis Brito, Mark McAll, Debbie Chinn, and Jerry Johnson (USCG)



Station Neah Bay is a coastal Search and Rescue (SAR) station located at the northwestern tip of Washington State, within the Makah Indian Nation Reservation. The moorings at USCG Station Neah Bay are severely impacted by wave conditions during the winter months (Oct. - Mar.) as deep swells originating from the Pacific Ocean combine with wind driven waves to produce a highly unstable environment. A rubble mound breakwater, built and maintained by the US Army Corps of Engineers, protects Neah Bay from direct attack by ocean swell, however, Station Neah Bay has relocated further into the bay five times since it was established in 1877. In the Station's present location, damage to the timber pier by high waves led to the construction of a new concrete pier in FY00.

Station Neah Bay operates two 47-foot motor life boats (MLBs) and one 41-foot utility boat (UTB). However, unsafe conditions still cause the CG to relocate these boats behind a second rubble mound breakwater which protects the Makah Indian Nation's Marina. Such movement of the CG's vessels increase launch times, decrease operational readiness, and preclude scheduling regular maintenance and repair work. The Breakwater currently under construction has been designed to significantly minimize the frequency with which the station boats are relocated to the Makah marina.

In the summer of 2008, construction started on a new breakwater to protect the concrete floats and station vessels. The new breakwater consists of steel soldier piles with precast concrete panels, steel batter piles, a cast-in-place concrete cap, sacrificial anodes and a submerged rubble mound base that helps support the piles.

Seattle-based engineering and planning firm, Moffatt & Nichol, conducted a coastal study to investigate the breakwater layout using the most sophisticated available numerical models for wave propagation. The waves at the pier include deep ocean swell, with periods up to 20 seconds that wrap around the Federal breakwater and Waadah Island and propagate into the bay; and wind-waves generated along the Strait of Juan de Fuca propagate directly into the bay. Both wave components can diffract around the ends of the new breakwater, and if the breakwater is too short, unstable wave conditions can occur in what should be a nominally protected area.

The fully nonlinear Boussinesq Wave model (Figure 1 shows example output) was used to determine the best orientation and minimum acceptable length to provide adequate protection for the boats. The model also checked that reflected waves would not increase erosion at nearby clamming beds used by the Makah Nation. A two-section design, 345 feet total length, was developed as optimal: subsequent analyses and budgetary constraints led to the construction of a single section design, 224 feet long, with the possibility of expanding the breakwater at a later date.

Four different breakwater configurations were evaluated including: steel pile wall system, soldier pile system with and without rubble mound, and rubble mound system using 3D analysis for both ambient and extreme wave conditions. The design loads on the structure are governed by a predicted extreme wave condition of 6.3 feet (significant wave height) with a 25-year return period.

The soldier pile system, with a submerged rubble mound base, was chosen as an effective and economical solution. The wave breaking surface is provided by the vertical soldier piles spaced at eight feet on center with precast concrete panels between each soldier pile. The precast panels facilitate fast and easy installation necessary with the restricted in-water work window in the Pacific Northwest. The cast-in-place concrete cap and batter piles provide transverse rigidity. The submerged rubble mound with a crest elevation of -10 feet MLLW provides significant advantages:

- Increased stiffness of the vertical breakwater.
- Reduced the length of soldier and batter piles.
- Reduced wave load on the wall for the smaller ambient waves due to the reduced exposed area.

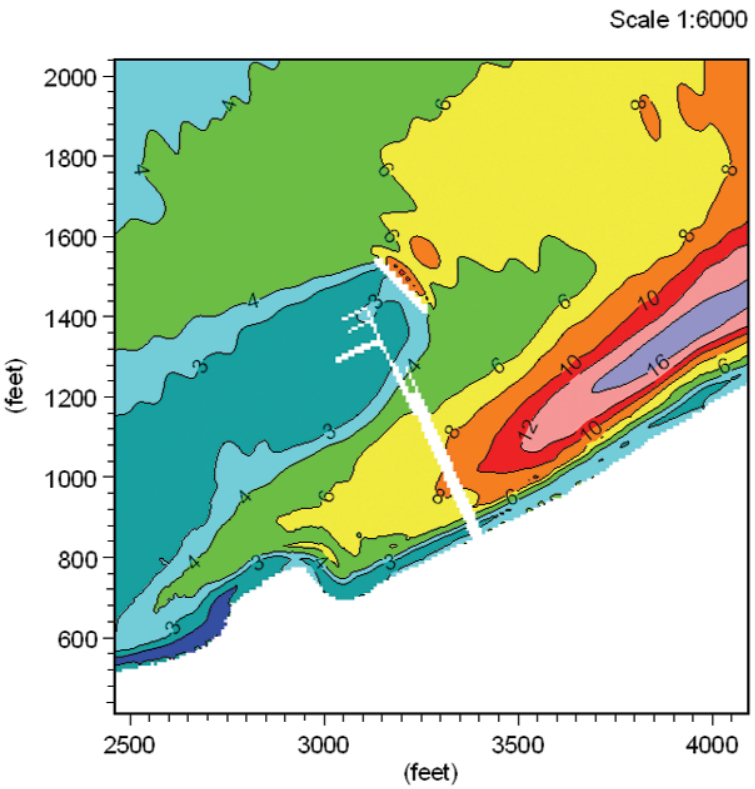


Figure 1. Wave Study Output (MIKE 21). (The white outline are the existing pier/moorings and the new break water, the numbers are the significant wave height in feet, based on a 100 year design analysis.)

The breakwater is exposed to the constant cyclic loading under ambient and extreme wave climate. The design is therefore governed by fatigue damage due to cyclic loading. The structure is therefore designed for 100 year fatigue life (two times the design life of the structure) using an exponential wave distribution with seven second wave period. Fatigue design is based on "DNV-RP-C203 Fatigue Design of Offshore Structures" methodology.

Further, coating on steel piles and cathodic protection is provided to minimize corrosion damage. Provision for cathodic protection also enhances the fatigue life of structure thus leading to a more economical system for given 50 year design life.

As is typical for in-water construction in the Pacific Northwest, the construction schedule and sequence is heavily constrained by environmental in-water work windows. In particular, in-water construction is limited to the late summer through winter (July 2008 to December 2008) in Neah Bay to protect endangered species (such as migrating salmon) as mandated by the Endangered Species Act. The in-water work window was particularly critical given the adverse winter wave and weather conditions in the area.

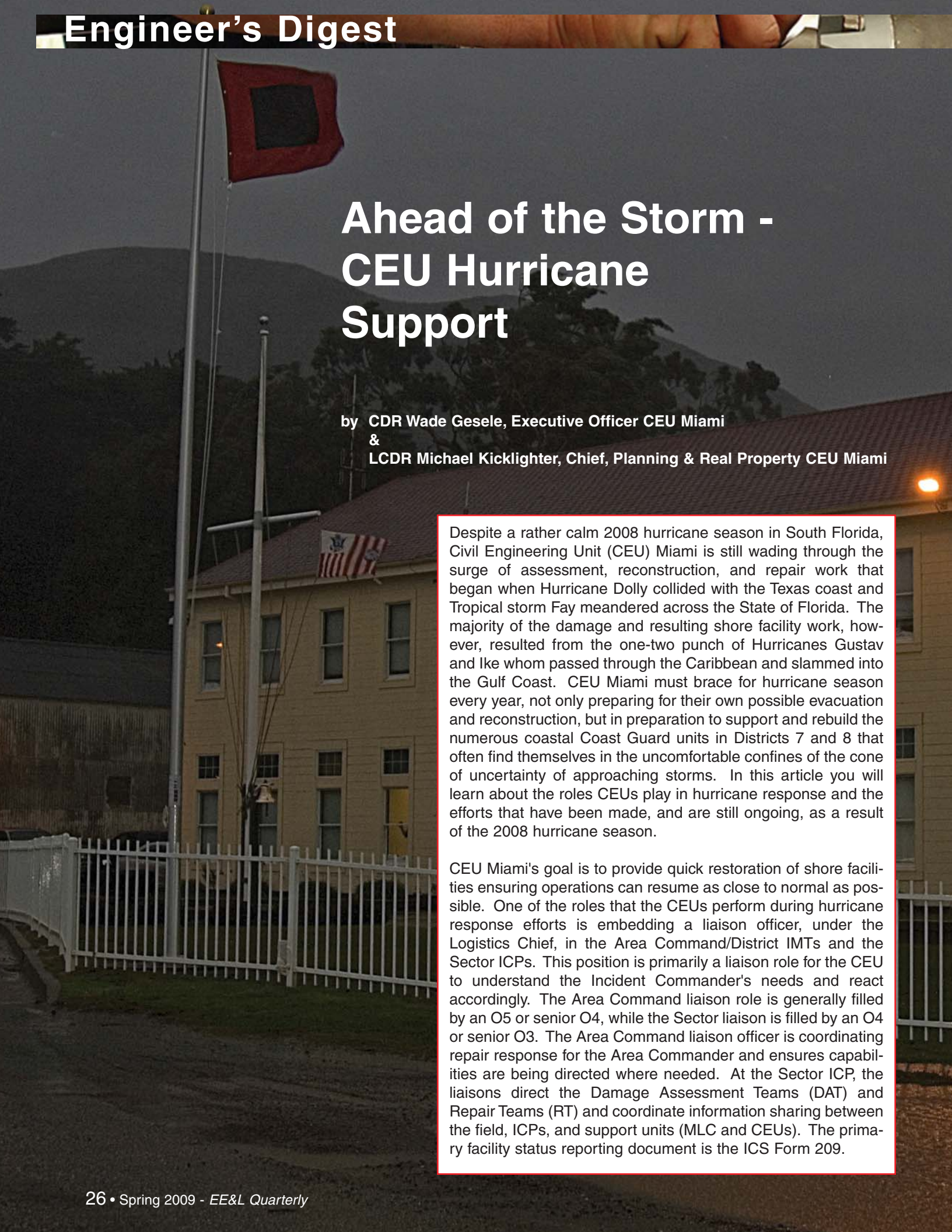
Construction of the breakwater commenced in July 2008 by Bergerson Construction during the in-water work window. All pile driving, rubble mound, concrete panel, and cathodic

protection installation was conducted from a barge using spud piles to hold the barge in place in the exposed environment. For ease of pile driving accuracy templates were installed prior to pile driving. Since the precast panels slide between the soldier piles, significant quality control in locating the piles was maintained. The panels are installed and grouted in place. Finally, additional rubble mound material was placed to fill any gaps between the bottom of the panels and the top of the rubble mound completing the in-water construction work.

In-water construction complete (December 2008).

The cast in place cap will be installed in February/March 2009 and the final appurtenances will be installed in April 2009. The contractor has made provisions to tie the pile bents together to prevent any interim damage to the panels prior to the pile cap installation.

The breakwater construction is expected to be complete by April 2009, almost three months ahead of schedule.



Ahead of the Storm - CEU Hurricane Support

by CDR Wade Gesele, Executive Officer CEU Miami
&
LCDR Michael Kicklighter, Chief, Planning & Real Property CEU Miami

Despite a rather calm 2008 hurricane season in South Florida, Civil Engineering Unit (CEU) Miami is still wading through the surge of assessment, reconstruction, and repair work that began when Hurricane Dolly collided with the Texas coast and Tropical storm Fay meandered across the State of Florida. The majority of the damage and resulting shore facility work, however, resulted from the one-two punch of Hurricanes Gustav and Ike whom passed through the Caribbean and slammed into the Gulf Coast. CEU Miami must brace for hurricane season every year, not only preparing for their own possible evacuation and reconstruction, but in preparation to support and rebuild the numerous coastal Coast Guard units in Districts 7 and 8 that often find themselves in the uncomfortable confines of the cone of uncertainty of approaching storms. In this article you will learn about the roles CEUs play in hurricane response and the efforts that have been made, and are still ongoing, as a result of the 2008 hurricane season.

CEU Miami's goal is to provide quick restoration of shore facilities ensuring operations can resume as close to normal as possible. One of the roles that the CEUs perform during hurricane response efforts is embedding a liaison officer, under the Logistics Chief, in the Area Command/District IMTs and the Sector ICPs. This position is primarily a liaison role for the CEU to understand the Incident Commander's needs and react accordingly. The Area Command liaison role is generally filled by an O5 or senior O4, while the Sector liaison is filled by an O4 or senior O3. The Area Command liaison officer is coordinating repair response for the Area Commander and ensures capabilities are being directed where needed. At the Sector ICP, the liaisons direct the Damage Assessment Teams (DAT) and Repair Teams (RT) and coordinate information sharing between the field, ICPs, and support units (MLC and CEUs). The primary facility status reporting document is the ICS Form 209.

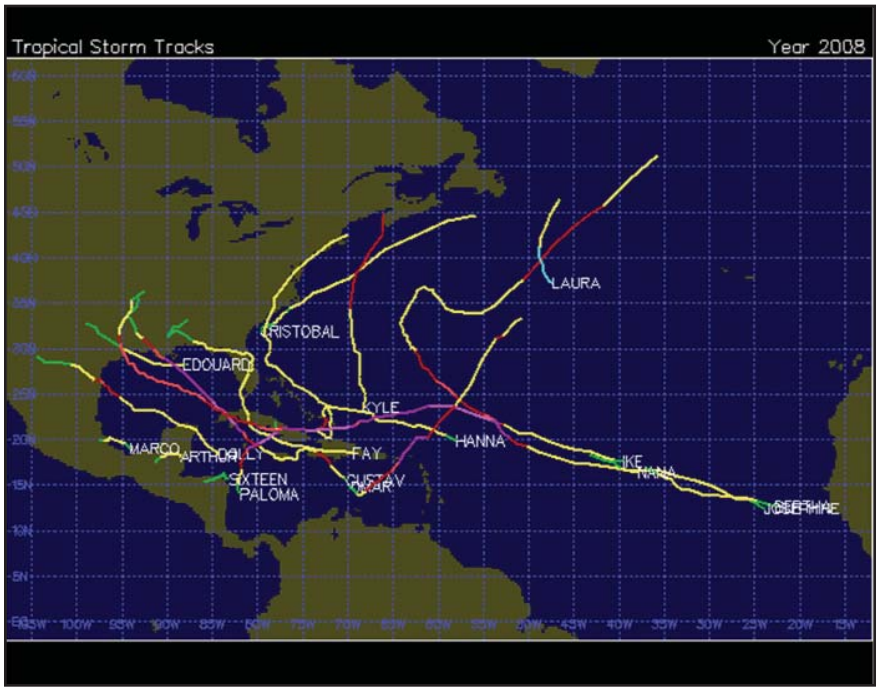
The DATs are two to four person teams from CEUs that assess storm damage at CG units. The CEU responsible for the affected AOR typically provides the DAT. However, other CEUs provide teams during particularly busy periods or severe disasters, as was the case with Hurricanes Gustav and Ike in 2008 and Katrina and Rita in 2005. The DATs pre-position to their assigned locations, usually one on each side of a Sector, ahead of the storm and hunker down until it passes through, then begin assessing damage as directed by the Sector liaison officer. Meanwhile, the liaison is reporting the findings from the DAT to the ICP and prioritizing the assessments based on Sector and District needs. DATs are equipped with satellite and cellular phones, wireless broadband internet cards, and laptops to improve their ability to communicate in storm ravaged areas. In addition to verbal reports over the phone, the computers are used to upload photographs of the storm damage, while on site or upon return to a hotel or ICP, so they can be quickly shared with Coast Guard leadership. In many cases, our first SITREP is a phone call and photos to clearly show the damage since a picture is worth a thousand words.

Repair Teams are typically comprised of Industrial personnel from ISCs and are sent out after the storm to effect minor and/or temporary repairs with the goal of minimizing the long term damage, repair minimally damaged facilities, and help restore operational capabilities. Examples of the types of work RTs are capable of and typically perform are drying in buildings with minor roof and shell damage, installing portable generators, and cleaning and drying out building interiors. The RTs are typically self sustaining. The generators they use may be leased by the unit/ICP or may be owned and provided by the ISC. RTs generally receive their guidance from the Sector CEU liaison.

From CEU Miami's home office, engineers, environmental, and real property specialists and contracting officers provide support to the field and ICPs. Although limited by appropriation limitations and Federal Acquisition Regulations, AFC-43 funds (Operating Expense funds primarily managed at CEUs) can be used to procure more detailed assessments (i.e., underwater inspections) and for debris removal. These funds may be used for reconstruction, when the cost does not exceed appropriation limits and availability. Once damage is reported back to CEU Miami, engineers are reviewing drawings and site plans and will be sent out to the field when it is safe to start developing the major repair contracts.

Temporary facilities (i.e., berthing and messing trailer rentals, generator rentals, etc.) requests are initiated on an ICS-213RR and sent to the ICP logistics section. Generally, these are funded by the Sectors or District. CEUs are not authorized to procure such temporary services with AFC-43 funds. However, the CEU liaison's work to stay apprised of any such actions so that these efforts can be coordinated with any long term solutions taken by CEUs or RTs. CEUs will typically provide real property assistance in the event a unit must temporarily relocate to a leased facility during reconstruction. For real property leases, the program manager for the unit is responsible for the funding.

Tropical Storm tracks for 2008.



The Real Deal:

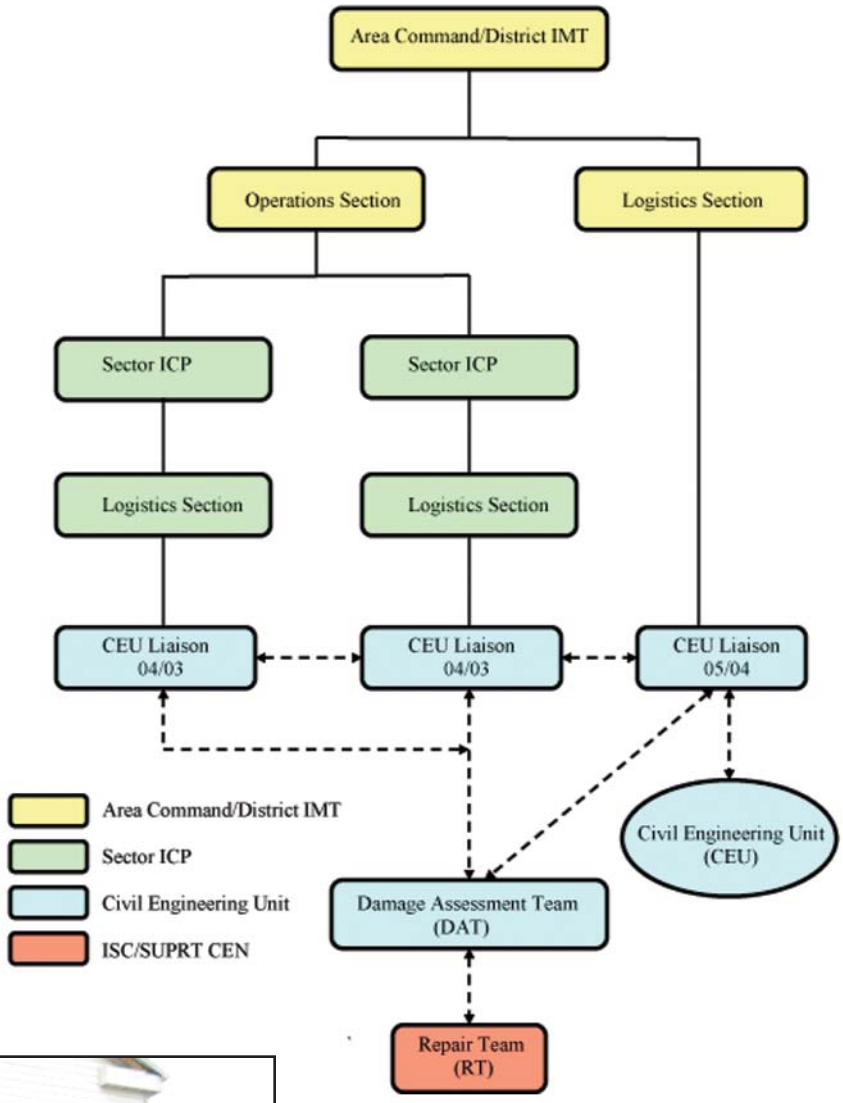
Hurricane Ike developed in the Atlantic Ocean, and upon passing through the Caribbean, slammed into the Texas Gulf Coast near Galveston, Texas, where Sector Field Office Galveston is located on the barrier island. Prior to the storm, DAT teams were deployed from CEU Miami, CEU Providence, and CEU Cleveland along with RTs from ISC Miami, St Louis, and New Orleans, and CEU liaisons were embedded in the Sector Houston-Galveston and New Orleans ICPs and the D8 Area Command COOP site in St. Louis, MO.

Though the damage was spread wide, the majority of the damage to CG units was in Sector Houston-Galveston. Two DAT teams moved from San Antonio, TX; one going first to Sector Corpus Christi and working North and the second DAT heading straight to Sector Houston-Galveston. As soon as access was passable to Galveston Island and SFO Galveston, the DAT team arrived to find complete destruction of the Station waterfront, waterfront debris, and other debris scattered throughout the premises, significant damage to the galley and dental building and barracks, personal vehicles slammed up against each other and debris, and modular buildings and trailers completely detached from their foundations.

The CEU liaison at Sector Houston-Galveston quickly coordinated the Incident Commander's requirement to establish the Big ATON Buoy Yard (BABY) at SFO Galveston to get the Houston ship channel open. CEU Miami procured a contractor to quickly assess the mooring capability of the remaining large cutter piers and to begin clearing debris. In addition, a RT and a design team deployed to the area quickly to restore operational capabilities. CEU Miami kept a DAT team member on site in SFO Galveston for two-weeks to help coordinate the repair efforts. CEU Miami's real property branch worked with the SFO and the Army Corps of Engineers

(ACOE) to secure a permit for use of office space at the adjacent ACOE facility allowing quicker return of personnel and savings millions of dollars in interim facilities.

Currently, CEU design and construction teams are working on repair projects worth $20M in response to this storm, and CEU planners are writing plans for the execution of $300M of supplemental funding earmarked for reconstruction after hurricane Ike, to include reconstruction of ANT Dulac, Station Sabine, SFO Galveston, and other projects in the AOR. The majority of the initial repair work should be wrapping up just in time for the next hurricane season, where CEU Miami stands ready to respond … again!



U.S. Coast Guard photo/Petty Officer 1st Class Alan Haraf.

Photo courtesy of ICGS.

Ocean Sentry Mission Configuration Profiles

by LT John Pack
Aviation Training Center Mobile

The Coast Guard's newest aviation asset is the HC-144A "Ocean Sentry." It's a Medium Range Surveillance Maritime Patrol Aircraft (MRS MPA) that will replace the aging HU-25 Falcon Jet fleet. The Ocean Sentry is a multi-mission aircraft able to be utilized in numerous operational arenas. The HC-144A began their Operational Assessment (OA) process on July 28, 2008 with completion forecasted later this year. An initial step in the assessment is having aircrews transition the aircraft through diverse configuration profiles demonstrating the agility and adaptability for successful mission execution.

HC-144A "Ocean Sentry" taxis out for training mission.

As the new MRS MPA, the Mission System Palletized HC-144A will be a key component to securing our homeland from terrorist attacks. Through heightened awareness, crews are able to detect, deter, and mitigate threats providing protection to our citizens, critical infrastructure, and the economy of our nation from acts of terrorism. For natural disaster or emergency situations, the HC-144A can transport cargo to a disaster site or evacuate victims from a tragic situation. This can be accomplished through transforming the Ocean Sentry to the troop transport or medical evacuation configurations.

HC-144A "Ocean Sentry" Cockpit.

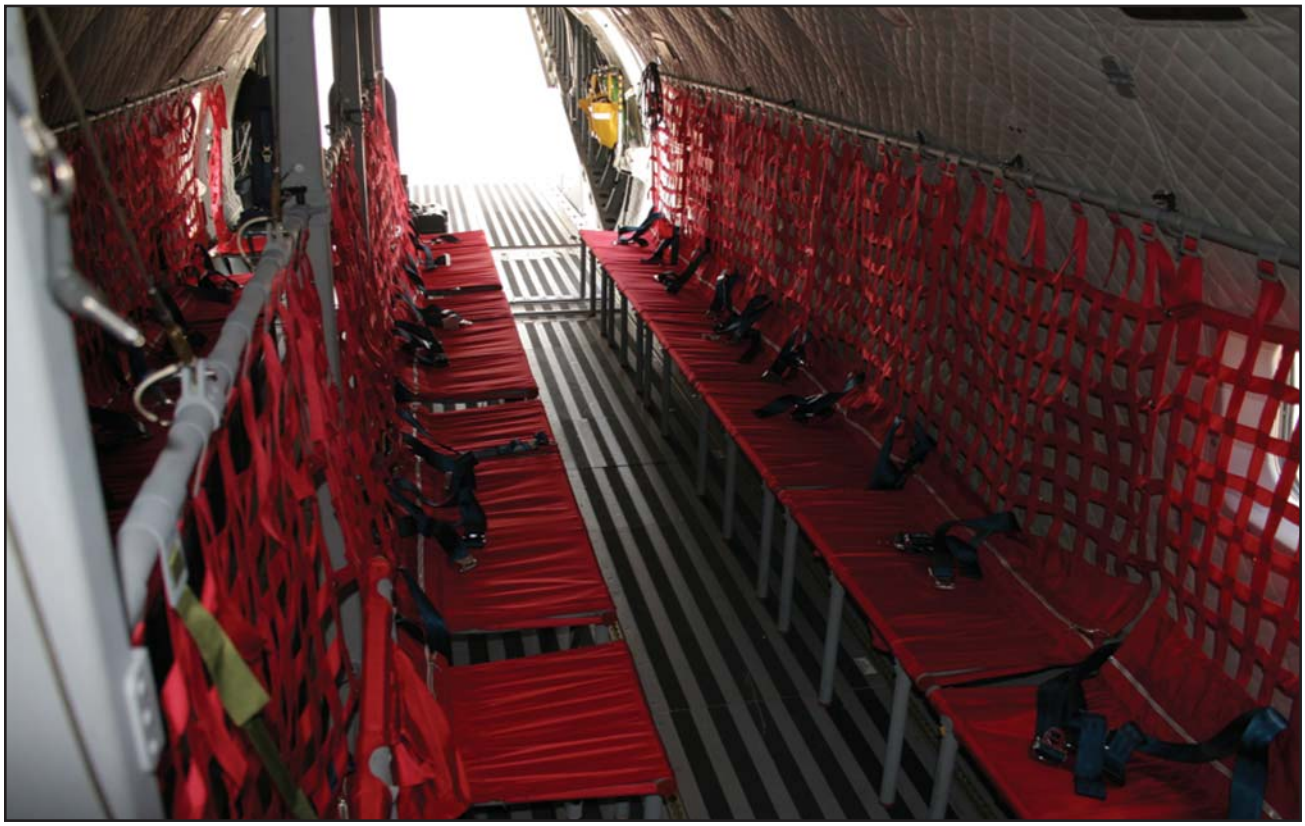
With the Mission System Pallet (MSP) on board, aircrews are able to identify threats, assess vulnerabilities, compile data, and transmit information to other Coast Guard units through utilization of classified or unclassified networks coordinating threats of terrorism and natural disasters. The Coast Guard is best known for its Search and Rescue (SAR) mission, and the HC-144A's versatility serves the public in that role as well. A standard SAR crew consists of a pilot, co-pilot, mission system operator, dropmaster, and basic aircrewman. The typical SAR configuration includes 8500 pounds of fuel, providing Ocean Sentry aircrews about 7 hours flight time.

CWO Reed and Petty Officer Rice complete a drop of an ARSK 24.

The cargo transport configuration offers three different load options; palletized, rolled, and unpalletized. When the palletized configuration option is utilized it's necessary to install the Cargo Handling System (CHS). This uses roller trays, lateral guides, stops and latches aiding in loading and securing loads. For unpalletized and rolled loads, the CHS is not utilized.

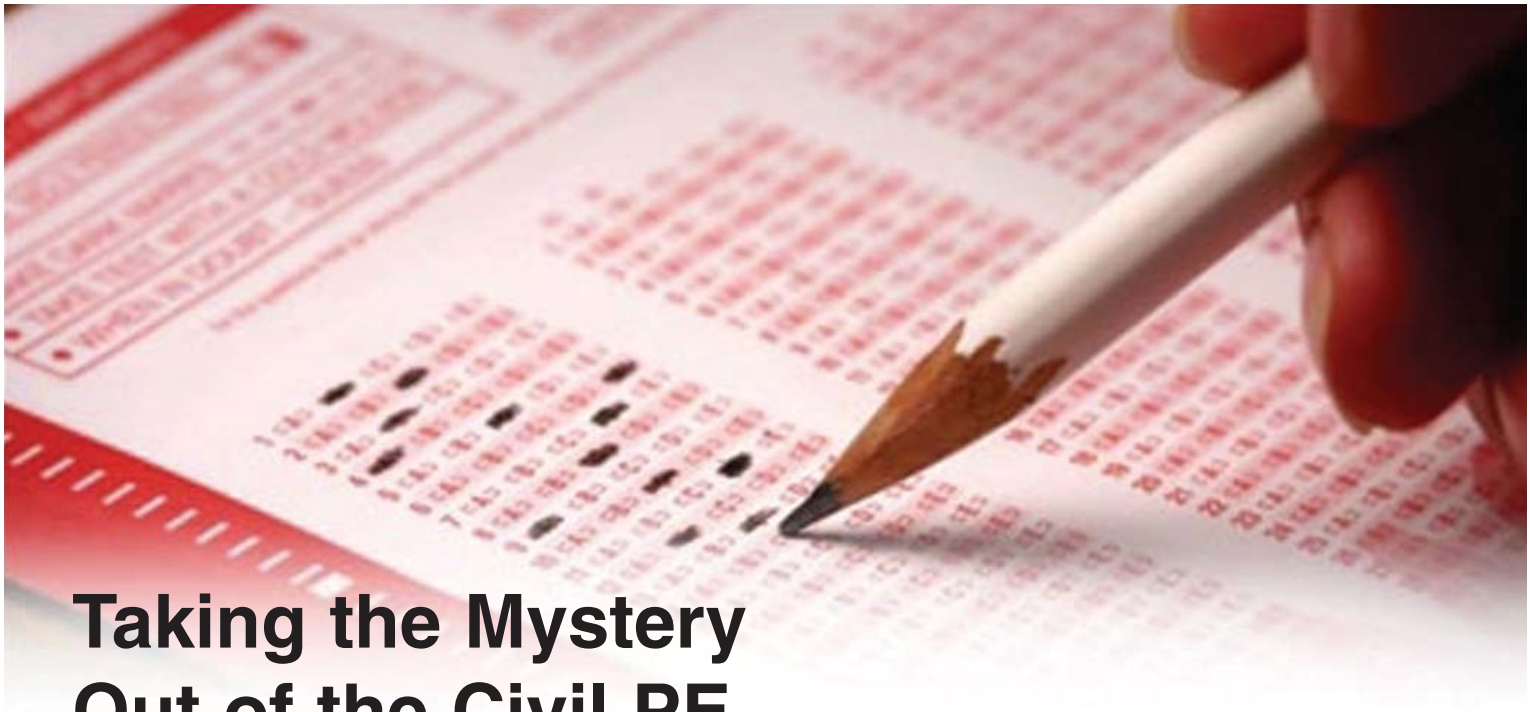
Left to Right Petty Officer's Godsey, Colon, Acree, and Mayo unload a palletized HU-25 engine.

When the troop transport configuration is employed, 38 passengers can be safely transported via folding cargo style seating including safety belts and life vests for all passengers. The troop transport configuration utilizes two aircrewmen and about 4100 pounds of fuel allowing crews to fly about 700 miles before reaching reserve fuel. In the medical evacuation configuration two aeromedical pallets are installed. Each pallet facilitates six stretchers, three on each outboard side for a total of 12 stretchers. When either of these configurations are employed the two aircrewmen sit in crew seats in the most aft portion of the aircraft keeping flight safety paramount.



HC-144A aircraft interior configured for troop transport.

ATC Mobile has been methodically transforming the HC-144 into an operational platform in the interest of Homeland Security. We recognize and value the hard work, innovation, and teamwork our people are putting forth striving toward the goal of operational excellence. A demanding yet rewarding task remaining in alignment with Admiral Allen's promise that "We will ensure Coast Guard men and women are the best trained and most versatile workforce in government, equipped with the most capable fleet of multi-mission ships, aircraft, boats, and command and control systems available."



Taking the Mystery Out of the Civil PE

by LT Matt Bournonville, PE, USCG FD&CC Pacific

One of the most significant milestones in a civil engineer's career is earning a Professional Engineering License -- gained by logging several years of relevant experience and by passing the Principles and Practice of Engineering (PE) Exam. The license symbolizes competence in the engineering field and shows that an engineer has acquired a minimum, yet a significant amount of knowledge and experience in the profession.

If you're considering taking the PE exam, there are many choices to make. Answering these questions is important because navigating the path to a PE license can be treacherous, but with some careful planning and plenty of effort you can find success.

WHERE SHOULD YOU TAKE THE EXAM?

You aren't necessarily limited to taking the exam in the state where you currently live and work. Many people choose to take the PE in their "home" state or somewhere that they intend to settle eventually. Just about all options are open because many states do not require you to be a resident in order to take the exam and be issued a license in that state. Also, all states have similar, but slightly different requirements for exam eligibility, application procedures, and avenues to license renewal, so it pays to be as informed as possible. All of this information can be obtained from each state's licensing website, usually the state's Board of Professional Engineers. Building a matrix of the states you are considering and the criteria that are most important can be a useful tool to help you make your decision.

The PE exam is a national exam administered by the National Council of Examiners for Engineering and Surveying (NCESS), so it's the same eight-hour exam in all states (though some states require additional tests). Once you have obtained your license in one state and get settled in another you can apply for reciprocity or comity in most states and obtain a PE license in that state without having to re-take the exam. It's simply an administrative matter -- and a fee, of course.

HOW SHOULD YOU REVIEW?

There are many references widely available that are specifically designed for PE exam preparation. Many people also enroll in a structured PE review course at a local college or university. Regardless of your preparation strategy, the most important thing is to stick to a well thought out study schedule.

If you've started to research the exam at all then you're aware that the scope of material covered encompasses many different codes and standards. Few engineers personally own or even have access to all of them. One possible resource is your place of work. If the office's professional library needs to be updated anyway then perhaps your unit will pay for the new codes and standards. You can use those references and return them to the unit's library when you're finished.

Few of us have knowledge in all areas of expertise covered on the exam, but that doesn't necessarily mean you're destined for failure. If you've never learned anything about seismic design, ground water flow, or traffic accident analysis then decide early to skip these portions during your review and concentrate on the areas where you can become very proficient.

Even if you skip some specific areas, you should still become very familiar with the applicable codes and reference materials. Tab the important sections and tables in each one. It will save a lot of time on the exam. For those subjects that you're uncomfortable with, if nothing else, become familiar with the codes and the important tables/sections within. That simple effort could easily buy you a couple of correct answers on the exam.

WHAT ABOUT LOGISTICS?

If you choose to fly somewhere to take the exam you'll have some challenges carrying all your books. Make sure you plan it out … airline weight restrictions, physically getting around with all that stuff by yourself, etc. A suitcase full of books can quickly add up to the 70 pound "hard" limit observed by most airlines. Also, consider staying in a hotel close to the exam site the night before. Find where to park and the specific room where you'll take the test. Don't let there be any surprises on exam morning.

Things to bring: ear plugs, watch, quiet snacks (if your state allows this), a lunch. You won't have time to go out and get lunch so make sure you take it with you. Plan to wear layered, comfortable clothing. This is important. You could be either hot or cold very easily.

WHAT'S THE BEST EXAM STRATEGY?

The morning "breath" session of the exam is supposed to be comprised of shorter, easier questions compared to the afternoon session. Take advantage of this. For most people, this is where they make or break their exam. Also, don't forget to reserve time at the end of each session to go back and check your answers. The questions in the afternoon "depth" section of the exam are much more difficult. Take a brief look at all of the questions and work the easier ones first. Remember, you don't have to get a perfect score on the exam to pass so don't get discouraged when you realize that your going to miss some of the questions.

Obtaining a PE license requires a great deal of planning and study. It can be overwhelming at first, but perseverance is the key. Take comfort in knowing that once you've achieved your goal of licensure it can be held for a lifetime, and you should never have to take the eight-hour exam again. Good luck!

U.S. Coast Guard photo/PA3 Luke Clayton.

In Remembrance

Aeronautical Engineering Officer Annual Conference Fundraiser Takes on New Meaning

In November 2008, CG-41 (Office of Aeronautical Engineering) held its annual Aeronautical Engineering Officer's Conference in Washington, DC. Among the highlights and yearly traditions of the conference is the fundraiser. The event is an opportunity for the current class of Student Engineering Officers to raise funds to benefit a charitable cause. Last year's beneficiary was a Washington, DC elementary school that received over 400 new books for its reading program. This year's fundraiser took on a new meaning that hit home with everyone. It was decided that the event would be used to raise funds to support the families of the crew of CGNR 6505, the CGAS Barbers Point helicopter that was involved in the recent fatal mishap with the loss of all four crewmembers aboard.

The fundraising event kicked off with a silent auction, followed by the creative use of a make-shift bowling game that required donations to participate. These two events raised almost $2,000, which was just short of the previous EO Conference fundraising record of $2,258. Following that announcement, the effort continued with an impromptu live auction. Many of the participants donated items won during the earlier silent auction to be auctioned off once again. This spur of the moment fundraising resulted in an incredible display of generosity and camaraderie as the engineers reached deep into their wallets in support of the families of our fallen shipmates.

In the final tally, the students, Air Station Engineering Officer's, and the Aviation Logistics Center and Headquarters staffs donated more than $4,600 to the Coast Guard Foundation's Fallen Heroes' fund to support the educational needs of the families of the CGNR 6505 crew. The response to this special event highlighted in a unique and spontaneous way the deep commitment of the Coast Guard community to taking care of our own.

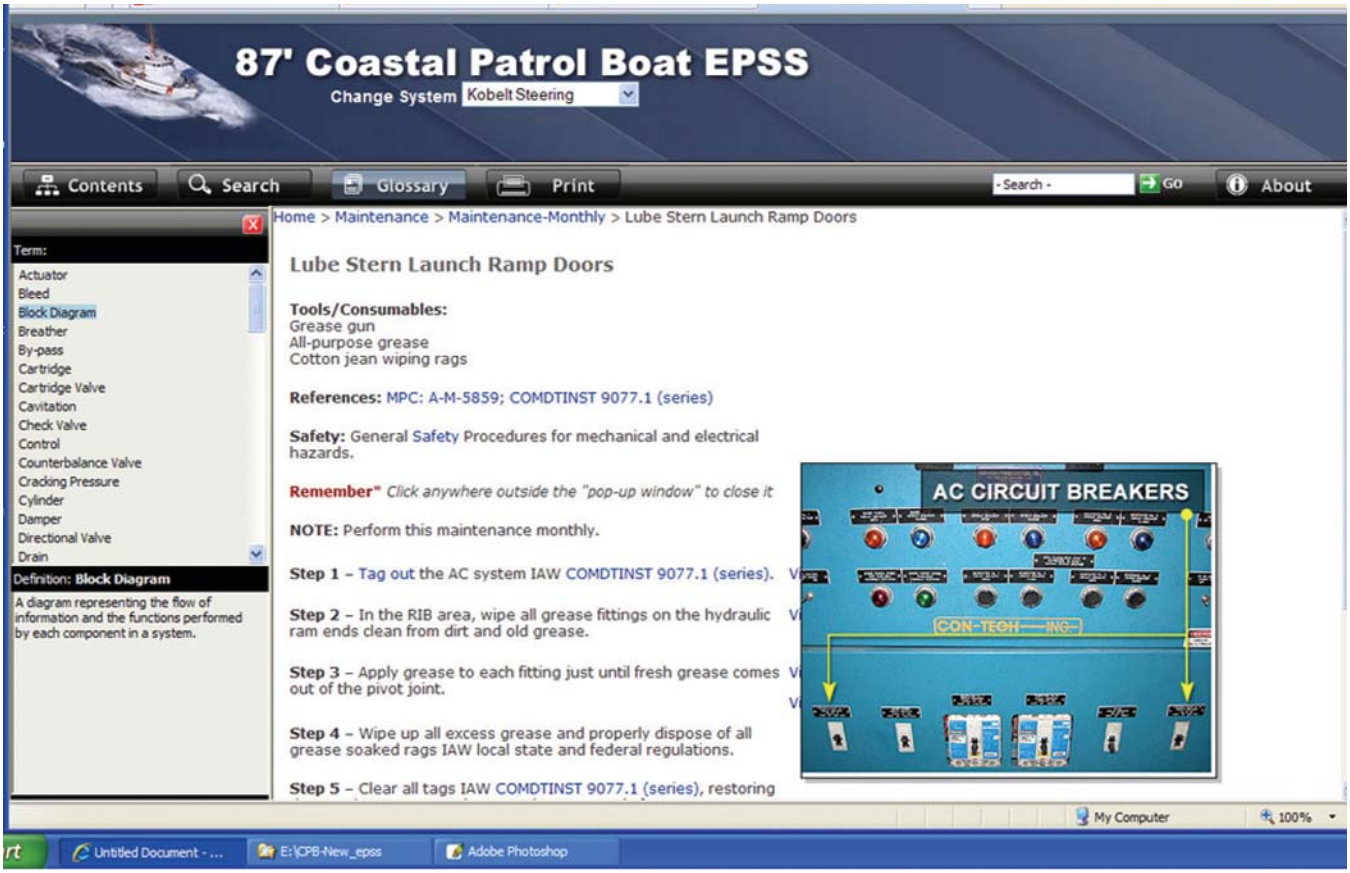
U.S. Coast Guard photo/PA3 Luke Clayton.

87' CPB Crews Benefit from Award Winning EPSS

by Brittany Noelle Davis, Performance Technology Center, TRACEN Yorktown, VA
LCDR Terence Williams (CG-452)

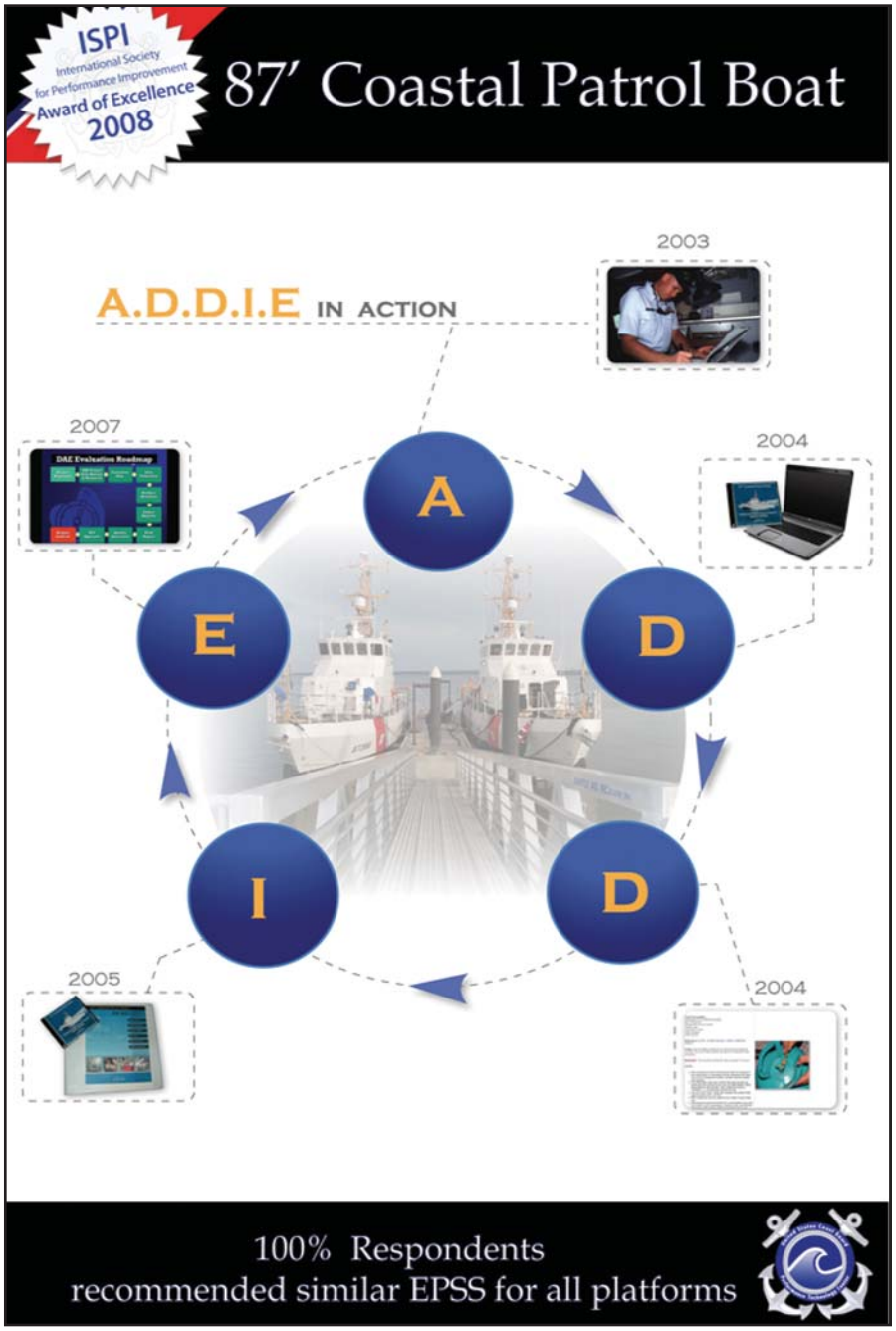
During the late 1990s and early 2000, the Coast Guard replaced its entire inventory of 82-foot patrol boats (WPBs) with sixty-five 87-foot coastal patrol boats (CPBs). With the acquisition of the new cutters, engineering crews faced not only a new workplace but also significant changes in their job requirements. Even though the new cutter was distinctive and significantly more complex, the CPB was treated as a one-for-one replacement for the original vessel in terms of maintaining the ten person crew size; the existing maintenance infrastructure; and shore-side support facilities. According to a Maintenance Analysis study conducted by the Coast Guard's Office of Naval Engineering, the amount of annual and corrective maintenance required for systems aboard the CPB increased 582% over the equipment on the original cutter.

In recognition of these challenges, CG-132, Office of Training, Workforce Performance, and Development, commissioned a front-end analysis (FEA) from the Performance Technology Center at Training Center, Yorktown. The analysis found that CPB crews (Engineering Petty Officers, Machinery Technicians, and Electrician Mates) could not perform unit or intermediate level preventive and corrective maintenance on the Kobelt steering system, MAN generator set, Ship Service Diesel Generator (SSDG) switchboard, York HVAC, EDI alarm panel, and EVAC vacuum toilet. This rendered the



engineering capability inadequate to maintain the cutter's operational requirements.

To correct this deficiency, the FEA provided stakeholders with a three-part recommendation package which included residential training, job aids with extensive training, and stand-alone job aids. Of these interventions, the first tool developed was an electronic performance support system (EPSS), designed to provide step by step procedures for operating and maintaining the six new systems. During the development and review process of the EPSS, stakeholders and subject matter experts were so impressed with the potential of the product that they suggested implementing it as a stand-alone performance intervention in lieu of residential training to see if the EPSS by itself could provide technicians and operators with the performance support needed to accomplish tasks at their work-site.



In 2007, three years after the 87' CPB EPSS was released to the field, the Performance Technology Center conducted a formal evaluation to verify if, by itself (absent the classroom training component), the EPSS was providing crews with adequate performance support at the unit level. The evaluation indicated that using the EPSS, CPB engineers were able to accomplish required job tasks that they were previously unable to perform. In addition to the increase in engineering performance capacity, the evaluation found that the EPSS provided an estimated 11:1 return on investment (ROI) to the Coast Guard over traditional training. As a result of positive feedback from users and the fiscal benefits of the EPSS, CG-45 and CG-751 decided to continue supporting the use and upkeep of EPSS.

With the help of experts from the MLCs, ELC, and several CPBs, the Performance Technology Center spent the past several months bringing current EPSS content into alignment with the present day condition of the cutters. The updated EPSS is available to the field in electronic and hardcopy format as of February (the revised EPSS is available via the CG Intranet at http://cgweb.tcyorktown.uscg.mil/PTC/CPB/). In addition to the systems originally on the EPSS, the hydraulic pump unit, Gyrocompass, and Autopilot systems will be incorporated for release in the next version of the EPSS, slated for completion in FY 2010.

In 2008, the International Society for Performance Improvement recognized the 87' CPB Project as an outstanding performance intervention by presenting the Coast Guard with an Award of Excellence. In addition, the 87' CPB project was selected as a top ten nominee for National Training and Simulation Association's Governor's Award and has been nominated for the 2008 American Society for Performance Improvement (ASTD) Excellence in Practice awards in the categories of Learning Technologies and Performance Improvement.

Follow-up: The EPSS project was recently awarded two citations, one in the Learning Strategies category and the other in the Performance Improvement category from the American Society of Training and Development.

LORAN Station Kodiak Reduces Electrical Usage by $30,000 a Year

by ETC Thomas Sears, Lorsta Kodiak Alaska

Loran Station Kodiak Alaska.

Prior to September 2008, LORAN Station (Lorsta) Kodiak had an average monthly electrical bill of $15,000. The majority of electrical consumption was from the LORAN Transmitter, the tower aircraft avoidance lighting, air conditioning units, and station lighting. Since converting the incandescent tower lights to Light Emitting Diodes (LED's) the stations electrical bills now averages less than $11,000 a month.

During the Summer of 2007, Lorsta Kodiak was approached by Communication Station (Commsta) Kodiak's Rigger Shop with a prototype LED beacon from Austin Insulators. The top beacon of Lorsta Kodiak's 625' tower was replaced with the "RF hardened" LED light and tested for one year with no malfunctions. In September 2008, the crew of LORAN Station Kodiak, with assistance from ESU Kodiak, replaced the remaining beacon assembly and nine obstruction lights. New aluminum mounting brackets were manufactured by the station's crew for all nine obstruction lights too.

The transition from incandescent lights to the energy efficient LED's meant that the previous energy consumption of 1.8 kilowatt/per/hour (1300 kilowatt/per/month), was reduced to less than .36 kilowatt/per/hour (230 kilowatt/per/month); a reduction by a factor of five. The installation of LED lights will result in man-hour savings too. Previous incandescent

A-L864 LED Beacon.

Installed A-L810 Obstruction Light.

Night view of LORAN Station Kodiak's new LED lighting system.

bulb life was rated at 8000 hours, (333 days) while the LED lights are rated at 100,000 hours, (11.4 years) and are designed with redundant LED's in place.

The entire project was performed by CG personnel, with design and acquisition by Lorsta Kodiak and oversight from CEU Juneau and Commsta Kodiak's Rigger Shop. The installation was completed by the crew of Lorsta Kodiak with additional ESU Kodiak personnel assisting. Total project cost was $9000, with each beacon costing $2500.00, and each obstruction light costing $250.00.

Austin Insulators is just one of many manufacturers that now manufacture energy conservative lighting that could be utilized at LORAN Stations, Communication Stations, and even on board ship. The savings to LORAN Station Kodiak alone, will pay for the upgrade in little more than three months.

The light manufacturer is Austin Insulators at http://www.austin-insulators.com, the Beacon is the A-L864 and the Obstruction light is the A-L810.

The Four Cornerstones of Coast Guard Support

Configuration Management	
Total Asset Visibility	
Product Lines	Bi-Level Maintenance

by VADM Clifford I. Pearson, Chief of Staff of the Coast Guard

VADM Clifford I. Pearson

As the Chief of Staff of the Coast Guard and the prospective Deputy Commandant for Mission Support (DCMS) I'm grateful to be able to address the readers of the *EELQ* on ***The Four Cornerstones*** of the Commandant's Logistics Transformation Program. The Logistics Transformation Program, combined with our reorganization plans under Coast Guard Modernization, will provide the foundation for a new way of conducting Coast Guard support. As the prospective DCMS, I'm excited to adopt and implement this new business model and turn Coast Guard support into a better managed, more responsive program to serve the mission execution demands of our service.

While still Chief of Staff in 2003-2004, Admiral Allen commissioned several study teams to look at our stove-piped logistics information systems and how they could be better integrated with our financial management systems. In mid-2005 the Logistics Management Transformation Office (LMTO) briefed the Admiral with their analysis and recommendations. Our diverse IT systems were a symptom of a larger problem; the Coast Guard had no common approach to logistics management across our many asset-based business lines. The LMTO recommended a common business model (based on our own best-in-class aviation support program) supported by a common logistics IT architecture. Following the recommendations of the LMTO, the Logistics Transformation Program Integration Office (LTPIO) was formed within CG-4 and since late 2005 has been carrying out the Commandant's mandate for a common business model supported by a single IT architecture.

Since becoming Commandant, Admiral Allen has repeatedly communicated his four "immutables" to his leadership team. These have come to be known as the Four Cornerstones of Logistics Transformation, and as I write this article a series of five ALCOAST messages are being released to communicate these foundational principles to the entire Coast Guard. I want to take this opportunity to convey the Four Cornerstones messages in a single article for our *EELQ* audience.

The four cornerstones of our new Logistics Business Model support architecture are;

- A service-wide commitment to **Configuration Management** (CM).
- **Total Asset Visibility** (TAV) across the Coast Guard enabled by an enterprise IT system,
- A **bi-level support system** consisting of only unit and depot maintenance levels, and
- **Product Lines** to serve as a single point of contact for enterprise asset support.

A discussion of each of these cornerstones follows.

Configuration Management

Configuration management is defined as a process for establishing and maintaining consistency of a product's performance, functional and physical attributes with its requirements, design and operational information throughout its life. It is the discipline through which we document, communicate and control the who, what, when, where, why and how of our critical capabilities; assets, systems, units and people. Properly applied, CM ensures that a baseline is established and that any changes to that baseline are properly documented, ensuring they are consistent and repeatable throughout the life cycle of the capability and do not negatively impact capability.

***Configuration management** is defined as a process for establishing and maintaining consistency of a product's performance, functional and physical attributes with its requirements, design and operational information throughout its life.*

There are five components of properly structured Configuration Management program; Identification, Control, Status Accounting, Verification and Data Management. Each of these is discussed in greater detail below, borrowing heavily from the DoD Configuration Management Handbook, which is a primary Coast Guard reference;

- **Configuration Identification** - This activity provides the foundation for all of the other CM functional activities. Facilitated by the documented CM process and by open communications, this activity interacts with system engineering. It provides approved configuration documentation to document the physical and functional characteristics of the system/item, establishes baselines for configuration control, creates records in the status accounting data base and provides documentation for configuration verification and audit.

- **Configuration Control** - The configuration control process receives input from Configuration Identification defining the current configuration baseline. It receives

and processes requests for engineering changes from technical, operational and contract functions, and it also receives requests for modifications to fielded items and facilities from field units. It provides for the review and approval/disapproval of proposed of changes, and for the necessary authorization and direction for change implementation by contractors and affected Government activities.

- **Configuration Status Accounting** (CSA) - All of the other CM activities provide information to the status accounting data base as a by-product of transactions that take place as the functions are performed. This activity provides the visibility into status and configuration information concerning the product and its documentation. The CSA information is maintained in a CM database that may include such information as the as-designed, as-built, as-delivered, or as-modified configuration of any serial-numbered unit of the product as well as of any replaceable component within the product. Other information, such as the current status of any change, the history of any change, and the schedules for and status of configuration audits (including the status of resultant action items) can also be accessed in the database.

- **Configuration Verification and Audit** - The Configuration Verification and Audit process provides verification that (1) the product's performance requirements have been achieved by the product design and (2) the product design has been accurately documented in the configuration documentation. This process is also applied to verify the incorporation of approved engineering changes. Successful completion of verification and audit activities results in a verified product and documentation set that may be confidently considered a Product Baseline, as well as a validated process that will maintain the continuing consistency of product to documentation.

- **Configuration Data Management** - Data management and particularly the management of digital data is an essential prerequisite to the performance of configuration management. Digital data is information prepared by electronic means and made available to users by electronic data access, interchange, transfer, or on electronic/magnetic media. There is virtually no data today that does not fall into this category. Configuration management of data is therefore part of data management activity; and management of the configuration of a product configuration cannot be accomplished without it.

***Total Asset Visibility** (TAV) is the ability to provide timely and accurate information on the location, movement, status and identity of units, personnel, equipment and supplies, and have the ability to act on that information in order to direct resources in the accomplishment of mission objectives.*

To implement an enterprise configuration management discipline and create a culture that values the process and results of configuration management, the Coast Guard has established the first program office dedicated to Configuration Management. Formed in 2006 and working under the Assistant Commandant for Engineering and Logistics, CG-444 is working in close cooperation with the Logistics Transformation Program to improve CM practices throughout the Coast Guard. The CG-444 staff are presently focused on establishing technical data standards which are a foundational component of any functioning CM program. Under the Logistics Transformation Standard Boat Pilot, a Standard Boat CCB has been established with representation from Coast Guard Operations, Engineering and Safety programs. In the coming months and years as our new Mission Support Organization takes form, the Configuration Management Program Office will continue to work with other CG-4 offices, the Assistant Commandant for C4IT (CG-6), the Assistant Commandant for Human Resources (CG-1), the Assistant Commandant for Capability (CG-7) and our acquisition projects within the Assistant Commandant for Acquisitions (CG-9) to establish and perpetuate a configuration management discipline throughout the Coast Guard.

Total Asset Visibility

Total Asset Visibility (TAV) is the ability to provide timely and accurate information on the location, movement, status and identity of units, personnel, equipment and supplies,

and have the ability to act on that information in order to direct resources in the accomplishment of mission objectives. TAV is a long standing but elusive objective for many military, government and private organizations. Achieving TAV requires process and investment discipline. This includes (1) consistency in data capture (who, what, when, where and why), (2) rigorous investment review to prevent redundant of conflicting solution implementation, and (3) the application of common sense in determining what to track, as tracking any item has an inherent cost in both manpower and information storage and maintenance.

The Coast Guard has benefited from limited TAV capability within many of its logistics systems, allowing the redistribution of parts and supplies to meet the operational needs of aircraft, vessels and other assets. However this capability has never been complete and, because of the stovepiped nature of our current systems, has never afforded an operational commander a complete picture of all assets within their purview. The Logistics Transformation Program is working to ensure a full suite of TAV capability for all asset types with the new Logistics Business Model and its supporting IT system, CG-LIMS.

Product Lines

A Product Line is a construct that originated in the private sector and is defined as a group of closely related products with similar attributes, technical or end-use considerations. Product Lines are used by service organizations as a means of providing superior support to end users (customers) while internally capitalizing on the economies that come from grouping like products together.

***Product Line** is a construct that originated in the private sector and is defined as a group of closely related products with similar attributes, technical or end-use considerations.*

Product Lines are essential to the foundation of our new Logistics support model. Our aviation program adopted the Product Line construct in the late 90's and the Aviation Logistics Center (formerly AR&SC) will have Product Lines focused on our four major aircraft mission profiles; Short Range Rescue (SRR), Long Range Rescue (LRR), Short Range Surveillance (SRS) and Long Range Surveillance (LRS). Each of our new Logistics and Service Centers will adopt the product line construct for product families within their respective asset portfolios. Many of these will be familiar as previously identified Coast Guard asset classes (e.g., WMEC) or types (e.g., Standard Boats, ATON structures).

Product Lines are formed in the early stages of an acquisition project and initially reside within the Acquisition Project Office (APO). As the acquisition project comes to a close the Product Line transitions to the designated Logistics or Service Center and continue to fulfill their responsibilities until the asset is retired from Coast Guard service. The Product Line Engineering Branch develops and maintains necessary unit (O level) and depot (D level) maintenance specifications, manages asset configuration throughout the life cycle of the asset, and maintains the technical information for the asset. The Logistics Branch of the Product Line concerns itself primarily with supporting the budgetary and supply management needs for the asset, including spare parts provisioning and procurement services. The Programmed Depot Maintenance Branch plans and executes all depot maintenance activities, both in-house and commercial, for the life of the asset.

A key player in the centralized support model is the Product Line Manager to whom the above named branches report. This individual is responsible for all of the planning, budgeting and execution of asset support across the Coast Guard. To the field this is the "face" of our new Mission Support Organization for an asset type and the ultimate "touch point" for all service support. In addition the Product Line Manager is also the Coast Guard's customer to work support issues with original equipment manufacturers and other vendors providing support.

The most significant advantage of the Product Line approach is a single point of contact ***and accountability*** for asset support throughout the asset's life cycle, from induction to retirement. Field units are only responsible for operating and maintaining the asset within Product Line guidelines using detailed operating guidance, maintenance procedures and supplies provided to them by the Product Line. Gone are the days of an EPO calling a company in Europe for parts support! When executed properly this approach improves asset support while lowering costs and reducing the burden normally places on field units for support.

We have already created our first non-aviation Product Line, the Standard Boat Product Line, which has been providing service for Standard Boats at our Pilot Sectors of Baltimore and San Francisco, as well as Group Humboldt Bay and Sector San Diego. The formation of additional Product Lines will occur as we form our new Logistics and Service Centers and teach these personnel the new skills and processes they will need to make our Coast Guard Logistics Business Model a success.

Bi-Level Maintenance

The final cornerstone to discuss is the bi-level maintenance system. Within much of the Coast Guard today it is not uncommon to see independent unit level (O level), intermediate (I level) and depot (D level) support activities. Many of these have evolved organically over time, with blurry lines of distinction among them and wide variation from district to district and unit to unit. In contrast the Coast Guard's aviation program employs only two levels of support, O level or unit level (i.e., at the air station) and depot-level which entails support provided by the ALC (formerly AR&SC) or other officially designated overhaul facility. Perhaps the most visible indication that Coast Guard aviation is bi-level is evidenced by the fact that there is no aviation maintenance component at either MLC, as there are for our naval, C4IT and civil engineering programs.

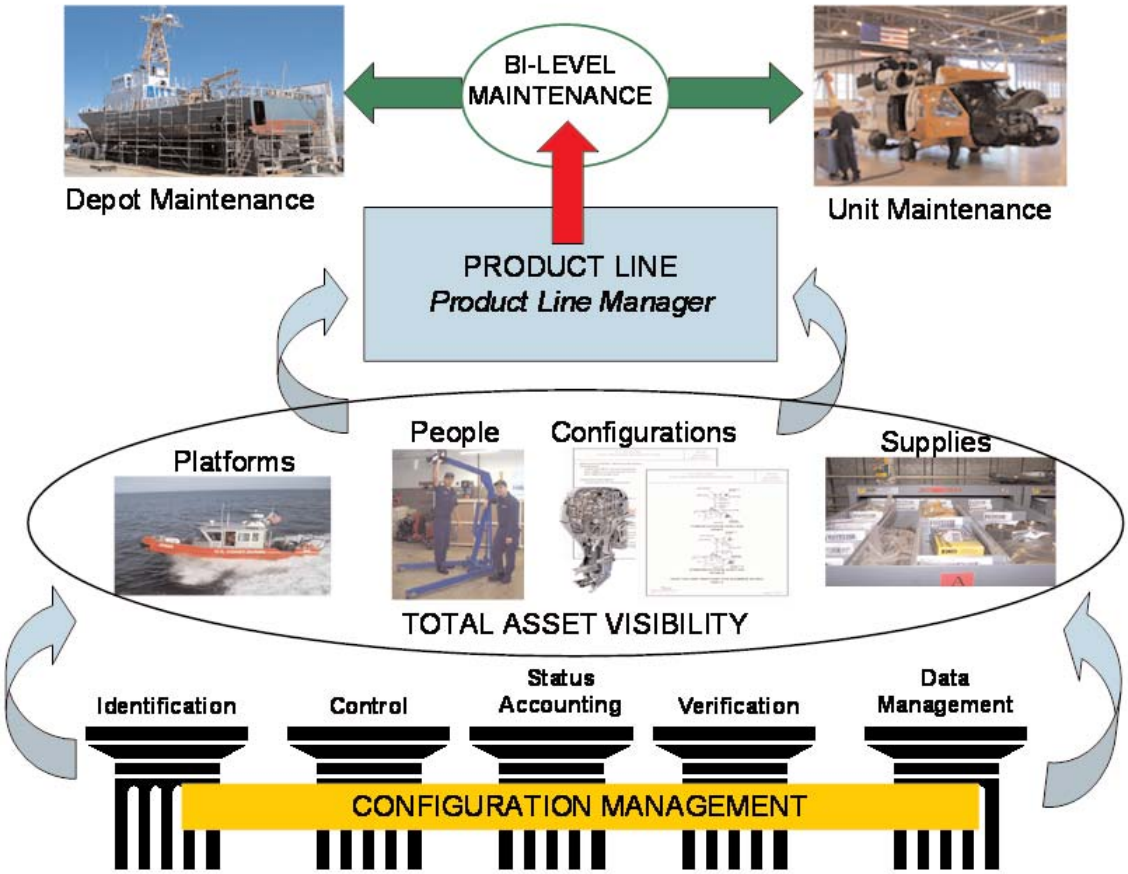
*Under a **bi-level support system** O level, or unit level, support are tasks and activities that a particular unit's crew has the capability, competency, capacity and authorization to perform.*

Under a bi-level support system O level, or unit level, support are tasks and activities that a particular unit's crew has the capability, competency, capacity and authorization to perform. Unit level maintenance support would normally consist of inspecting, servicing, lubricating, adjusting and replacing components, minor assemblies and subassemblies on equipment. Depot level support consists of services that are the responsibility of Logistics Service Centers and will be performed by designated support activities which have more extensive facilities and higher skilled/trained personnel than typically found at field units to conduct repairs. Typical depot level support is performed on material, equipment, systems, platforms or facilities requiring major overhaul or significant cross-program support.

Perhaps the most important element of our bi-level support system will be how it is managed and controlled. The determination of whether or not a maintenance action is unit or depot level is initially made during the acquisition phase of the asset and is based on a maintenance review using formal, disciplined processes such as reliability centered maintenance (RCM), failure mode effects and criticality analysis (FMECA) and level of repair analysis (LORA). In some cases unit level maintenance capabilities may need to be increased in order to support a new asset and those increased capabilities will be planned for and provided by the Asset Project Office (APO) and product line prior to asset deployment. This in contrast to how asset support levels are often determined today with units undertaking depot level support responsibilities out of initiative, frustration with higher level support programs, or to save the Coast Guard money over the perceived high cost of repair contracts. Within our new bi-level system strict adherence to maintenance responsibility and capability is essential to its success.

Summary

The four cornerstones discussed above are critical components of our new business model, but they do not exist in isolation. In fact they are interdependent and each relies on the other to make our new Logistics Business Model perform properly. The following diagram is an attempt to show those interdependencies graphically. Configuration Management and its five pillars are the foundation upon with all other support activities are built and remain standing. Without the foundation the entire structure crumbles. With an effective CM program, especially the data management component, we enable



a TAV capability which product line managers can use to develop, implement and manage our bi-level maintenance program to meet the demands of our operational commanders in support of mission execution.

It is essential that all Coast Guard personnel, operators and support staffs, embrace these cornerstones. Acceptance begins with understanding and this article is an attempt at increasing your understanding of what our new model requires of us. Some of these changes will not be easily embraced. Coast Guard personnel have been raised to thrive on the challenge of getting the job done under adverse conditions. For mission execution that ethos will not change, but we must take a more disciplined approach to our support responsibilities in order to ensure that the capability our missions require will be available every time, without question and at a reasonable cost in both dollars and effort. It's only through a disciplined approach that embraces these four cornerstones that we can meet these demands consistently.

Logistics Transformation Standard Boat Rollout Planning and Deployment

by Brooks Minnick (ctr), CG-44LT

Logistics Transformation Deployment Overview

In 2005 then VADM Allen established the Logistics Transformation Program Integration Office (LTPIO) to transform all Coast Guard logistics to the new Coast Guard Bi-Level Mission Support Business Model for the delivery of dependable, effective, and efficient support to operators for mission execution. The primary objective was to implement a common way of doing business across all the Coast Guard support communities based on centralized management and control with distributed execution. Since becoming our Commandant, ADM Allen as articulated the "four cornerstones" of this mission support model, which are: disciplined configuration management; total asset visibility of all operating assets, systems, spares, and supplies; a bi-level maintenance system consisting of only depot and unit level maintenance; and a single point of contact for asset support through establishment of asset Product Lines.

From late 2007 through the middle of 2008 the LTPIO piloted its approach to transformation on standard boat support at Sectors Baltimore and San Francisco. Lessons learned from these deployments were used to create a Transformation Playbook which was further refined during the first District-wide deployments for all Sectors and Groups within District 11. The Playbook is the primary guidance document for Headquarters, District, and Sector/Group staffs involved in the planning and execution of the Logistics Transformation Program, and as of this writing the Playbook is being used to deploy the mission support model within D13. This article borrows heavily from the Transformation Playbook to provide an overview of the Logistics Transformation process and the timeline for all remaining Districts, Sectors, and Groups.

Deployment Process

Performing a standard boat transformation to all nine Districts and their attached Sectors and Groups requires an integrated strategy that develops and shares expertise while effectively leveraging available resources at the same time. The LTPIO approach integrates several key elements to ensure a timely and successful transformation.

- ✘ Leverage District and Sector resources to coordinate and orchestrate the transformation while Product Line and LTPIO resources provide consultative support.
- ✘ Preposition transformation personnel to develop expertise and then effectively spread to other Sectors, building consensus and ownership of the transformation.
- ✘ The transformation will be conducted using a three phase (Prepare/Transform/Support) approach to maximize learning, minimize risk, and ensure standardization of the new mission support model.
- ✘ Use of a transformation playbook as a "road map" for conducting the transformation to ensure standardization of transformation activities and consistent outcomes across all Districts and Sectors.

The transformation of each District to the new mission support model will occur Sector by Sector (or by Group, as the case may be). A three phase approach, consisting of Prepare, Transform, and Support phases, will be used to transform each Sector. Districts, in concurrence with the LTPIO, will determine the order of transformation for their Sectors and whether they occur sequentially, in parallel or in a mixture of both.

During the Prepare phase, each Sector transformation begins with the assignment of key personnel, execution of the Sector communications plan, and creation of transformational support teams. These activities are followed by various tasks required to conduct the Site Survey. Each Sector is set up differently according to its infrastructure, assets, and geography. Each will require various materials (inventory, shelving, cabinets, tools, printers, computers, furniture, etc.) to comply with the mission support model. Therefore, a Site Survey will be conducted to assess Sector and Sector field unit requirements. Once requirements have been determined, identified materials must be purchased, delivered, and installed (supported by Sector and field units) before commencement of the actual transformation.

Simultaneously, the LTPIO will work with headquarters and other associated parties to centralize funds and establish new Sector policies and standard operating instructions. Information technology staff will work to pre-

pare the Asset Logistics Management Information System (ALMIS) system for use by the Sector and its field units. These tasks include generating user accounts for all Sector personnel and enrolling Sector and field unit assets into the appropriate systems.

Once the preparation work has been completed, the actual Transform phase can begin. The schedule for the transformation will be established by the District Project Officer (described in the next section) with support of the Sector Logistics Officer and Sector Engineering Officer. Together, they will determine the target date for transforming the Sector and all Sector field units. The transformation itself will take three weeks:

- ✘ Week 1: Training for Sector/Group/Station/ANT Command and Engineering Personnel.
- ✘ Week 2: Training for STA/ANT duty standers, auxiliarists, non-rates, and storekeepers. During this week the Sector will "go live" using ALMIS and new logistics model.
- ✘ Week 3: No formal classroom training. Conduct shadowing support "over the shoulder" for all Sector/STA/ANT personnel.

The Support phase begins at the conclusion of the Sector transformation. Activities in this phase include conducting inventory spot checks of Sector and field unit parts inventories and a logistics compliance inspection within six months after the Sector transformation.

Figure 1 provides a graphical depiction of the deployment process.

Key Deployment Roles - LTPIO

The LTPIO is accountable to CG-4, DCMS, and the Commandant for Logistics Transformation deployment and is responsible for planning and execution of all deployment activities. Several key positions are established within the LTPIO to assume this responsibility.

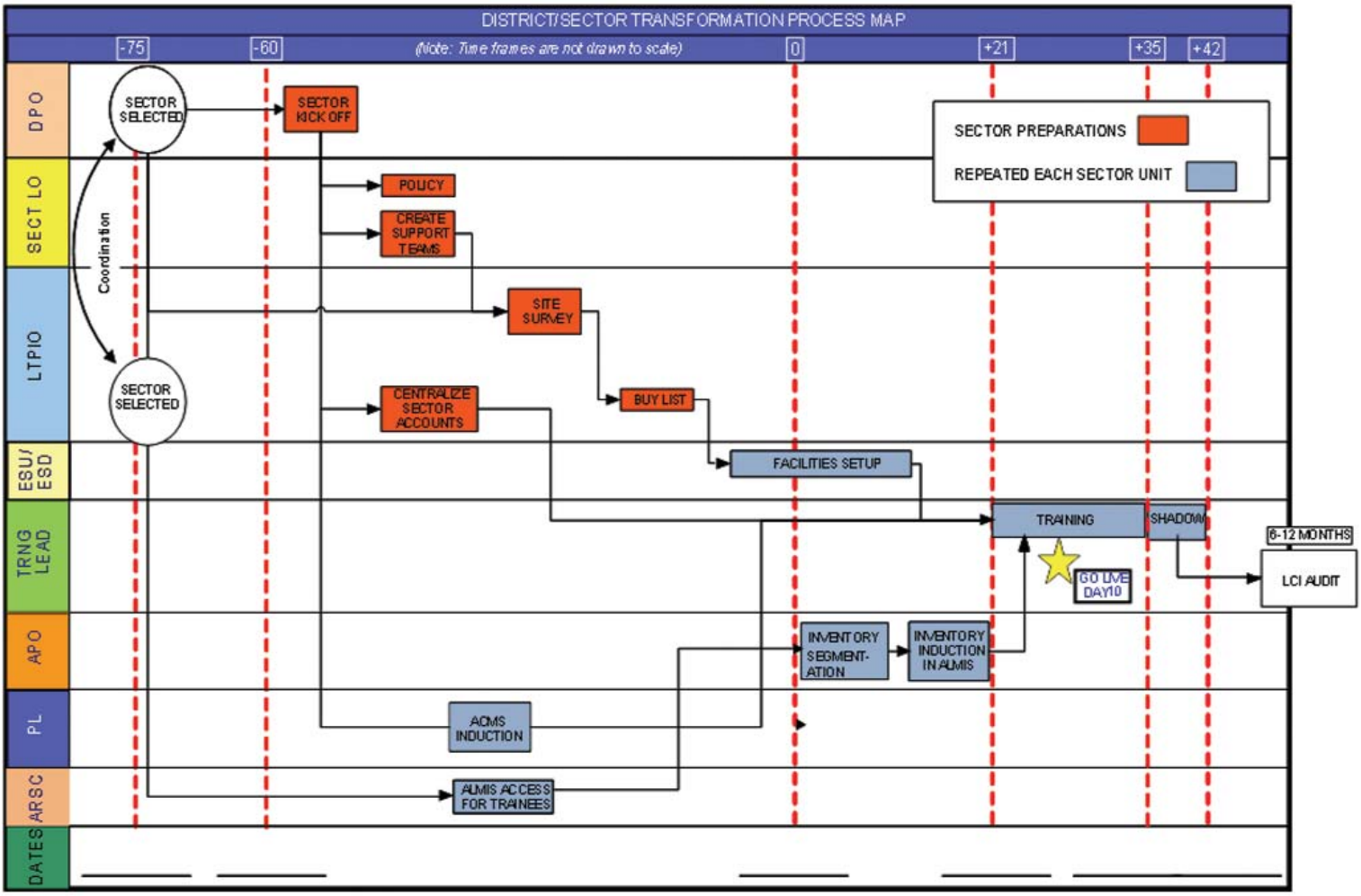


Figure 1. This Process Map graphically depicts the steps required to complete a Transformation. Zero date is when inventory segmentation is executed (see top blue bar). All other dates are plus or minus this date; expressed in days. The entity responsible for execution is listed in the leftmost column.

LTPIO Program Manager (PM) and Deputy Program Manager (DPM) - The PM and DPM reside within the Office of Logistics (CG-44) at Coast Guard Headquarters and are responsible for the entire Logistics Transformation Program, including deployment activities. They approve schedules, obtain and allocate resources, including personnel and funding, and oversee the Mission Support Business Model and all of its key artifacts, including the Transformation Playbook.

Project Officer (PO) - The PO is an LTPIO staff member responsible for all field unit transformation activities and is accountable to the PM and DPM for its success. The PO monitors all transformation activities via the transformation dashboard and through direct communications with those involved with each District rollout. Reporting to the PO are the Project Assistants, Operations Liaison, and other supporting LTPIO resources. In addition, individual District Project Officers have a project reporting chain of command back to the PO. The LTPIO PO is an O-5.

Project Assistant (PA) - Project Assistants are typically contractor resources located at CG HQ and assigned by the LTPIO to support the District Project Officer. They are assigned by the LTPIO to provide administrative, logistical, and project management support. The PAs possess strong organizational and project management skills. It is assumed that PAs will be full-time contractor positions.

Operations Liaison (OL) - The OL is assigned by the LTPIO and is primarily responsible for providing support to the PO. The OL is a subject matter expert on boat maintenance. The OL may need to travel from District to District leading and coordinating transformation activities and resources. The OL is the "go to" individual available to the PO for working problems to resolution. The OL is also responsible for educating and supporting individual District Operations Liaisons, specifically with conducting the Site Surveys.

Transition Liaison (TL) - The TL is an LTPIO resource available at the discretion of the OL. The TL will act as the Sector/Group EO's Coast Guard Bi-Level Logistics Support Model Engineering Subject Matter Expert (SME). The TL will be familiar with the Aviation Model and also with the Surface Community world of work. It is expected that the TL will provide support to the Sector Engineering Officer (EO) from initial site survey through initial operating capability. The TL will also travel to field units to assist with training and shadowing as required.

Key Deployment Roles - District/Sector/Group

Execution of the Logistics Transformation Playbook for a District and its Sectors and Groups requires the assignment of critical roles and responsibilities to various District and Sector personnel. This section describes those key positions in some detail.

District Project Officer (DPO) - The District project officer is assigned by the District staff. The DPO has responsibility for all District-related transformation efforts and accountability for its success. The DPO provides status updates to the LTPIO Project Officer on District transformation activities via the transformation dashboard and through direct communication. Reporting to the DPO are LTPIO Project Assistants (contractor staff), a District Operations Liaison, a District Training Lead, and a District IT Lead. An ideal DPO is a senior Engineering Officer from a District air station. The DPO will likely be a full-time position through completion of the District transformation.

District Operations Liaison (DOL) - The DOL is a subject mater expert on boat maintenance and supports the DPO by acting as a liaison to the District boat community and field units. The DOL must travel from Sector to Sector, unit to unit leading and coordinating resources required during the training and shadowing activities of the transformation. It is suggested that the DOL be a military position at the E-8 rating and a BM or MK. The DOL will be a full-time position through completion of the District transformation.

District Training Lead (DTL) - The DTL is a District staff resource reporting to the DPO. The DTL is responsible for coordinating all training activities and training logistics required for a successful transformation. These include ALMIS account enrollment, developing training schedules, determining Sector training logistics, scheduling training resources, coordinating the printing of training materials, and delivery of training equipment. The DTL will work closely with the LTPIO Project Assistant and Sector Logistics Department Head. The DTL will likely be a full-time position through completion of the District transformation.

District IT Lead (DIL) - The DIL is a District telecommunications staff resource reporting to the DPO. The DIL is responsible for ensuring that all network drops, workstations, and fax/copier equipment identified during site surveys are properly installed, tested, and available for use prior to each unit's transformation training. It is expected that this role will be filled through the execution of a Memorandum of

Understanding (MOU) with the District ESU.

Sector/STA/ANT Staff - While the District staff assumes a leadership role for District-wide implementation, much responsibility also falls to key members of the Sector/Group staffs and the command cadre of the Stations and ANTs. The Sector Logistics Officer, Sector/Group Engineer and Assistant Engineer, OIC, XPO, and EPO all play significant roles in ensuring a successful implementation within their respective commands.

FY09/FY10 Deployment Timeline (and Beyond)

Figure 2 provides a graphical representation of the planned deployment schedule for the remaining District deployments to be completed during FY2009 and FY2010. At the time of this writing this schedule is still being vetted and approved and is therefore subject to change. District and Sector staffs will receive formal communication from the LTPIO months prior to their planned deployment to establish a firm start date and initiate the Preparation phase.

It is important to recognize that the deployment discussed here only encompasses standard boats operated and supported at Sectors and Groups. Logistics Transformation ultimately extends to all asset types operated throughout the Coast Guard. Concurrent with this Transformation deployment are efforts to establish Product Lines for cutters, facilities (e.g., buildings), and major C4IT asset classes. Deployment plans for these assets are still in the early phases of planning and resourcing and will be the subject of future articles like this one.

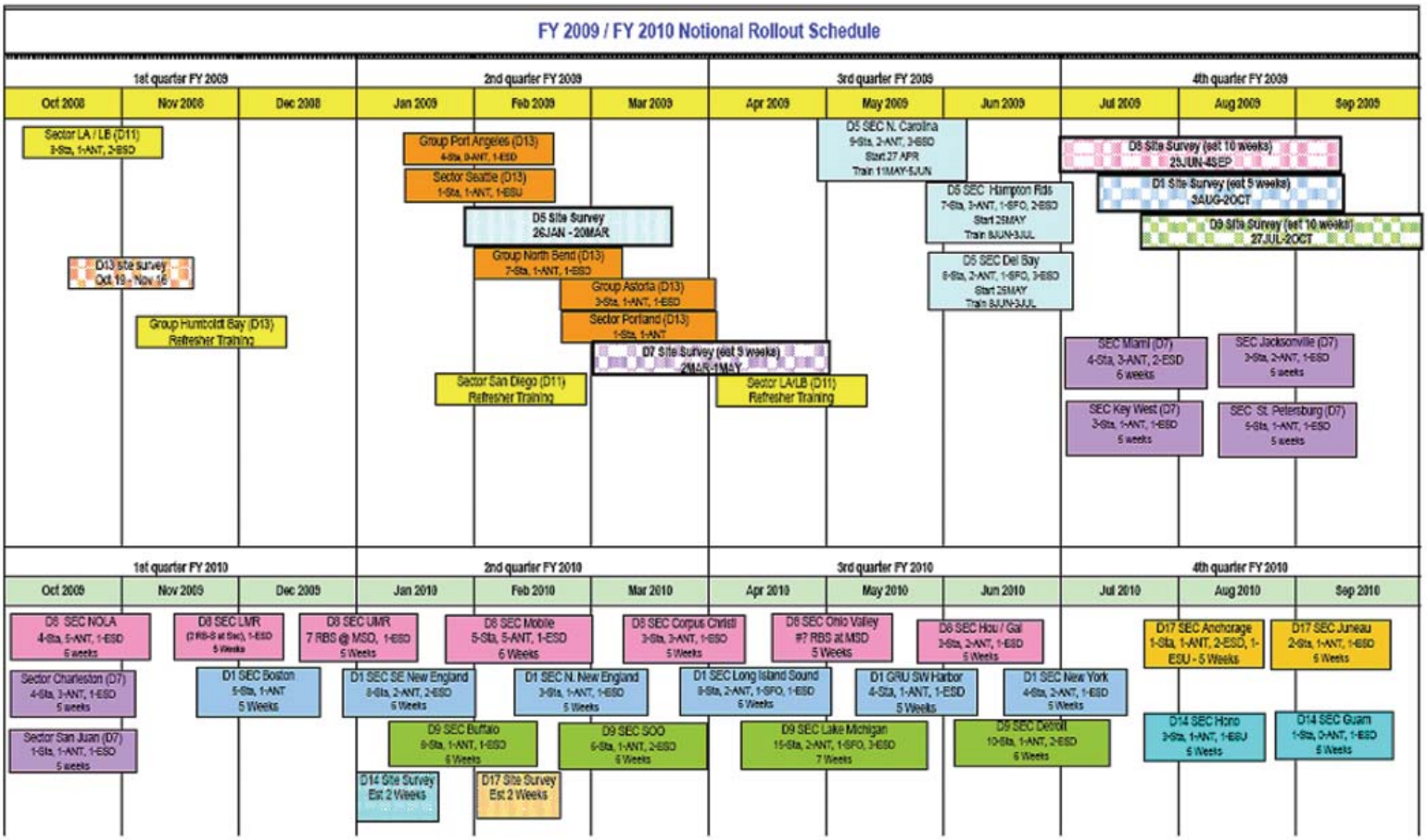


Figure 2. This graphic depicts the planned deployment schedule as of early January 2009 and is subject to approval/modification after consultation with OPCOM and the District Commanders.

Logistics Transformation Spotlight: The Asset Materiel Manager (AMM) and the Field Terminal Operator (FTO)

by Brooks Minnick (ctr), CG-44LT

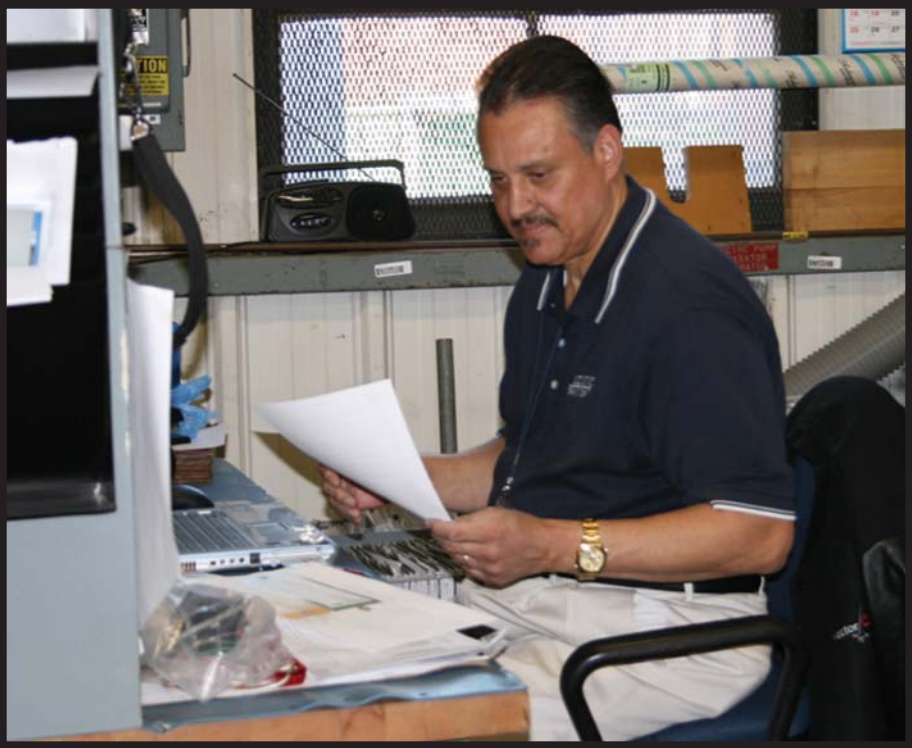
As this article is being written new mission support procedures for Sector-based Standard Boats are in place at Sector Baltimore and all remaining Sectors, Groups, and attached units within District 11. Transformation training is underway for the Sectors and Groups within District 13 and preparations have begun to deploy our chosen mission support model to the remaining Districts during FY09 and FY10 (see additional EELQ article on Logistics Transformation Rollouts in this issue, page 48).

With the implementation of this mission support model new work procedures are established with an increased emphasis on configuration, maintenance, and supply management for the Sector/Group and its field units. When viewed alongside previously established procedures, this more stringent requirement appears to constitute more work for Sector, Station, and ANT personnel. Not wanting to unduly burden the very units we are trying to support, the Logistics Transformation Program has provided contractor support for two critical responsibilities; supply management and maintenance data capture. These positions are known as the Asset Materiel Manager (AMM) and Field Terminal Operator (FTO) respectively and the contract individuals filling these duties play an important, if largely behind the scene, role by helping to ensure a smooth deployment of the new mission support procedures for all Sector/Group personnel.

The AMM

While inventory accuracy for CFO reporting has become increasingly important to the Coast Guard over the last five years, most would acknowledge that Sector/Group Engineering supply management was not a responsibility that received any additional manpower support. In fact, this responsibility was typically assigned as a collateral duty to a junior MK in the Engineering shop who was responsible for obtaining supplies and maintaining inventory accuracy in CMplus or TAIT. With the new mission support model in place, increased importance is placed on unit inventories and how they are stored and managed. This includes secured storage areas (e.g., lockable cages)

containing new Vidmar storage units. In addition, this segregated inventory is maintained within the supply management system of ALMIS (Asset Logistics Management Information System), requiring specialized training and an increased emphasis on data management. A key aspect of the ALMIS supply system is the ability to "push" parts to units when they are needed based on preset stocking levels without requiring the unit to request them. As these materials arrive the AMM is the individual responsible for managing these new supplies, interacting regularly with Sector/Group storekeepers and Aviation Logistics Command (ALC) and ELC supply personnel to maintain proper stocking levels. The AMM is also responsible for pulling, collecting, and issuing parts for scheduled and unscheduled maintenance tasks, returning "carcasses" for repairable components to the source of supply, and performing research to obtain needed materials from other commands whenever needed.



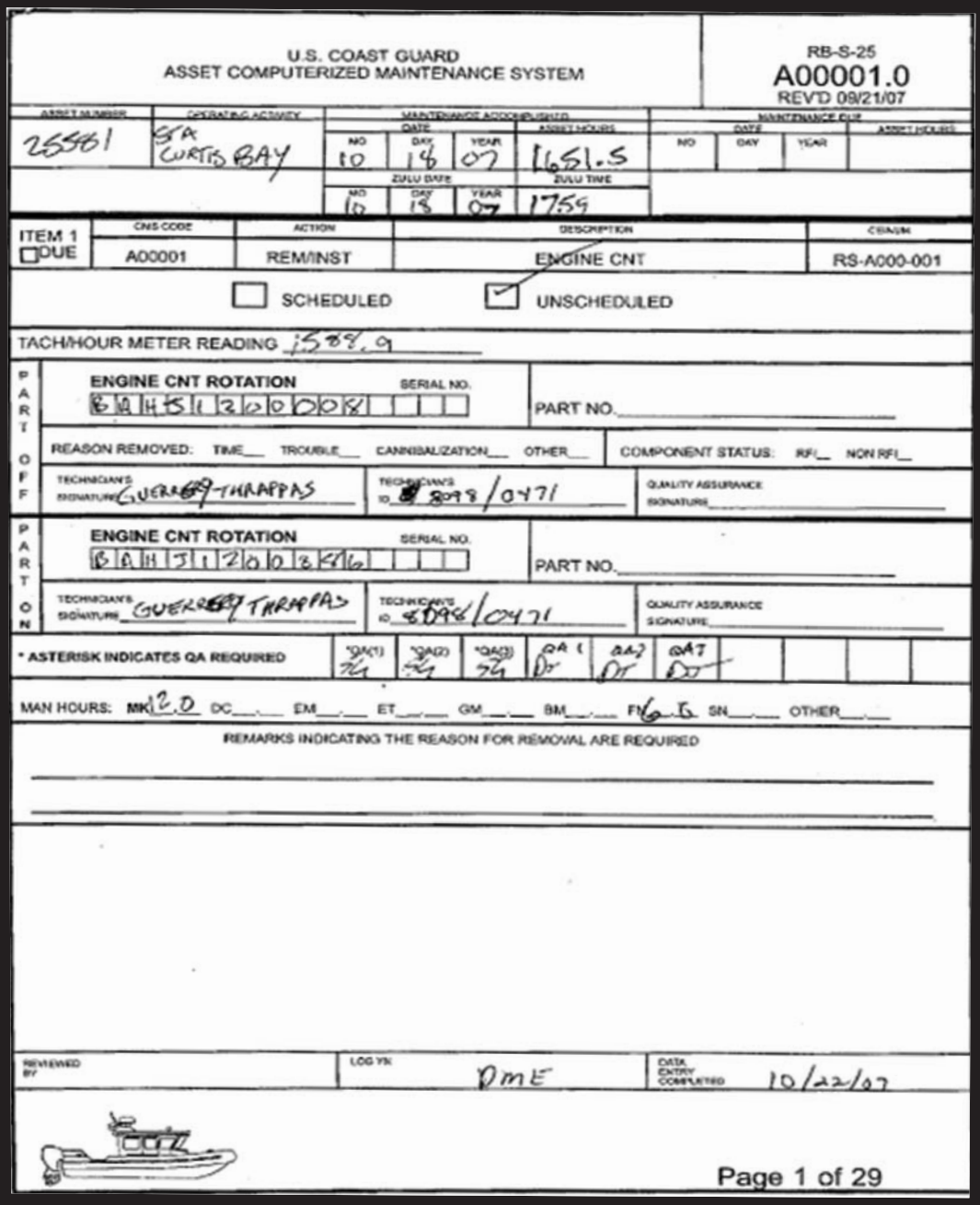
Ray Yorro

Sector Baltimore AMM, contractor Ray Yorro from Vector CSP, is shown maintaining the Sector Baltimore boat parts inventory. Ray has been the SECBALT AMM for 13 months. The box in the foreground contains parts Yorro collected for deployment to a boat staging area for the January 20th Inauguration Security Detail in Washington, DC.

The FTO

Complimenting the work of the AMM for supply management are the duties of the Field Terminal Operator (FTO) for maintenance management. A key aspect of our mission support model is that ALL maintenance activity be captured and recorded, including parts used and labor hours consumed. It's only by capturing this maintenance data across our entire enterprise that we can begin to see trends in asset performance, reliability and cost, and address minor issues before they become major ones. The FTO is responsible for recording completed maintenance information within the maintenance management component of ALMIS, which is being used to support all of our transformed units. Unit maintenance technicians record basic maintenance information on a MPC

cover sheet, and after EPO review, simply fax or scan and email that sheet to the FTO located at the Sector who inputs the information into ALMIS. This insulates unit technicians from having to learn this part of ALMIS, saves valuable time from having to perform data entry on a daily basis, and ensures all data is captured and entered accurately including parts consumption, labor and all quality assurance checks conducted. This information in turn updates the unit Maintenance Due List, or MDL, which is the unit's maintenance schedule.



U.S. COAST GUARD
ASSET COMPUTERIZED MAINTENANCE SYSTEM

RB-S-25
A00001.0
REV'D 09/21/07

ASSET NUMBER	OPERATING ACTIVITY	MAINTENANCE ACCOMPLISHED DATE NO	DAY	YEAR	ASSET HOURS	MAINTENANCE DUE DATE NO	DAY	YEAR	ASSET HOURS
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		ZULU DATE NO 10	DAY 18	YEAR 07	ZULU TIME 1759				

ITEM 1 ☐ DUE	CNS CODE	ACTION	DESCRIPTION	CEIASM
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☐ SCHEDULED ☑ UNSCHEDULED

TACH/HOUR METER READING 1588.9

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ENGINE CNT ROTATION SERIAL NO. BAH51200008
PART NO.
REASON REMOVED: TIME___ TROUBLE___ CANNIBALIZATION___ OTHER___ COMPONENT STATUS: RFI___ NON RFI___
TECHNICIAN'S SIGNATURE GUERRERO THRAPPAS TECHNICIAN'S ID 3098/0471 QUALITY ASSURANCE SIGNATURE

PART ON
ENGINE CNT ROTATION SERIAL NO. BAHJ12008516
PART NO.
TECHNICIAN'S SIGNATURE GUERRERO THRAPPAS TECHNICIAN'S ID 3098/0471 QUALITY ASSURANCE SIGNATURE

* ASTERISK INDICATES QA REQUIRED *QA(1) *QA(2) *QA(3) QA 4 QA 5 QA 7

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REMARKS INDICATING THE REASON FOR REMOVAL ARE REQUIRED

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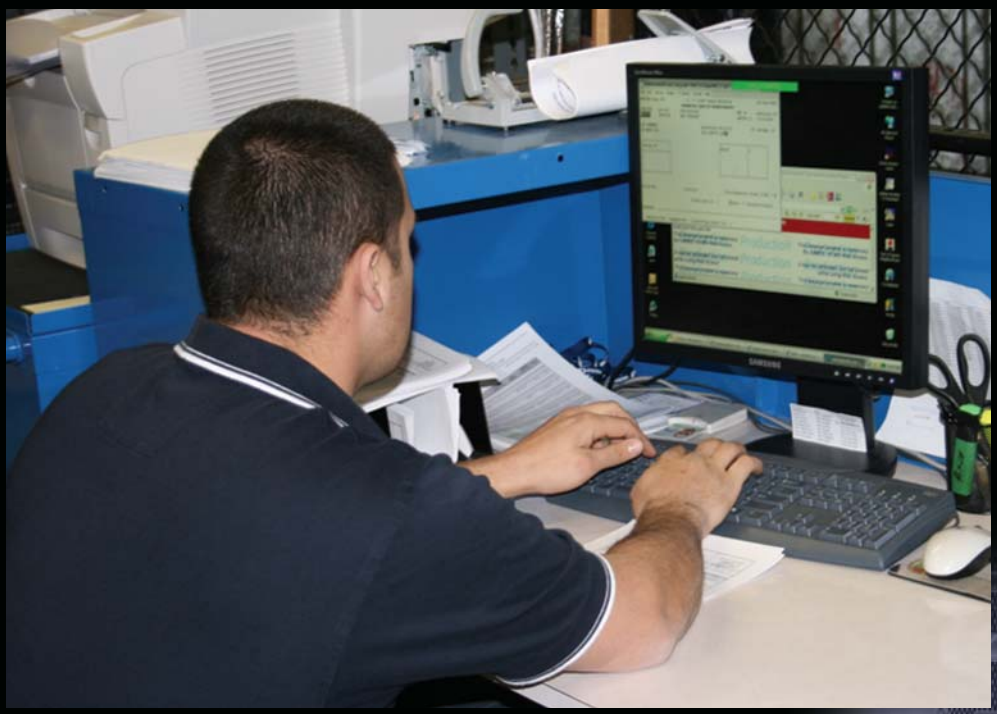
Page 1 of 29

An example of a completed MPC Cover Sheet which the FTO files and records within ALMIS.



Sector Baltimore FTO Rob Dent (photo above) of Vector CSP files and records maintenance completion information from MPC Cover Sheets he receives from field units via email. Rob has been the SECBALT FTO since he left active duty at Station Curtis Bay as an MK3 in August of 2008.

The Future of AMM and FTO Duties

While the most expedient means to provide AMM and FTO services during Transformation stand-up was to hire contract personnel, these duties may eventually be assigned to Sector unit personnel, either military or newly established civilian positions. For instance, within Coast Guard aviation the AMM is often staffed by a government civil servant while the FTO position is frequently contracted for. As ongoing staffing studies look at the workload changes imposed by our new mission support model, such as reduced demand for local procurement capability because of centrally managed inventories and a "push" supply system, it may be possible to reprogram currently assigned personnel. For the time being, the Logistics Transformation Program is committed to deploying our new mission support model without an undue burden on units, and providing contracted AMM and FTO services is a part of that commitment.

Determining Depot Level Sparing with VMetric Readiness Based Sparing Tool

by LCDR Bradley C. Cook, ELC

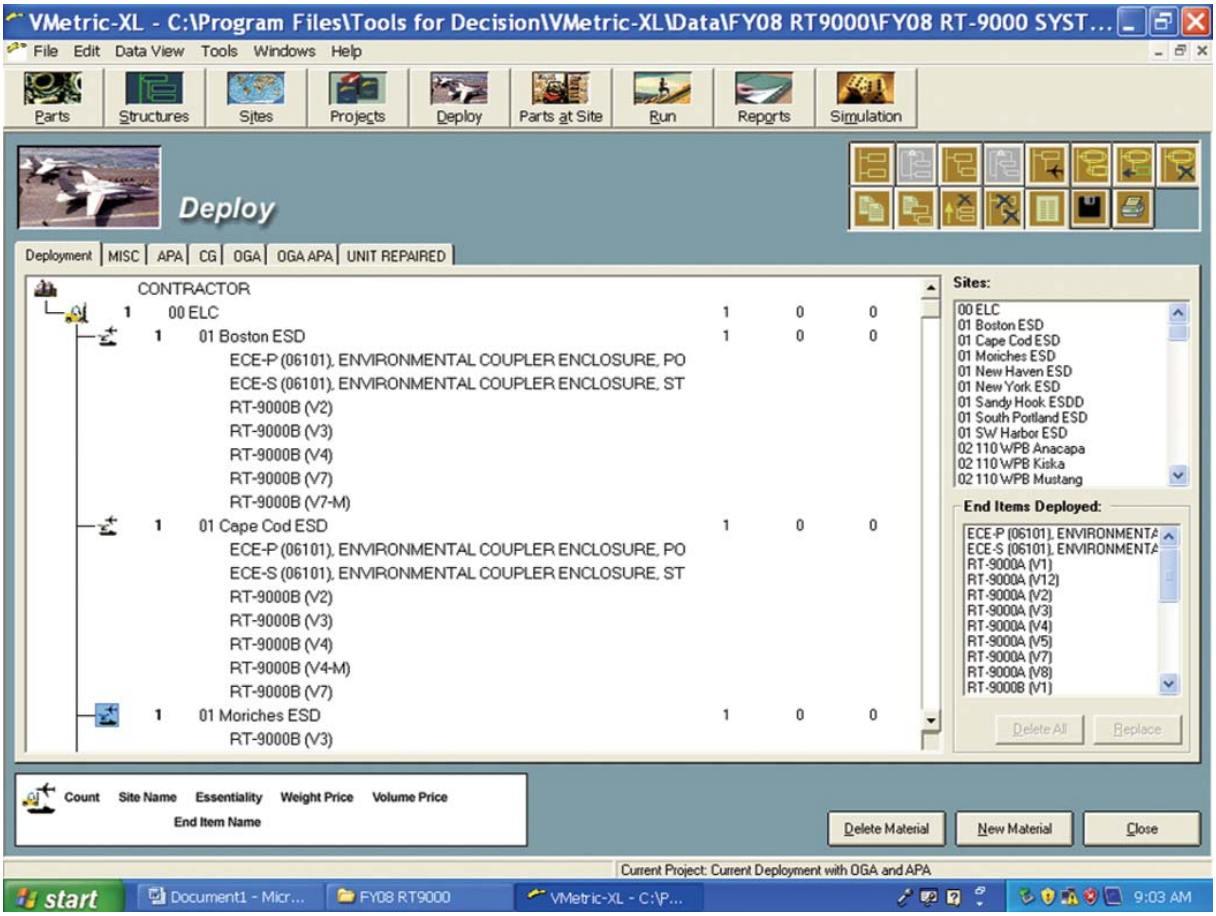
U.S. Coast Guard photo by Petty Officer 3rd Class Erik Swanson.

To meet Chief Financial Officer Act requirements and Logistics Transformation initiatives, the Coast Guard is adopting a demand based support philosophy for legacy assets. For Engineering Changes for which the Engineering Logistics Center (ELC) has determined that depot level stocking is necessary, the number of initial spares is determined using the VMetric Readiness Based Sparing tool. Gone are the days of "standard" 10% sparing; actual demand history, mean-time-between-failures (MTBF), and total population are applied to predict accurate, lean sparing.

In a 1997 report by the Coast Guard's Research and Development Center, the VMetric program "showed the theory behind the model closely follows that of the Coast Guard aviation spare parts logistics system and provides significant performance improvements. VMetric stock levels provided the same aircraft availability as historical levels with a 34% to 54% reduction in stock position. VMetric improved availability when funding levels for spares remained unchanged" (http://www.stormingmedia.us/39/3959/A395933.html). Thus, the use of the VMetric tool aligns with logistics transformation initiatives.

ELC's Electronic Systems Branch (ELC-021) has six trained VMetric users who work with System Support Agents (SSAs), such as the Telecommunications and Information Systems Command and the Command and Control Engineering Center, to determine system stock to reach a desired Operational Availability (Ao). ELC-021 also uses VMetric to perform annual updates for supported systems to ensure that the appropriate stock levels are maintained at ELC.

Prior to beginning the analysis, users must validate the system's current configuration, location, and equipment population, using FLS Cubes or CG PART website (see Fall 2008 Issue of *EE&LQ*, p 30). This is the foundation for further analysis and ensures the best possible projection of required sparing. Any new parts, additions to, or deletions from the system configuration must be identified at this time. The parts list includes repairable and select consumable ($500.00 and over) items stocked at the ELC, excluding Other Government Agency-stocked repairable and consumable items. The user collects Repair Cycle Time (RCT) data (if available), Procurement Lead Time (PLT), on-hand quantities, historical demand quantities, parts quantities per equipment, Mean-Time-Between-Failures (MTBF), and ELC's current stocking level for the system (if applicable). Individual component reliability contributes to overall system reliability: System Operational Availability is calculated based on compo-



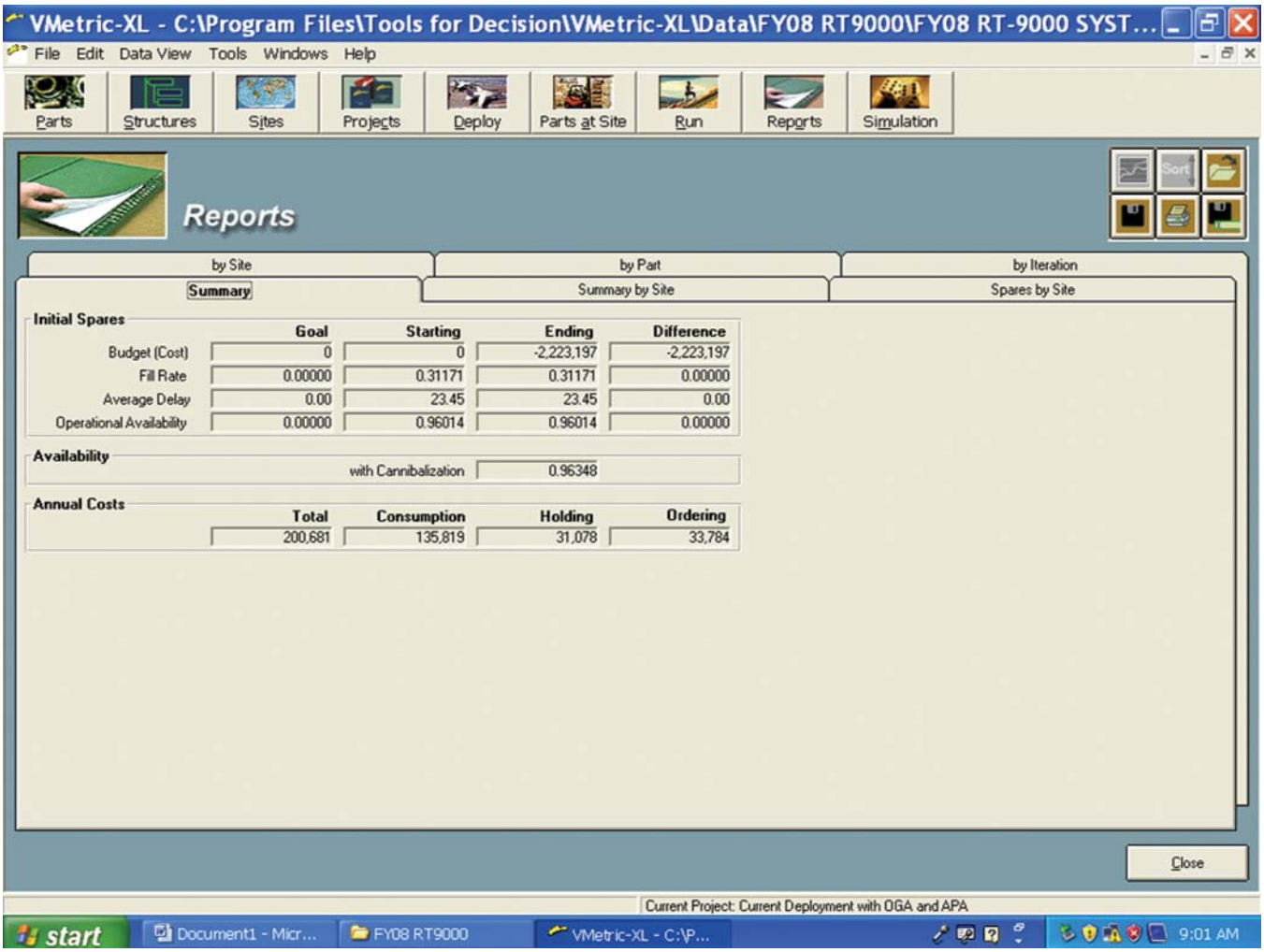
nent MTBF, Order Ship Time (OST), RCT, system configuration, PLT, and other factors. The Ao calculation does not include initial spares or VMetric produced buys.

The user inputs the data into a standardized Excel template and uploads it into the VMetric program. The spreadsheet contains many of the fields required for the application to work. The spreadsheet also establishes the maintenance structure used to build the relationship between parts and equipment and the system. Instructional notes are provided on the second sheet of the spreadsheet. After reviewing the data within VMetric, the user conducts three "runs": A Baseline run; a Desired Ao run; and a Cost Effective run.

The purpose of the Baseline run is to capture the current operational availability achievable with known equipment populations, actual demand history, current repair cycle time, and updated ELC stock and field unit on board repair part (OBRP) quantities. The Baseline run serves to validate whether initial depot level sparing efforts, SSA donated stock and CGHQ funded increases are sufficient to meet the operational community's stated availability requirement.

The Desired Ao run attempts to achieve the desired Ao with known equipment populations, actual demand history, current repair cycle time, and updated ELC stock and field unit OBRP quantities. This unconstrained run indicates what additional sparing would be required, and indicates the appropriate staging points for all support stock. The comparative results reveal deltas between the baseline state and desired state. The data can then be used to support additional funding requests, alter depot level sparing, and give the SSA and/or ELC a better definition of overall system Ao.

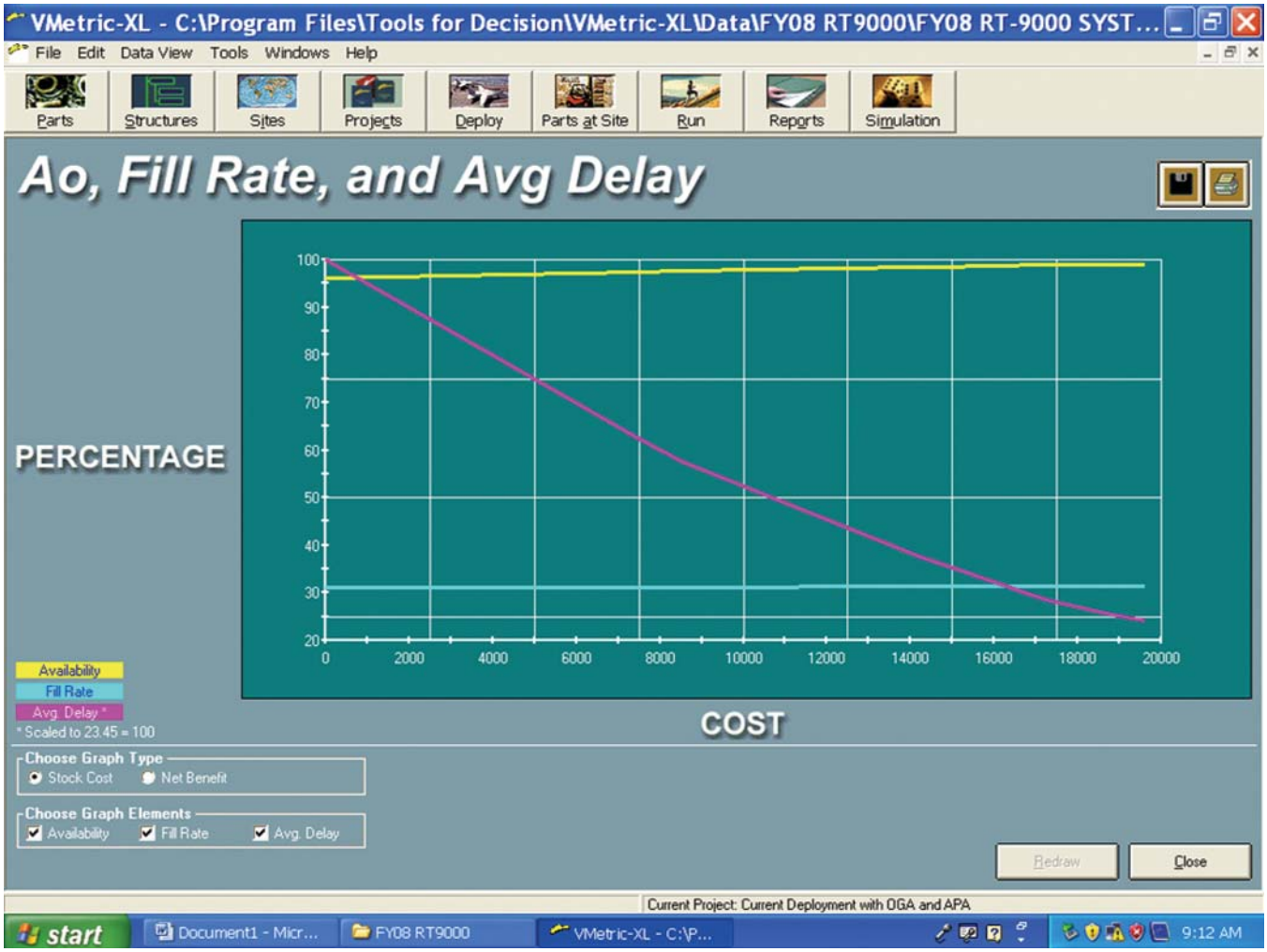
The Cost Effective run identifies the most cost-effective solution to achieve the highest practical operational availability using known equipment populations, actual demand history, current repair cycle time, and updated ELC stock and field unit OBRP quantities. The results of



the Desired Ao run are used to identify the Ao achievable closest to the point of diminishing returns. When the model is constrained by the desired Ao and by setting the model not to allow field sparing, the results identify additional depot level sparing that would be required for a "Depot Level Reparable Ao." The results support additional funding requests by modifying depot level stocking levels. This action maximizes Ao and parts availability and minimizes backorders and unnecessary low-demand stock items. Since Ao may be less than the stated requirement, other factors that improve equipment reliability may be required, such as recapitalization, changes in support or maintenance philosophy, or upgrades to individual component parts via field change or system engineering change. These recommendations are made in the final report by the user and forwarded to the appropriate SSA.

After reviewing the results of all runs, the user schedules an ELC-021 peer review. Branch members scrutinize the runs and financial recommendations, which are considered for future budget development.

In addition to determining applicable and effective preventative maintenance, capturing data and measures to review and validate initial support decisions, ELC embraces technology like VMetric to strive for continuous improvement in the services we deliver to our customers and to the fleet. We seek to maximize parts availability and to minimize the rate and quantity of backorders. Maintaining the correct depot level sparing is cost effective and paramount to achieving a balance between stewardship of funds and fleet readiness.



Navy-Coast Guard Logistics Integration

by Randy Hodge, RGS Associates Inc.

U.S. Navy Photo.

Introduction

"Although our forces can surge when necessary to respond to crises, trust and cooperation cannot be surged" -- A Cooperative Strategy for 21st Century Seapower. The increasing importance of Navy and Coast Guard interdependency across the full spectrum of maritime operations and the continued need to optimize our logistics processes requires Navy-Coast Guard Logistics Integration (N-CGLI). N-CGLI, a strategic initiative formally endorsed by the Services' Logistics Chiefs, provides the basis for coordinating Coast Guard and Navy efforts to enhance cooperation and integration of logistics operations between the two Services in support of the concepts of the National Fleet Policy and the National Strategy for Maritime Security.

N-CGLI Charter

The N-CGLI Senior Working Group (SWG) was chartered in late 2006 as an official and continuing forum to foster new initiatives to attain greater efficiencies and to achieve increasingly effective logistics operations by leveraging and/or integrating current and future logistics capabilities where it makes sense. The N-CGLI SWG group is comprised of senior leaders and subject matter experts from the Navy and Coast Guard who are empowered to develop specific solutions and approaches and to make recommendations to OPNAV N4 and CG-4 on issues discussed. The group is co-chaired by the Director, Supply, Ordnance and Logistics Operations Division (OPNAV/N41) and the Assistant Commandant for Engineering and Logistics (CG-4), with OPNAV/N413 and CG-441 serving as their direct representatives. Additionally, the N-CGLI SWG consists of representatives from the following commands/offices: NAVSUP, USFF, CG-6, MLCLANT, and MLCPAC. Additional expertise is sourced on an ad hoc basis. The senior working group meets quarterly, or more frequently as required, to accomplish the goals and objectives directed by the co-chairs. There are currently six specific initiatives ongoing in various stages of concept exploration and/or development as described in the following paragraphs.

Contingency Planning and Execution

Coast Guard forces must be able to operate as part of a joint task force thousands of miles from our shores, and naval forces must be able to respond to operational tasking close to home when necessary to secure our nation and support civil authorities. Accordingly, we are exploiting opportunities at the operational level to integrate contingency/exercise planning and execution in support of homeland defense, humanitarian assistance and disaster relief logistics operations. This effort is perhaps best exemplified by a formal USFF N41/MLCLANT Memorandum of Agreement (MOA) which explains the uniqueness of cooperative relationships in support of homeland defense and defines cooperative actions at the operational and tactical level. A strong working relationship, established in advance, may be the key to success in responding to an emergency situation in the future. The MOA calls for a collaborative review of all applicable plans and joint deliberate/contingency planning when circumstances dictate; joint training on a routine basis and joint participation in a national exercise at least annually; continuous communication and information sharing, liaison officer exchanges, and quarterly meetings to address ongoing joint efforts.

Material Expediting

The Navy's Priority Material Office (PMO) expedites and tracks high priority requisitions for submarines, surface ships, and select other Navy, Marine Corps, and Coast Guard units. By mission, PMO is dedi-

cated to global cradle-to-grave expediting and tracking of all Issue Priority Group-1 (IPG-1) requisitions for their customers. Through the N-CGLI forum, we are expanding the use of PMO in support of deployed USCG elements with a high degree of success. Most recently, PMO provided support for USCGC DALLAS' operations in the Gulf of Guinea and USCGC MORGENTHAU's deployment as part of CTF-73 CARAT-SECAT in SE Asia. PMO is poised to support USCGC BOUTWELL's deployment to CENTCOM (Jan-Apr '09) and USCGC GALLATIN's deployment to Africa in spring '09. Initiative champions are assessing lessons learned from recent deployments in order to leverage best practices/procedures and the efficiencies available to USCG activities via PMO. Technical procedures are being developed that will guide units through the material expediting process using PMO's Integrated Supply Information System (ISIS).

Reparable Retrograde

The Advanced Traceability and Control/electronic Retrograde Management System (ATAC/eRMS) is the Navy's program for tracking and expediting Depot Level Reparable (DLR) components in the repair and supply pipeline. Initiative champions are exploring concepts for expanding the use of ATAC/eRMS within USCG units. To date, ATAC/eRMS has been deployed to 37 sites (27 cutters/10 ashore sites) to provide a means of increasing visibility and control of Navy-managed DLRs in the supply chain per the tenets of OPNAVINST 4000.79B, Policy for U.S. Navy Support of the U.S. Coast Guard. Initiative champions are assessing the need for a formal USN/USCG policy specifically addressing ATAC/eRMS use in support of Navy-type Navy-owned (NTNO) assets and exploring concepts for the potential adoption of ATAC/eRMS as the USCG standard for the management of DLRs.

Force Deployment Planning and Execution (FDP&E)

Navy and Coast Guard deployment support organizations are aligning FDP&E processes, procedures, and activities between the Naval Operational Logistics Support Center (NOLSC), MLCLANT, and the Coast Guard's Deployment Operations Group (DOG). The priority of effort is on defining support relationships; developing FDP&E policy and applicable tactics, techniques and procedures; developing a unit movement system implementation and training strategy; and developing force deployment data constructs and requirements for eventual upload into appropriate plans.

Riverine Operations Support

This effort is focused on reviewing and assessing existing Coast Guard maintenance and logistics support tactics, techniques, and procedures for applicability to Navy Riverine Group and/or Special Boat Unit operations. Champions are also assessing the potential for leveraging Defense Logistics Agency support of spares for common boats/equipment and are synchronizing efforts with ongoing Navy-Coast Guard Warfighter Talks action items and related Navy Expeditionary Combat Command (NECC) N3/5 efforts.

Supply/Logistics Collaboration

Perhaps the most promising N-CGLI initiative involves decentralized leveraging of support capabilities at the local level. Functional and regional [co-located] Navy and Coast Guard logistics support sites were tasked during 2008 to identify any existing relationships; conduct reciprocal command visits to review/assess missions, tasks, and functions in order to unveil ongoing/potential opportunities for cross-servicing, integration, and/or interoperability; and to provide feedback for consideration of further expansion. Numerous such visits have taken place and champions at the Service and local levels are reviewing the identified opportunities to holistically assess mission support requirements and workload in order to determine next steps for the N-CGLI constituency. Solid examples of this collaboration effort involve: Fleet and Industrial Support Center (FISC) Norfolk / Integrated Support Center (ISC) Portsmouth and MLCLANT, FISC Jacksonville / ISCs Miami and New Orleans, FISC San Diego / ISC San Pedro, CG Engineering Logistics Center (ELC) Baltimore / Navy Inventory Control Point (NAVICP) Mechanicsburg, and FISC Puget Sound / ISC Seattle. Potential opportunities for cross-servicing that have been discussed range from the more traditional supply and logistics functions to some rather

Coast Guard photo by Petty Officer Jetta H. Disco.

localized support activities such as migrant ops/mass migration planning, husbanding contract support in austere ports, and maritime force protection support.

Pathway to Integration

N-CGLI will promote the integration of Service logistics processes, resources, and information to enhance synergy and reduce both redundancies and costs in order to optimize the use of limited resources to provide maximum capability to supported commanders. Further logistics integration topics exhibiting a high potential for realizing one or more of the following qualities are always welcome for consideration: improved logistics responsiveness and agility, improved combat support readiness, reduced logistics workload afloat/ashore, and cost savings/avoidances that can be recapitalized within Service logistics processes. Through this shared vision, Navy and Coast Guard logisticians will set the standard for Service integration by moving beyond interoperability to a level of interdependence that maximizes readiness and sustainability through the most effective and efficient use of our logistics resources.

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Mr. Randy Hodge *(RGS Associates Inc.) is a support contractor for OPNAV N41. He retired from the Marine Corps in 2005 after serving 24 years on active duty in various supply and logistics officer billets. (Email: Randy.Hodge@RGSinc.com).*

Logistics Problems?

by CDR Marc P. Lebeau, CG-481

Ever wonder what the challenges are that the US Air Force faces when it comes to getting replacement parts for new versions of a legacy aircraft? How about the US Navy and their challenges with a new service-wide asset management application? Ever wonder what the U.S. Army does when combat boots for desert-wear go out of stock? How about what the U.S. Marine Corps does when faced with the closing of a major supply depot? If you are one that thinks these challenges are ordinary and hardly merit concern by senior service leadership, you'd be wrong. They do, and representatives from the various Department of Defense (DoD) services met for a week in November 2008 to discuss how to respond to these and other logistics challenges.

The meeting was held at a University of North Carolina complex near the main campus in Chapel Hill and was attended by U.S. Coast Guard managers, as well as folks from various logistics, supply, and acquisition agencies of the Federal Government. The course is called The Advanced Program in Logistics and Technology.

To ensure that the exchange of ideas is productive, the conference is arranged as a series of learning events by expert professionals from academia and industry that facilitates the discussion around thought-provoking speakers and lecturers. There are classes in Dynamic Leadership and Organizational Effectiveness, Supply Chain Management, Technology and Organizational Innovations, Global Business Competitiveness, Organizational Transformation, Product Life Cycle for Design and Maintenance, and several others that focus on logistics management solutions. Each attendee submits a problem statement from some aspect of their organization prior to convening and several get selected for group discussion and "group-think" resolution. The entire program is a learning event, and by the time the attendees depart, if they didn't have remedies for their organizational challenges, then at least they had a host of new ideas upon which to draw.

This same scenario plays out with different participants four times a year.

Established by the Department of Defense (DoD) in 2002, the Center of Excellence in Logistics and Technology, often abbreviated as LOGTECH, is hosted by the Kenan-Flagler School of Business, adjacent to the UNC Campus, home of the 2007 ACC Men's and Women's basketball champion "Tarheels." It's a five-day program filled with compelling speakers, learned scholars, and about 50 active duty and civilian students and their private sector counterparts.

What results is a masters-level exchange of ideas that stimulates the mind and enhances a universal appreciation for the issues facing our sister services. Six members of the US Coast Guard attended the November convening and inter-mingled with officers and senior civilians from the U.S. Army, Air Force, Navy, and Marines.

To remediate distractions and to enhance the experience, comfort, and convenience are vigilantly addressed by staff and faculty. An impeccably appointed student resident facility named McLean Hall, is positioned footsteps away from a state-of-the-art learning facility. Equally close, is the DuBose House where Five-Star cuisine is served buffet style in a formal dining setting three times each day, where attendees are subjected to the most attentive wait staff imaginable. The savory meals often compete with staff and curriculum for the most noteworthy aspect of an overwhelmingly impressive experience.

Although the program is packed with day-long activities, working groups, and reading assignments, there is still evening time to venture over to the UNC campus via bike/walking trails for some sight-seeing or perhaps a quick workout in the exercise facility located in McLean Hall.

For more information on the program, check out their website: http://www.logtech.org/logtech/default.aspx.

To apply, you must obtain your Command's approval and have your Training Officer submit an ETR in Direct Access, Course Code 502099. CG-4 selects attendees for each session. If selected, you will be notified 4 - 6 weeks prior to the convening. O-4, O-5, and O-6 are eligible, along with civilians GS-13 and above. For more information, contact CDR Marc Lebeau (202) 475-5764 or Mr. Richard Kramer (202) 475-5736.

Landfill Gas Project Hits Milestone

by CDR John Slaughter, Yard Chief Facilities Engineering

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The largest renewable energy project in Coast Guard history hit major milestones just before Thanksgiving this year [2008]. During the weeks leading up to the holiday, we saw the completion of the steam line replacement that had much of the Yard campus ripped up throughout the summer and fall. This portion represented almost $1,000,000 in capital improvements to the Yard's aging infrastructure, as almost a mile of underground piping was dug up and replaced.

The four methane powered generators were recently placed into the new co-generation plant building. Each generator will be able to generate one megawatt of electricity and will be powered by the methane captured from the Baltimore City owned Quarantine Road Landfill just to the north of the Yard campus.

Baltimore City is moving forward with the construction of the collection system at the landfill with most of the wells already in place and preparations are moving quickly toward acceptance of the collection equipment in January.

An interior shot of the co-generation plant building and the recently installed methane powered generators gives a peek of the project that will take the Yard "off the energy grid" for nearly all of its electric and steam power needs for the next 15 years.

Construction of the landfill gas co-generation plant building is underway! Operation of the landfill gas project will be the equivalent of removing over 33,000 cars from the road in greenhouse gas reduction.

The one mile long methane pipeline from the Yard to the landfill has also been installed and is ready to go. Progress continues at a rapid pace pushing toward the target of operational testing in February 2009 with a ribbon cutting tentatively planned for April 22, 2009 (Earth Day).

This project is the largest construction project to occur at the Yard since the shiplift was installed in the late 1990s. It is also the largest Energy Savings Performance Contract in the Coast Guard with a 15 year price tag of $41 million that will include contractor maintenance and operation of the co-generation plant. The entire amount of the contract will be paid from the savings generated by self-generation of electricity as opposed to purchasing it from the commercial power grid. When the project is complete later this winter, the Yard will become the first Coast Guard facility 100% powered by a renewable energy source and the first co-generation plant (electricity and steam) in the State of Maryland. The initiative will also meet the renewable energy requirements of the entire Department of Homeland Security through the year 2012.

Academy Receives the White House Electronic Recycling Award

-- REUPS --

Renewable Energy Uninterruptible Power Supply

by Robert Parker, Andy Mays, and Sam Chisholm, ESD Southwest Harbor

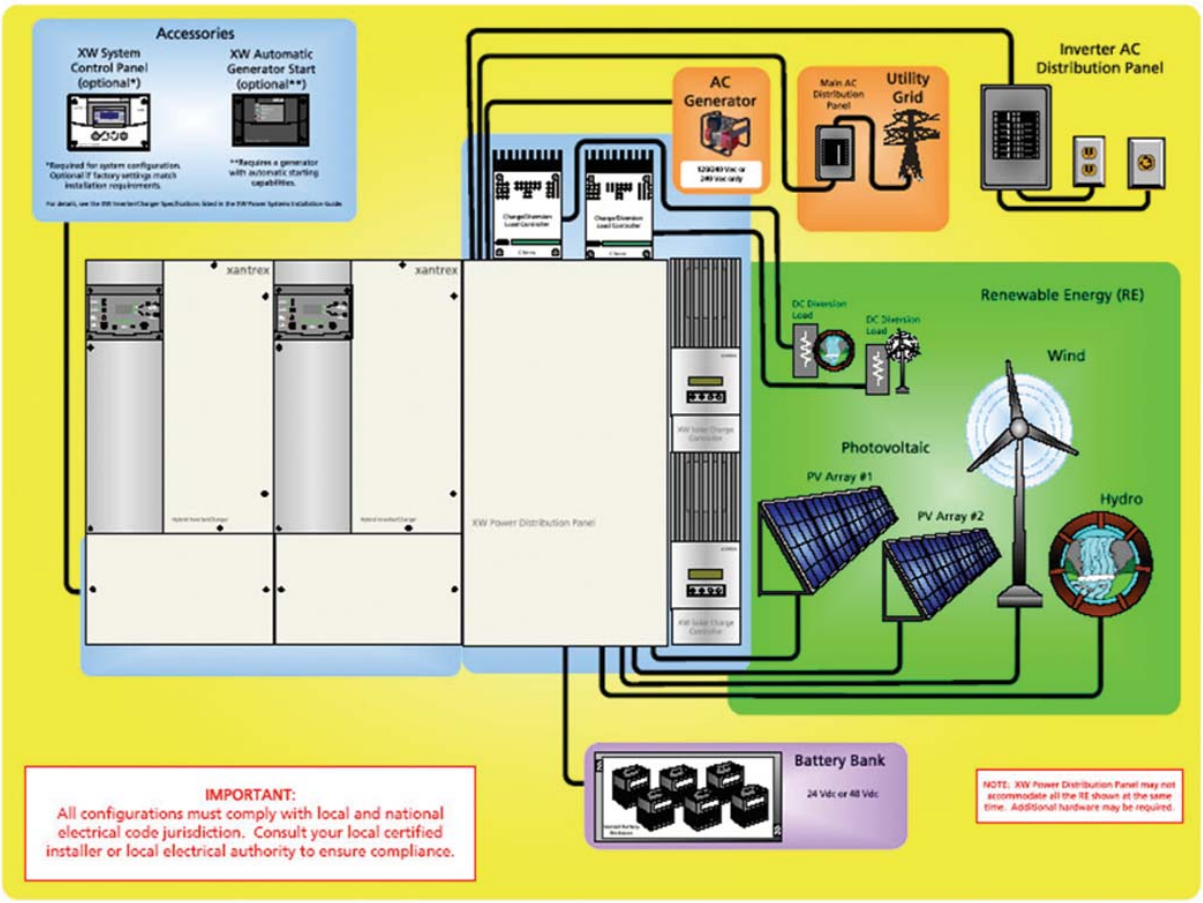
Intro The cacophony of beeping uninterruptible power supplies (UPS) is a thing of the past for Electronics Support Detachment Southwest Harbor. After decades of regular power interruptions and frequent, lengthy power outages, they have replaced 18 UPSs with an alternative, renewable energy source consisting of a 900 watt wind turbine and a solar panel array, capable of generating an additional 800 watts.

Problem The problem stems from an uneven electrical grid supply. ESD Southwest Harbor is located on an island at the end of the utility company's grid network, contributing to fluctuations in line voltage. The weather is also extreme -- high winds, heavy snowfall, freezing rain and sub zero temperatures all contribute to frequent loss of commercial power. To protect data and prevent damage to sensitive Command, Control, Communications, Computer and Information Technology (C4IT) Systems, it is necessary to install a UPS for each piece of equipment. The ESD found the average life cycle of a small UPS to be two to four years. In the past ten years, the ESD has disposed of more than 45 units, mostly due to battery failure.

Solution During one fierce storm, and the accompanying power outage, three civilian employees were looking out their window at the wind swept sea. Robert Parker, ESD's supervisor, commented, "We need to put up a wind turbine and make our own power." While in the background, another failed UPS beeped in agreement.

Renewable energy is not new to the Coast Guard. Solar panels light our Aids to Navigation (ATON), wave action produces the sound on bell buoys and wind once powered all of our ships. These systems have been working throughout the Coast Guard for decades. By using existing technology and drawing on their AtoN experience, ESD personnel researched, designed and installed an alternative energy system that fit their needs.

REUPS System ESD began examining their electricity demand, identifying power generating sources, and looking at cost. They needed reliability. The system they designed consists of a 900 watt, Whisper 100 wind turbine, 800 watts of solar panels, a Xantrex XW4024 hybrid power inverter and Trojan T-105 batteries. This hybrid system combines power produced by wind and by the sun, efficiently matching it to the shop's needs and economically replacing 18 individual UPS units.



Benefits There are many benefits to the REUPS system. Reliability is one of the most important. Power outages, power surges and standby generator exercises produce spikes that can damage computers and sensitive electronic equipment. This harmful potential has been eliminated with the REUPS system. Depending on the load, the Xantrex inverter applies the power being generated directly to the equipment, to the batteries for storage, or to resistive coils for heat. It can also be set up to put electricity back into the grid. The ESD has matched their energy demand with the REUPS power generating capability. When demand exceeds the power generated, stored electricity is drawn from the batteries. The Xantrex inverter also has a feature that allows "grid shaving." In the unlikely event that the system doesn't meet the power demand, electricity can be drawn from the electrical grid. As it is currently configured, the system features dedicated AC wall outlets ("green outlets") tied solely to the REUPS system.

Replacing individual UPSs with REUPS yields several benefits. It removes hazardous materials from office spaces as well as eliminating environmental and monetary costs of hazardous waste disposal. The battery bank in the REUPS system is easily expandable for storing a larger quantity of renewable power. They also have a lifespan of 10 to 15 years and a well defined recycling process.

REUPS currently produces 278 kilowatts of clean, renewable power each month. This is 26% of ESD's electrical consumption. This exceeds the goal of the Energy Policy Act of 2005 for all federal agencies to derive at least 7.5% of their electricity consumption from renewable sources. The system generates its own renewable energy, significantly offsetting commercial power consumption and lessening the demand on back up generators during power outages.

The REUPS project has not only provided a practical solution to ESD's commercial power problems, but has also set the stage for the Coast Guard's C4IT community to innovate towards environmental excellence. It has also provided a holistic view of energy management to several Coast Guard communities directly involved with the project.

By incorporating the past, ESD Southwest Harbor coupled the Coast Guard's historical use of renewable energy with recent technology to solve a significant problem. The REUPS system is reliable, cost efficient, and environmentally friendly. This system, producing clean power, replaces fossil fuel generated electricity thus reducing the Coast Guard's "carbon wake."

Coming to a Screen Near You

Logistics Transformation's Future

Coast Guard Visual Imagery: ***http://cgvi.uscg.mil/media/main.php?g2_itemId=460327***

CG Central: ***Strategic Initiatives> Logistics Transformation> A. LTPIO Overview> 00.**NEW** Logistics Transformation: The Future of Semper Paratus Video***

YouTube, CG Channel: ***http://www.youtube.com/watch?v=4u7ACBrku_o***