

# QUARTERS Quarters

## NAVY TESTS DAMAGE CONTROL "WAVE OF FUTURE"

# DC-ARM

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**"M**issile hit, starboard side! We have major fires in the communications center, crew living and combat information center; firemain rupture, second deck starboard passageway; auxiliary machinery room number one flooded, with progressive flooding into main machinery room number one!"

The alarm resonates in damage control (DC) central as computer screens light up, identifying fires and flooding throughout the forward section of the ship. Before anyone can fathom the impact of the damage, sensors cause the damaged compartments to be sealed off by automatic fire and flooding boundaries. A computer then begins providing suggestions to the damage control assistant (DCA) as to a recommended course of action. All this happens within a matter of seconds. This capability may soon be available on every ship in the Navy.

It's called Damage Control-Automated Reduced Manning (DC-ARM), and while one of the driving factors behind the system was to reduce the operating costs of future Navy warships by reducing crew size, it's become much more.

"It's gone a little bit further than that now," said CWO4 James Buchanan, one of the Naval Research Laboratory (NRL) engineering technicians developing the system. "It also enhances the survivability of the ship. The systems just create an atmosphere for damage control to be more effectively used aboard ships."

The DC-ARM program sponsor is the Office of Naval Research. The NRL's Navy Technology Center for Safety and Survivability (NTCSS) manages the program.

The system features sensors throughout the ship monitoring everything from smoke and heat levels in a compartment to water levels.

The sensors communicate with a computer in DC central so watchstanders can instantaneously monitor the status of every compartment on the ship from one central location.

Video feeds from around the ship provide information as backup to the sensors. If sensors register damage to a section of the ship, in addition to those compartments lighting up on computerized plotting boards, DC central also gets instant, real-time pictures of the compartments. This helps to enhance decision-making. The DC-ARM



Supervisory Control System (SCS) in DC central also gives the DCA automated recommendations on how to most effectively deal with the situation, further enhancing the decision-making process.

Recent tests of the new technology included wartime damage and fire scenarios replicating the damage expected from an anti-ship missile hit — one of the most stressing damage control events. The damage included structural damage, damage to accesses, firemain damage, damage to sensors and control systems, major fires, smoke and flooding.

Fleet personnel participated in the live fire and flooding tests, exercising the DC-ARM systems in a realistic shipboard damage environment aboard the decommissioned USS *Shadwell* (LSD 15), which is moored in Mobile Bay, Ala. The LSD now serves as the Navy's full-scale damage control research, development, testing and evaluation platform. LCDR Mike

Giannelli experienced

the DC-ARM SCS first-hand as he played the role of DCA during the tests and demonstrations.

"Some of the things I see that are improvements are some of the recommendations that the system automatically gives you," Giannelli said. "The automated plotting from the sensors — not from a human intervention sort of thing — gives you more accuracy.... That information, combined with the video, provides you proper information, so you don't always have to rely on that human interface. If it says it's cool in there or hot in there, and you look at the video and it either shows the fire or shows that the water mist was activated, and you can see the space temperature. It makes sense. So all that information is available there to you."

"The advantage is a quicker response time to contain the casualty," said Ryan Downs, an engineer with MPR Associates, just one of several contractors involved with the development of the new system. "Whatever actions the DCA would normally begin 10 or 20 minutes down the road after waiting for investigators to report back, he can begin almost immediately."

One of the most critical elements of dealing with a shipboard casualty, especially in the case of major fires, is setting boundaries to keep the damage from spreading.

"Most casualties are very beatable when appropriate action is taken within a short period of time," Downs said. "If you can dispatch personnel and maintain boundaries within the first five minutes, you're almost guaranteed to minimize the spread of the fire."

Traditionally, personnel are dispatched to the scene to set manual boundaries. Often, this takes longer

than the five-minute window, and it puts lives at risk by sending them in to a potentially hazardous environment, but not with DC-ARM.

“The majority of the boundaries in this system can be maintained with water mist, a high-pressure, fine-water spray system monitored and controlled by the supervisory control system,” Downs said. “The DCA only has to use one or two people to complete the fire boundary, as opposed to the traditional way where he was required to use 10 or 12 people to maintain containment around the fire.

Once the fire is contained, attack teams can begin fighting the fire in the primary damage area. During the testing of DC-ARM, firefighting teams from USS *Ticonderoga* (CG 47) had the challenge of putting out the blazes set throughout *Shadwell*. Since the *Shadwell* testing team makes the damage control scenarios as realistic as possible, the *Ticonderoga* crew had a very intense experience.

“This is probably some of the best training these guys are going to get, the closet thing to a real-life ship-board fire,” said LCDR William Hesse, *Ticonderoga’s* executive officer and one of the hose-handlers during the testing. “It exceeds any trainer that we have right now, just from the realism standpoint.

“Certainly, the systems we tested here, such as the water mist system, are a viable option and from what we observed, probably a great way to go, definitely the wave of the future. I definitely think the incorporation of these systems will allow ships to decrease manning, which will certainly be a cost-saver, but also, while decreasing manning, when these systems are installed, the ships are going to be safer,” Hesse concluded



▲ A member of the decommissioned USS *Shadwell’s* (LSD 15) safety team monitors a main space fire just prior to a demonstration of the water mist extinguishing system. (JOC David Crenshaw/USN)

# QUARTERSTEPS

▼ CAPT Douglas Rau, Navy Research Lab's commanding officer, explains the monitoring systems in the "damage control (DC) central of tomorrow" to visitors aboard the decommissioned USS *Shadwell* (LSD 15), prior to a full-scale testing of the DC-Automated Reduced Manning system. Computerized display screens give instantaneous reports to DC central personnel of damaged compartments throughout the ship. (JOC David Crenshaw/USN)



▲ Thanks to the supervisory control system, the damage control assistant receives instant reports of damage throughout the decommissioned USS *Shadwell* (LSD 15). (JOC David Crenshaw/USN)



It will be safer because the DC-ARM system also incorporates smart-valve technology. Sensors in the valve detect sudden changes in flow, registering a break and potential flooding. The valves then automatically close or open, isolating the damaged section and rerouting flow so critical systems — such as fire-main — remain fully functional. These are the type of systems NRL is demonstrating.

“What we’re demonstrating is a much smaller crew than I was ever

used to in damage control, and they’re doing a more efficient job of combating fires and combating flooding,” said CAPT Douglas Rau, NRL commanding officer. “All of this is very reassuring that we’re going in the right direction for our ships of the future and for our ships in the fleet today, to give our Sailors a better capability to respond to damage control.”

“We’re trying to accomplish a general wholesale improvement in ship survivability and recoverability from

a damage control standpoint, even chemical and biological, and of course fire and flooding aspects,” said Dr. Fred Williams, NTCSS director and technical director of *Shadwell*. “We certainly hope it improves their ability to go in harm’s way, improves the ship’s ability to fight and to recover, and most importantly, decreases the loss of life in damage situations.”  

# SPOTLIGHT

## USS *Cormorant* corpsman selected Atlantic 'Sea Sailor of the Year'

**"T**his is unbelievable!" said HC1(SW/FMF) William Burrell as ADM Robert Natter, Commander in Chief, U.S. Atlantic Fleet, announced Burrell's selection as the 2002 Atlantic Fleet "Sea Sailor of the Year" at a banquet in April. "I am humbled to be in the same company of the other nominees. This really is an honor."

RADM Jay Foley, Commander, Naval Surface Force, U.S. Atlantic Fleet (SURFLANT), nominated Burrell for the award from a field of seven finalists, who had been selected from 116 top Sailors representing all ships under SURFLANT. He praised Burrell as one of the best the nation has to offer.

"Since Sept. 11, much has been demanded of us in uniform," said Foley. "Much more will be expected. But with Sailors like you, I know we'll answer the call. I am proud to wear the same uniform as you do, and I'm proud to serve with you."

One of the Sailors who serves with the corpsman aboard USS *Cormorant* (MHC 57) also thinks very highly of the Sailor of the Year.

"HM1 Burrell is an all-around Sailor," said QM1(SW) Larry

Williams, a 13-year Navy veteran and *Cormorant's* assistant navigator. "He's motivated and doesn't give up. Family is [also] very important to him."

Burrell cited his love of family as a driving force in his life and career.

"My wife, Brenda, is my best friend," said Burrell, a native of Germantown, Wis. "We were both hospital corpsmen, but since starting a family, she's dedicated herself to our kids."

They have three children — Joseph, 4; Stephen, 3; and Brooke Marie, 8-months. The two met while assigned to the Marine Corps Base at Quantico, Va.

What advice would Burrell have for his children if they were joining the Navy?

"Think of the Navy like an individual retirement account. You get out of it what you put into it. The more you put into it, the more you'll get out of it," Burrell said. "I'm starting to see some returns on my investment now!"

It's also important to be proud of the uniform and of the sacrifice of those who wore it according to Burrell. "Always be mindful of the people who wore it before you."

(JOC Patrick Schuetz, U.S. Atlantic Fleet public affairs; LT Marc Boyd, Mine Warfare Command public affairs, and Naval Surface Force, U.S. Atlantic Fleet, public affairs contributed to this article.)



▲ SN LaNecia Thompson (top from left) and MSSN Luis Martinez observe as HC1(SW/FMF) William Burrell explains the proper procedure to place simulated victim (YNSN Audrey Jennings) in a stretcher to IT3 Mark Pacheco and ET3 Alexander Rosado aboard USS *Cormorant* (MHC 57). (LT Marc Boyd/USN)

# WHAT IT TAKES

# Master-at-Arms



By JO2 Bashon Mann  
Navy Recruiting Command public affairs

**U**.S. military forces worldwide are on heightened security in the aftermath of the terrorists' attacks of Sept. 11, 2001. Security is a top priority for law enforcement, especially for the armed forces. The need for additional master-at-arms (MA) personnel to protect our Navy is a necessity, so the Navy is increasing the number of personnel with the MA rating to approximately 9,000 Sailors.

Rising to the challenge of recruiting qualified men and women into this rapidly expanding rating, the Navy established its own MA schools in fleet concentration areas, such as Norfolk, Va., San Diego and Kings Bay, Ga. The Navy also recently opened the MA rating to entry-level personnel.

"We are taking E-3 to E-6 personnel with no more than 16 years of service," said MAC(SW) David Bruce, the assistant enlisted community manager for the MA program.

Non-designated SN, AN or FN who desire to participate in the MA3 exam must first request assignment and subsequently graduate from MA "A" School prior to taking the Navy-wide MA3 exam. The instruction covering conversion to the MA Rating, MILPERSMAN 1440-010, can be obtained from the Legal/Law Enforcement Community Manager web page located on the Bureau of Naval Personnel web site at [www.bupers.navy.mil](http://www.bupers.navy.mil). This instruction contains all the qualifications that a candidate must meet prior to applying to the school or becoming an MA.

▼ MA1 Diego Flores, from USS *Anzio* (CG 68), helps GM2 Anthony Garfi aboard the Danish Frigate HDMS *Peter Tordenskiold* (F356) to practice maritime interdiction operations on the Baltic Sea. (PH2 Shane McCoy/USN)



"Active duty Navy personnel interested in cross-rating into the MA program should confer with their command career counselor for current requirements," said LT Todd Carpenter of the Navy's Recruiting Command.

Navy Recruiting is helping to fill the MA ranks, which will be a multi-year undertaking. And even though the MA field is expanding, the rigorous requirements remain the same.

"Sailors in master-at-arms 'A' school have to pass weapons qualifications on the first try, maintain their PRT [physical training] standards, and pass all their written exams in courses which cover physical restraints, search and seizure, writing incident reports, the Uniform Code of Military Justice, and domestic violence training," explained MACS Cheryl Patterson, USS *Belleau Wood's* (LHA 3) assistant physical security officer. "We have to

look sharper and follow and adhere to the regulations we're expected to enforce. It's a lot of pressure for a young Sailor."

One of those young Sailors is *Belleau Wood's* MASN Tara Wolfe, who stated, "I'm just proud to wear the uniform and want to display good morals as a military cop."

MA2 Jeffrey Peterson, a command investigator for Commander, Fleet Activities Sasebo, recently converted to military cop.

"MAs are the most squared-away Sailors in the Navy," said Peterson. "They set the standard, and they're the Navy's model of core values. I saw this... and consequently the MA rating is where I wanted to make my mark."

*(The Chief of Naval Personnel public affairs office and JO3 Jeffrey Fretland of USS Belleau Wood contributed to this article.)* 



## NOW HEAR THIS...

### USS *Klaking* takes part in record drug bust

While assigned to Director, Joint Inter-Agency Task Force East and Commander, Naval Forces, U.S. Southern Command, USS *Klaking* (FFG 42) helped keep a record amount of drugs off the streets.

It began when a P-3C *Orion* from VP-45 discovered a smuggling boat well outside of the normal shipping and fishing lanes. *Klaking* deployed its own helicopter to gather further intelligence. When markings on the small boat matched those of a known smuggling boat, the ship moved in to intercept.

The embarked Coast Guard unit approached in a rigid-hull inflatable boat, boarded and inspected the suspect craft. In a lower hold, they found hundreds of bales of cocaine. The Navy and Coast Guard team recovered an estimated \$300 million of cocaine from the boat, the second largest bust in drug enforcement history and the largest ever done at sea.

The Coast Guard detained and moved the nine-man crew to a holding area on *Klaking*. After trying to navigate the boat back to port, *Klaking* Sailors declared it unsafe to operate and a navigation hazard, and they sank it shortly after removing all evidence and personal effects.



USS *Klaking* (FFG 42) recently helped keep an estimated \$300 million worth of cocaine off the streets.  
(J03 David Valdez/USN)

### USS *Lake Erie* officer wins SNA award

The Surface Navy Association (SNA) awarded LCDR Eric Cash of USS *Lake Erie* (CG 70) its prestigious Arleigh Burke Award at its annual national symposium in Washington, D.C.

Cash received a certificate of superior achievement in recognition of his pioneering efforts helping to develop Theater Missile Defense, a major mission area for the United States Navy in the 21<sup>st</sup> Century.

SNA established the award in 1985, and its purpose is to promote greater coordination and communication among those in the military, business and academic communities.

# Navy takes delivery of two destroyers

The Navy took delivery of its newest *Aegis* guided-missile destroyers, pre-commissioning unit (PCU) **Shoup** (DDG 86) from Northrop Grumman Ship Systems and PCU **McC Campbell** (DDG 85) from Bath Iron Works.

**Shoup** is the first *Aegis* destroyer to conduct only one at-sea trial. It conducted the second trial afterward pierside. Previously, each ship underwent two separate sea trial evolutions underway in the Gulf of Mexico. Under the new schedule, the Navy Board of Inspection and Survey has representatives



PCU **McC Campbell** (DDG 85) undergoes construction pierside at Bath Iron Works in Maine. (Bath Iron Works)

aboard for the single at-sea trial to conduct the inspections and tests required while the ship is underway.

“By conducting only one of the ship’s two trial periods at sea, we save on fuel and on the costs associated with having a company and Navy workforce at sea,” said Dr. Phil Dur, Northrop Grumman Ship Systems’ president. “All of these costs are eliminated for us and the Navy. It’s a win-win for the company, the Navy and the American taxpayers.”

**McC Campbell** also broke new ground by becoming the first Bath-built ship to combine “builder’s and acceptance trials.”

Indicative of the trials’ success, **McC Campbell** and **Shoup** displayed two brooms, signifying a “clean sweep” upon their return to the shipyards.

PCU **Shoup** (DDG 86) moves from dry dock to pierside in Pascagoula, Miss., where final construction and testing were done before the Navy accepted delivery. (PCU **Shoup**/USN)



## Support ship doubles UNREPs

USS **Detroit** (AOE-4) recently returned home to more than 600 cheering friends and family members at Naval Weapons Station Earle, N.J., following its deployment in the war on terrorism. While away from home, the crew of the fast combat support ship completed 165 underway replenishments (UNREPs) along with numerous vertical replenishments and cross-deck transfers, mostly in support of Operation *Enduring Freedom*.

**Detroit** completed twice as many UNREPS during this recent deployment than during its last two deployments combined. That hard work probably helped the ship earn its recently presented Battle Efficiency Award. Most of the crew knew it would be a hard deployment because the ship departed Sept. 11, 2001.

On that infamous day, **Detroit** prepared for departure pierside at Earle. Located across New York Bay from Manhattan, some of **Detroit’s** crew watched in horror as the second plane hit the World Trade Center and saw the smoke as the two buildings collapsed. The ship immediately began preparations to get underway.

“Sailors were running down the pier to get aboard, not knowing whether their loved ones were safe,” said CAPT Noriann Reed, **Detroit’s** commanding officer.

Leaving within six hours of the second terrorist attack, the ship did not return home for nearly seven months, first supporting Operation *Noble Eagle* in defending America’s eastern seaboard, and then *Enduring Freedom*.



USS **Detroit** (AOE 4) conducts operations in the Red Sea. (PHC Eric Clement/USN)