



# Delivering the Goods

News from the U.S. Coast Guard Acquisition Directorate

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## Mission Effectiveness Project Improves Performance of Aging Cutters, Bridges Gap until New Cutters Are Delivered

By Linda M. Johnson

WASHINGTON — The U.S. Coast Guard’s Mission Effectiveness Project (MEP) is significantly improving the mission capability and lowering the operating costs of in-service medium endurance cutters and patrol boats, thus bridging the gap between the aging fleet and the delivery of new assets.

Since MEP began in 2005, the project has consistently achieved its goals on time and on budget. As we approach the project’s midpoint, this is a fitting time to review some of the lessons learned and performance improvements achieved.

Under MEP, 20 of the 110-foot Island-class patrol boats, 14 of the 210-foot Reliance-class medium endurance cutters and 13 of the 270-foot Famous-class medium endurance cutters are expected to undergo extended refurbishment at the Coast Guard Yard in Curtis Bay, Md. The project consists of a series of extended shipyard availabilities funded from the Coast Guard’s acquisition, construction and improvement budget.

“MEP was not envisioned as a service life extension project, which would involve more extensive repairs or replacement of items like a ship’s main engines. Instead, MEP’s goal is to increase the mission effectiveness of selected cutters by driving down the number of equipment failures, thus resulting in increased operational availability,” explained MEP Project Manager Ken King.

MEP was designed as the most cost-effective way to provide equipment



Twenty of the 110-foot Island-class patrol boats, like the one being lifted here, are expected to undergo critical structural and equipment repairs at the Coast Guard Yard as part of the Mission Effectiveness Project. *U.S. Coast Guard photo*

upgrades and structural repairs that will maintain the core mission effectiveness of selected in-service patrol boats and cutters. By replacing obsolete systems, MEP helps improve the reliability and reduce future maintenance costs for legacy cutters.

“Back in 2003, naval engineers went aboard ships for inspections and determined what systems were causing the most problems and were the most expensive to repair. The prioritized list of engineering changes became the MEP work items,” King noted.

“One of the keys to our success has been doing the work at the Coast Guard Yard. It’s a win-win situation for everyone that allows the Coast Guard and the yard to plan a steady workload. MEP accounts for approximately 70 percent of the yard’s cur-

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rent workload,” King said. “Another key has been the oversight provided by the on-site Legacy Sustainment Support Unit (LSSU), which functions much like a Project Resident Office.”

Cmdr. Robert McClure, commanding officer of the 26-person LSSU, explained that MEP provides “triage, i.e. targeted repair, renewal and replacement of low reliability and obsolescent systems and subsystems. The MEP availabilities address critical engineering items needed to keep a ship operational and provide a bridge to asset replacement.”

Refurbishing the 110-foot patrol boats will help bridge the gap until the 153-foot Sentinel-class patrol boats are delivered, while refurbishing the 210-foot and 270-foot medium endurance cutters will help bridge the gap until the Offshore Patrol Cutters are designed and delivered.

“We repair and replace what we can to provide the best value to the operators and the public until new ships arrive and relieve these legacy cutters,” McClure said. “While not designed as a service life extension project per se, we anticipate gaining up to 15 years of additional useful life as a result of MEP.”

### **MEP Work Items & Schedule**

There are approximately 100 to 125 MEP work items for each cutter, all of which are considered hull, mechanical and engineering repairs. Some of the many work items include new electrical cables and switchboards; pump and motor replacements; new piping; upgraded hot water, refrigeration and HVAC systems; new fire detection and fire fighting systems; new emergency generators; and new life rafts. MEP does not include any command, control, communications or computer upgrades.

Approximately two to three weeks after all the work items are completed, which is called the end of industrial



The 210-foot Reliance-class medium endurance cutters *Resolute* and *Valiant* are shown undergoing a seven-month major systems refurbishment at the Coast Guard Yard near Baltimore as part of MEP. *U.S. Coast Guard photo*

work date, the ship is re-outfitted for sea and ready to sail away to its homeport.

So far, eight of the 20 110-foot patrol boats have completed MEP, with three boats currently undergoing MEP at the yard. Thanks to efficiencies achieved from prior MEP availabilities and based on detailed after action reports, the average length of time needed for a 110-foot patrol boat to complete MEP has been reduced to nine months from 12 months. The 110-foot patrol boats are scheduled to finish MEP in 2013.

Nine of the 14 210-foot cutters have completed MEP so far, with three cutters currently undergoing MEP at the yard. In 2008, the Coast Guard decided to accelerate the number of 210-foot cutters undergoing MEP to expedite the installation of a small crane known as a Welin-Lambie boat davit that facilitates deployment of over-the-horizon cutter boats. The 210-foot cutters, each of which needs an average of seven months at the yard to complete MEP, are scheduled to finish MEP late next year.

Seven of the 13 270-foot cutters have completed the first phase of MEP thus far. The 270-foot cutters

need an average of 11 months at the yard to complete all MEP work items. Six of the 270-foot cutters have completed the first six-month phase of MEP and one cutter has completed a three-month minor MEP. These seven cutters will return to the yard for a final six-month MEP availability. The remaining seven 270-foot cutters will undergo a single 11-month MEP availability. The 270-foot cutters are scheduled to finish MEP in early 2014.

“If you look at the performance metrics calculated by the U.S. Department of Transportation’s Volpe Center, you’ll see MEP gives you a lot of bang for the buck,” King explained. MEP has provided “dramatic improvements” in both the percentage of time a ship is free of major repairs or casualties, and the percentage of time a ship is fully mission capable. According to the Volpe National Transportation Systems Center, both of these percentages essentially doubled for each class of ship between 2006, before MEP availability, and 2008, after MEP availability.

In addition, the Acquisition Directorate and the Engineering and Logis-

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tics Directorate are partnering to investigate the potential of replicating MEP for other aging cutter classes, such as the 378-foot Hamilton-class high endurance cutter, the 140-foot Bay-class ice-breaking tugs, and the 225-foot Juniper-class and 175-foot Keeper-class buoy tenders.

"MEP is a great model for future mid-life refurbishment projects and an efficient way to spend taxpayers' dollars," King said. "As MEP winds down for the 110's,

210's and 270's, we're hoping to slide in in-service cutter sustainment projects for the 378's, 140's, 225's and 175's in the future, depending on funding."

McClure and Assistant Commandant for Acquisition Rear Adm. Ronald J. Rábago will talk about the project's tremendous success when they present a paper entitled "The Coast Guard's Mission Effectiveness Project – A Readiness Success Story" at the American Society of Naval Engineers's Fleet Maintenance and

Modernization Symposium in San Diego in September.

In addition to the lessons learned and efficiencies achieved, the paper also highlights the successful use of a multi-crewing approach to crew assignments once a cutter begins MEP. This multi-crewing approach means that the original crew returns to the cutter's homeport for training and then spends at least one patrol on another cutter instead of living and training aboard the cutter while it undergoes MEP. ■

## First Lady Michelle Obama to Sponsor Third National Security Cutter, *Stratton*

First lady Michelle Obama will serve as the sponsor of the U.S. Coast Guard's third National Security Cutter *Stratton*, marking the first time in U.S. history that a first lady has sponsored a Coast Guard cutter.

Obama's initials were engraved onto a steel plate at the keel laying ceremony celebrating the beginning of the *Stratton's* construction held at the Northrop Grumman Shipbuilding facility in Pascagoula, Miss. The *Stratton* is named for Capt. Dorothy Stratton, who led the first Coast Guard Women's Reserve during World War II.

As the sponsor, the first lady will be involved in the life of the *Stratton* (WMSL 752), which is now more than 20 percent complete. This is Obama's first formal association with a U.S. Coast Guard cutter. Serving as the *Stratton's* sponsor is an extension of her commitment to supporting American men and women in uniform and their families.

"I am honored to serve as sponsor of the Coast Guard Cutter *Stratton*, named after one of the most extraordinary women to serve our nation in uniform," said Obama. "Every day, the United States Coast Guard keeps our families and communities safe at



Rear Adm. Ronald J. Rábago, assistant commandant for acquisition, helps weld first lady Michelle Obama's initials onto the keel of the third National Security Cutter, *Stratton*. This is the first time a first lady has sponsored a Coast Guard cutter.

*U.S. Coast Guard photo by Petty Officer 3rd Class Casey J. Ranel*

home and contributes to the defense of our nation overseas. This vessel will embody the strength of today's military and the enduring courage of our Coast Guard men and women."

"The keel laying is a significant event in our surface acquisition program," said Rear Adm. Ronald J. Rábago, assistant

commandant for acquisition. "We are especially proud and honored that this ship will be sponsored by the first lady. With a legend like Dorothy Stratton as its namesake, our first lady Michelle Obama as its sponsor and a dedicated and courageous crew of Coast Guard

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men and women, this ship is destined to do great things.”

The 418-foot National Security Cutter (NSC) is the largest and most technically advanced class of cutter in the Coast Guard, with robust capabilities for maritime homeland security, law enforcement and national defense missions. Each NSC will be named for a Coast Guard legend. The first two NSCs are named for former commandants Adm. Ellsworth P. Bertholf and Adm. Russell Waesche respectively. The fourth NSC is named for Founding Father and first U.S. Secretary of the Treasury Alexander Hamilton.

Earlier this year, the Coast Guard formally accepted the first NSC, *Bertholf* (WMSL 750), which recently conducted its first successful narcotics trafficking interdiction off the coast of Guatemala. The *Bertholf* is now conducting its first fisheries enforcement patrol off the coast of Oregon and Washington.

The second NSC, *Waesche* (WMSL 751), is approximately 90 percent complete and recently completed a series of tests and evaluations known as builder’s trials. Conducted by ship-builder Northrop Grumman Ship Systems and overseen by the government, the trials included both pier-side and at-sea machinery and equipment tests designed to demonstrate *Waesche*’s seaworthiness.

Long lead time materials for the construction of the fourth NSC, *Hamilton* (WMSL 753), have been procured. When complete, the Legend-class will be comprised of eight NSCs, which will be the most technologically advanced class of ship in the service’s history and will bring new levels of mission capability to the Coast Guard’s fleet.

Stratton was the first woman accepted into the Coast Guard’s Women’s Reserve, or SPARs, in 1942 as a commissioned officer. During her four

years as director of SPARs, Stratton recruited and led 10,000 enlisted women and 1,000 commissioned officers.

Stratton is credited with coining the name SPARs as a contraction of the service’s motto “Semper Paratus” and its English translation “Always Ready.” She and her colleagues helped the Coast Guard live up to its motto by working to ensure the service was ready for front-line sea duty during America’s war effort. Members of SPARs fulfilled many vital roles during the war and their efforts helped pave the way for women to serve throughout our armed forces today.

Stratton also served as a professor and dean for women at Purdue University in Indiana. She died at the age of 107 in 2006. ■

Dear Master Chief Ayer,

**Q. Why are our new cutters so much larger than our old ones? The National Security Cutter is 418 feet long. It seems like we could save money by buying smaller ships.**

**A.** There is a saying in the shipbuilding business, length happens.

The ships we buy are based on current and projected mission needs, not what we have used in the past. So unless we’re building a ship to fit a specific pier or to travel through the Panama Canal, we do not start our design work with length in mind.

So how do we do it? We start by working with our sponsor on a mission and operational analysis and then develop a mission needs statement. In other words, we don’t look at what we’re already using. We look at what we need to accomplish the mission.

Once we know our intended mission, we can look at the limiting factors, which can include the depth of water in the intended operations area, required speed, endurance, habitability, etc. All of these factors can have a direct effect on a ship’s length.

For example if we need to increase endurance, we must increase fuel capacity, which will in turn increase the amount of displacement. If we need to increase displacement, we will either have to increase draft, beam or length. Habitability is also a driving factor. Better berthing, space for workout equipment and additional bathrooms and showers all take space. I think you can see where I am going...

In the end, we try to balance mission needs, platform requirements and value for the American public. Can we save money by buying smaller ships? Sure, but we wouldn’t be buying what we need to do the job.

— MCPO Brett F. Ayer, Command Master Chief, Coast Guard Acquisition Directorate

[To submit a question for an upcoming Acquisition Directorate newsletter, please email Master Chief Brett F. Ayer directly at: [Brett.F.Ayer@uscg.mil](mailto:Brett.F.Ayer@uscg.mil) or [acquisitionwebsite@uscg.mil](mailto:acquisitionwebsite@uscg.mil).]

