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RADM Johnson Awards NAVFAC Military and Civilian Engineers of the Year

Rear Adm. Michael R. Johnson, Chief of Civil Engineers and Commander, Naval Facilities Engineering Command (NAVFAC), announced the selection of the 2003 NAVFAC Military Engineer of the Year and the Military Engineer of the Year.

An award ceremony was held Feb. 20 at NAVFAC headquarters on the Washington Navy Yard.

"I am pleased to announce that Richard T. Mathews from ROICC Portsmouth was selected as the Civilian Engineer of the Year and Cmdr. David B. Cortinas, CEC, USN, from LANTDIV, was selected as the Military Engineer of the Year," RADM Johnson's congratulatory message said in part.

Mathews is a Registered Engineer in the Commonwealth of Virginia. His engineering solutions to complex and often one-of-a-kind construction problems highlight his career. Key among his accomplishments is his solving numerous problems and leading a \$52

million contract to modernize the waterfront at the Norfolk Naval Shipyard — at a time when keeping the nuclear shipyard fully operational was a construction challenge.

Cortinas is a Registered Engineer in the State of California. He served as public works officer (PWO) for Norfolk Naval Shipyard and Caribbean operations officer (COO) for NAVFAC LANTDIV.

As PWO in Norfolk, he masterfully executed \$62 million of facilities maintenance, repair and minor construction that resulted in a 55 percent reduction in critical maintenance backlog. Additionally, he coordinated \$49 million worth of essential and complex construction projects.

As COO, he led efforts to plan, design and construct a 320-cell expeditionary detention facility for Taliban and al Qaeda detainees in Guantanamo Bay, Cuba.

Both engineers have

exemplary and highly distinguished careers incapable of being encapsulated here.

These brief examples of their superior work mark them as worthy recipients of their awards and outstanding members of the engineering profession.

In other award news, RADM Johnson announced the selection of LT Miguel Dieguez, CEC, USN, to receive the Sverdrup Medal for 2002.

This award is given annually by the Society of American Military Engineers (SAME) to an active duty officer, 36 years or under, in recognition of outstanding engineering contribution to SAME, the military service, or the Nation.

As EFA Chesapeake AROICC Annapolis, LT Dieguez drove the execution of the Bancroft Hall renovation projects at the United States Naval Academy. Thanks to LT Dieguez, this complex, multi-year \$250 million renovation project was on track for completion in May 2003. 🌐

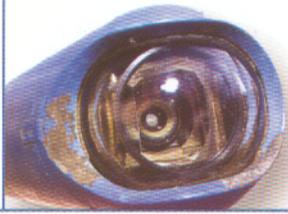


NMCB 4's Baldwin receives 2002 Moreell Medal

LCDR Joel Baldwin received the 2002 Moreell Medal for performing superbly as the operations officer of NMCB 4 and executive officer of a 325-person Naval Construction Task Group (NCTG) deployed to the Philippines in support of *Operation Enduring Freedom*.

Baldwin demonstrated extraordinary leadership and ceaseless energy while preparing the battalion's air detachment for the mission. Upon arrival, he assumed the leadership role to improve mobility for construction operations. He worked closely with local community leaders to complete over 40 miles of road improvements, enabling a quick response to terrorist activities.

He negotiated with the Philippine officials to allow clearing and restoring of a 1940s-era airstrip for direct re-supply flights. Operating in a hostile area with U.S. Marines engaging in firefights, he led Seabees to restore the 3600-ft airstrip in only 14 days. Additionally, the NCTG built camp facilities for the Marines and Army Special Forces. 🌐



Up periscope!

NAVFAC Southwest Division keeps an eye on history

STORY BY BILL MANLEY
PHOTOGRAPHS BY PH2 FREDERICK McCAHAN

At about 10:30 a.m. on Sept. 12, 2002, the U.S. Navy retrieved a World War II-era German periscope from a pit 50 feet beneath the floor of the former Arctic Submarine Laboratory on Point Loma, Calif., and prepared it for cross-country shipment to the Museum of Science and Industry (MSI) in Chicago.

It was the culmination of efforts by NAVFAC Southwest Division personnel over 18 months to preserve the scope, which functioned as laboratory equipment in the Navy's Arctic Submarine Laboratory (ASL) from the 1950s until the building closed in 1992.

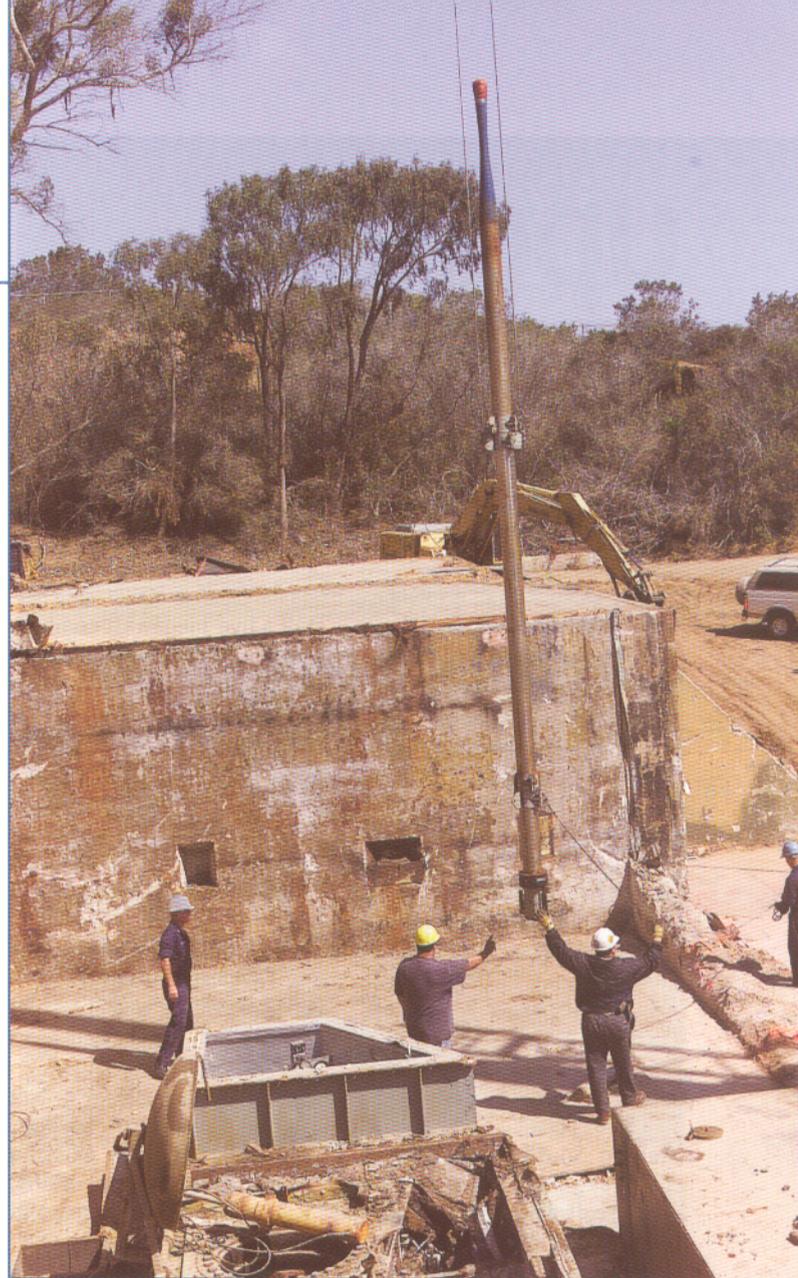
The significance of the periscope in the lab came to be recognized by the Navy's Cultural Resources Program during preparations to demolish the lab building. The Navy immediately initiated efforts to preserve the periscope and return it to the sub, which has been a display at MSI for many years. The ASL was itself recognized as a historic site eligible for the National Register of Historic Places for its exceptionally significant role in the history of the Cold War.

There are two primary reasons why the periscope came to be used in the lab. First, when the war ended, the U.S. actively sought out a wide range of captured assets, both for investigation and reuse. The second is that lab staff were masters at salvaging and reusing materials and equipment to build and operate the lab.

The U-505 is a German World War II Type-IXc, built in Hamburg Germany in 1941. It was captured in battle on the high seas by boarding parties from the *USS Guadalcanal* (AVC 60) task group 22.3 on June 4, 1944.

There is evidence supporting a conclusion that the periscope originally was on the U-505, an *Unterseeboot* of historic significance as the only German submarine captured at sea by U.S. forces during WWII. After the war, when the Navy had exhausted the sub's research potential and removed reusable equipment, plans were made to use the U-505 for target practice. The periscope was appropriated for reuse in the ASL.

The sub wasn't destroyed, though, and it sits on the



east side of the MSI not only as an exhibit, but as a memorial to more than 55,000 American Sailors and merchant mariners who lost their lives at sea in two world wars. In 1989 the U-505 was designated a National Historic Landmark.

Since 1954 more than 23 million visitors have toured the U-505. The museum is constructing a new building to enclose the U-505 and new interpretive displays, including the periscope.

The Navy is proud to preserve this significant piece of history. Its interpretation within the

Museum of Science and Industry will add unique insights into little-known but important elements of 20th century American history. In doing so, we honor Dr. Waldo Lyon and his staff, whose dedication and commitment to research and development in Arctic Submarine Laboratory made, and continue making today, major contributions to the safety and security of the nation. 🌐

For more information:

- > www.fransorb.com/cve60.htm
- > www.msichicago.org/exhibit/U505/U505home.html

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Shocking electrical savings are flowing at NAB San Diego

Utilities management is key to the Navy's ability to save money. Through innovative contracts and smart energy savings measures, Navy Region Southwest weathered the daunting California power crisis without interruptions of service or paying stratospheric prices. In the past two years, personnel from PWC San Diego have won two prestigious Federal Energy and Water Management Awards.

In FY02, NAVFAC awarded \$169 million in energy projects that provide annual savings of \$23.5 million, 1,099,615 mBTUs in energy and save 241 million gallons of water.

In October 2002, Navy Region Southwest deployed the largest federal solar photovoltaic power generation system in the nation. The 750 kW array was developed as part of an Energy Savings Performance Contract (ESPC) project at Naval Base Coronado in San Diego.

The installation is comprised of two contiguous solar arrays covering a half-mile-long carport parking structure for Navy personnel.

In addition to providing shelter for parked cars, the system produces electricity during most days equivalent to that used by 950 homes.

The estimates suggest the array will generate as much as 1,244,000 kWh per year, and save an estimated \$228,000 in annual operating costs by avoiding purchases of expensive peak electricity.

Another example of forward thinking is the Portsmouth

Naval Shipyard Regional ESPC. On Aug. 30, 1999, the Energy Service Company (ESCO) invested \$10.9 million to install a five-megawatt combustion turbine co-generation system providing year-round electricity and steam generation, and also to make improvements in the shipyard's heat distribution systems.

ROICC Portsmouth coordinated the contract and provided key construction oversight.

On June 28, 2002, a second task order was signed in which the ESCO will invest an additional \$32 million in upgrades at the shipyard.

This ESPC project offers some important efficiencies:

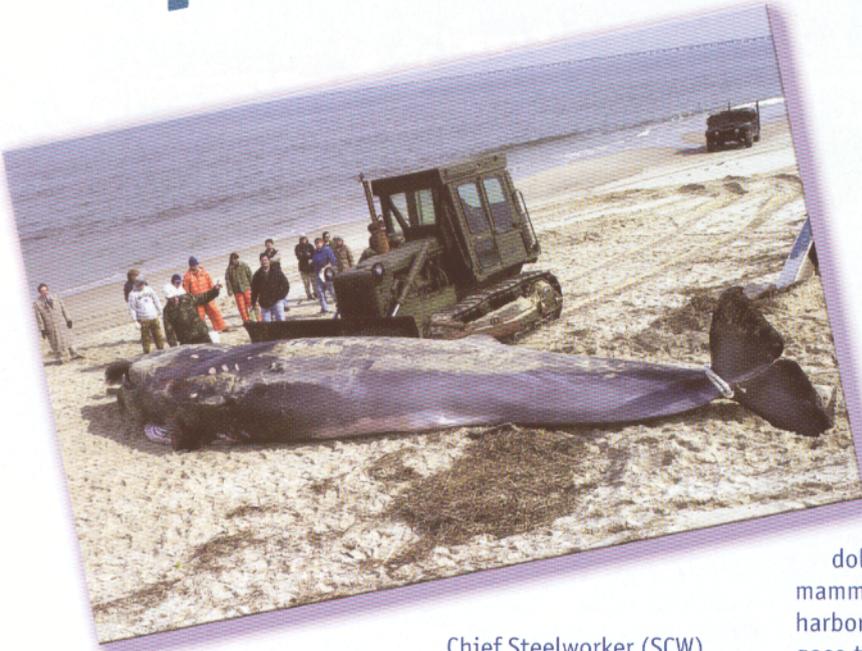
1. Modernize the existing central power/steam plant, raise its overall efficiency and streamline plant operations
2. Eliminate redundancy in thermal energy distribution systems
3. Provide needed improvements and increased reliability to power systems
4. Eliminate in excess of \$19 million in future required repair and replacement projects for old systems
5. Provide annual preventative maintenance to new systems in order to maintain equipment performance and long-term persistence of savings.

The project is an effective NAVFAC Design-Build project. It comprises a major upgrade of the power plant and its capacity — and results in an annual savings estimated at a healthy \$5.3 million. 🌐





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Seabees assist maritime crew with drifting whale

The normal calm of Naval Amphibious Base (NAB) Little Creek's beach line was interrupted when Seabees from Construction Battalion Unit (CBU) 423 brought a 36-foot *Sei* whale ashore, found dead by Coast Guard officials floating near Craney Island in the Elizabeth River.

Bulldozers were used to dig a grave for the large mammal, its final resting place after being held at Naval Station Norfolk the night before. They also set the stage for members of the Virginia Marine Science Museum's Stranding Team to perform a necropsy to determine the whale's cause of death.

"We hooked a towline to one of our D-7 bulldozers and essentially dragged the whale onto the beach," said

Chief Steelworker (SCW) Scott Hill, Alpha Company chief for CBU 423. "The evolution couldn't have gone any smoother — it went off without a hitch."

An examination determined that the whale died after being struck by the bow of a ship, possibly as long as a week before it was found. There was no way of knowing whether the ship was military or civilian, but it was indeed a large vessel.

"We came to the Navy for help in this, and they definitely came through," said Sue Barco, who led the team performing the necropsy. "This species is usually found in the open ocean. The whale could have been carried by the ship into the harbor, then dropped off after the ship slowed. The examination is consistent with a ship strike while the animal was alive."

The Navy has long been known to assist the civilian and maritime communities

in various search, rescue and salvage operations — but whale carcass removal?

"Not since I've been here, but I know that NAB has assisted with dolphins and other water mammals who drift into the harbor," said Hill. "It just goes to show you that we're up for just about any task put before us."

The whale's actual time of death and physical causes will ultimately be determined after several days of tissue and blood analysis.

CEC officer's school team wins with 'Future City'

Since the beginning of the 2002-2003 school year, USSTRATCOM's LCDR Freddie L. Bazen Jr., CEC, had been mentoring a team from Mission Middle School, Bellevue, Neb., in the 2003 National Engineers Week Future City Competition. Their hard work paid off when, with more than 30,000 students competing from more than 1,000 schools nationwide, Bazen's team won first place in the national competition.

Their winning "Candeo Glacia" city plan offered unlimited opportunity, high-quality living and

innovative technology. Industrial activity centered on clean and inexpensive hydrogen power production. The name Candeo Glacia means "glowing ice," referring to a proposal that hydrogen fuel would be extracted from underwater methane deposits.

The Future City Competition is a national program sponsored by the engineering community to promote technological literacy and engineering to middle school students. The program fosters an interest in math, science and engineering through hands-on, real-world applications. Competitive teams are comprised of a three-student squad, a teacher sponsor and an engineer mentor.

To find out more about how you can get involved in this outstanding program, interested Civil Engineer Corps officers should contact their local middle school, engineering society, or the national coordinator, Carol Rieg at (301) 977-6582. Or, visit the Future City Web page at www.futurecity.org. 

Seabees Deploy to Arabian Gulf



Seabees are deployed to the Arabian Gulf region in support of *Operations Enduring Freedom* and *Iraqi Freedom*.

As buildup in the region continues, hundreds of additional Seabees are expected to continue flowing forward to the Gulf region, according to First Naval Construction Division (1NCD) public affairs officer Daryl Smith.

Based in Norfolk, Va., 1NCD is the new Seabee central command established in August 2002.

"Historically, Seabees have been at the tip of the spear in every major U.S. military operation since World War II," Smith said. "When large numbers of U.S. forces deploy, they need infrastructure to be built, such as roads, bridges, airstrips

and camps."

Naval Mobile Construction Battalion (NMCB) 4 and Naval Construction Force Support Unit 2, Port Hueneme, Calif., along with NMCB-133, Gulfport, Miss., have received orders to deploy to the Arabian Gulf area. In addition, more Seabees from Construction Battalion Maintenance Unit 303, based in San Diego, received deployment orders to augment members of their unit already in the region.

Seabees from NMCB 133 were among the first sent to Afghanistan last year to repair airfields and roads for use by American forces in the region.

"The Seabees' orders are to support our government's war against terrorism and prepare for any future contingencies," said Linda Wadley, spokesperson for Naval Construction Battalion Center, Port Hueneme, Calif.

Seabees from NMCB 5 redeployed to the area from Rota, Spain, in September 2002. Some Seabees from NMCB 74 redeployed to the Middle East from Guam in October. Another Seabee battalion is already on routine deployment in Okinawa, Japan.

Seabees are famous for

their expertise in construction of bases, airfields and more, especially under harsh or hostile conditions. As current events develop in the Arabian Gulf, Seabee units were among thousands of "first responders" working in several Mideast locations.

"Seabees possess a wide range of construction and defensive capabilities that make them an essential part of most large-scale military efforts," Smith said. "Providing construction support to U.S. forces during contingency operations is the reason Seabees exist. They're eager to put their training and experience into action protecting America and its allies."

"Our Seabees are a force to be reckoned with on two fronts," said Master Chief Petty Officer of the Seabees Harrell T. Richardson. "Our motto is 'We build, we fight,' and that's why Seabees are needed in the early stages of a conflict. When push comes to shove, Seabees can build an airfield and, when necessary, defend it."

Engaged in the earliest tasks in the region, elements of NMCB 74 recently placed concrete for an Air Force C-130 Hercules cargo aircraft staging area — the largest single-battalion

concrete project since World War II. The project was being conducted in an undisclosed location.

The Naval Construction Force (NCF) provides essential combat construction services to a Marine Air-Ground Task Force (MAGTF). In the Arabian Gulf, the NCF element of the MAGTF has evolved into the First Marine Expeditionary Force Engineer Group — the "MEG." The MEG is made up of light, fully integrated regimental task forces that can be sized and shaped for specific missions, responding with great agility on the modern high-speed battlefield.

The MEG's joint-service elements are useful in forward-deployed operational planning teams. Given today's sophisticated communications, MEG Seabee planners in the Gulf can interface directly with counterparts assigned to 1NCD command operations centers in Little Creek, Va., and Pearl Harbor, Hawaii — and beyond. NAVFAC's Atlantic and Pacific Divisions are only a phone call or a few key clicks away, providing unique engineering expertise in real-time response to tactical needs anywhere on earth. 🌐



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Christilaw named Marvin Shields winner for 2002

RADM Johnson announced that The Society of American Military Engineers (SAME) has selected Builder 1st Class (SCW) Nicholas E. Christilaw, USN, as the recipient of the prestigious 2002 Marvin Shields Award. SAME annually recognizes a Seabee who has made exceptional contributions to military construction, facilities maintenance, training, or readiness.

BU1 Christilaw's distinguished himself while assigned to Naval Mobile Construction Battalion (NMCB) 3 as project supervisor for the 22nd Naval Construction Regiment in Guantanamo Bay, Cuba, serving as air det operations chief and detail OIC.

Assigned to Joint Task Force 160 in support of *Operation Enduring Freedom*, Christilaw aggressively led a platoon of Seabees and Marines to construct 320 al-Qaeda detention cells at Camp X-Ray, as well as 85 SEAhuts for over 1,000 security force and fleet hospital support personnel. Because of his thorough knowledge of the mission and polished communication skills, he was hand-selected to brief the detainee cell construction in Spanish on CNN World-wide. Seizing CPO duties as air det operations chief for the battalion's two-week field exercise at Fort Hunter-Liggett, Calif., he

motivated his detail to complete construction of six complex projects without a single mishap, despite "black flag" heat conditions. While deployed to Okinawa, he was picked to fill the CPO billet as detail OIC, supervising a 16-person crew working on three remote, high-visibility, and technically challenging projects at the jungle warfare training center.

"Petty officer Christilaw's professional achievements and dynamic leadership-by-example style mark him as an invaluable asset to the Seabees and the United States Navy," RADM Johnson said in his congratulatory message. "He constantly demonstrates exceptional technical skills, meticulous attention to detail and a motivated 'Can do!' attitude. He is most deserving of this prestigious award. Well done, Seabee!"

An alternate view of energy engineering

Here's a rundown of information for the next lull in party conversation:

One NHRA Top Fuel dragster's 500-cu in Hemi V-8 engine makes more horsepower than the first eight rows at NASCAR's Daytona 500.

Under full throttle, a dragster engine consumes 1.5 gallons of nitromethane fuel per second – the same

rate of consumption as a fully loaded Boeing 747-200 but with four times the energy volume.

A stock Hemi V-8 for street use will not produce enough power to drive the Top Fuel dragster's supercharger.

Even with nearly 3000 cfm of air being rammed in by the supercharger on overdrive, the fuel mixture is compressed into nearly solid form before ignition. Cylinders run on the verge of hydraulic lock.

Dual magnetos apply 44 amps to each spark plug. This is the output of an arc welder in each cylinder.

At the stoichiometric 1.7:1 air/fuel mixture for nitro, the flame front measures 7,050 degrees Fahrenheit.

Nitromethane burns yellow. The spectacular white flame seen above the dragster's exhaust stacks in night racing actually is raw burning hydrogen, dissociated from atmospheric water vapor by the searing exhaust gases.

Spark plug electrodes are totally consumed during a pass down the drag strip's brief 1,320 ft. At about halfway, the engine is dieseling from compression and the glow of exhaust valves at 1,400 degrees F. The engine can only be shut down by interrupting the fuel flow.

If the spark momentarily fails early in the run, unburned nitro builds up in

those cylinders and then explodes with a force that can blow cylinder heads off the block in pieces or split the block in half.

To exceed 300 mph in 4.5 sec, dragsters must accelerate at an average of more than 4 g. But in reaching 200 mph well before mid-track, launch acceleration is closer to 8 g.

If all the equipment is paid off, the crew works for free, and for once nothing blows up, each run costs about \$1000 per second.

A Top Fuel dragster reaches over 300 mph before you have completed reading this sentence.

Korean War vets to be honored in Washington

On July 27, 1953, the United States and 21 other United Nations members signed the armistice to end the Korean War. After returning home, many servicemembers never talked about their experiences.

America will honor these heroes during the "National Salute to Korean War Veterans" July 25-27 in Washington, D.C., with a star-studded event at the MCI Center, a ceremony at the Tomb of the Unknowns in Arlington National Cemetery and a wreath-laying and memorial ceremony at the Korean War Veterans Memorial on the National Mall.

The event at the MCI Center is planned to include musical performances by

military bands and nationally-recognized artists, guest speakers and a parade of unit colors from all five branches of the U.S. military.

Representatives from the 21 other nations that participated under the United Nations Command during the war are expected to also participate in the parade.

This parade of colors will mark the first time all the colors of the major units from the Korean War have been brought together.

"The support the people of this country have provided us to thank and honor Korean War veterans has been tremendous," said retired Air Force Maj. Gen. Nels Running, executive director of the DoD 50th Anniversary of the Korean War Commemoration Committee.

"This three-day event in Washington, D.C.," Running said, "will be a great opportunity for the nation to take the time to recognize the 1.8 million Korean War veterans who stopped communist aggression in its tracks and preserved the freedom of the Republic of South Korea."

For more information about the Korean War or any of the upcoming events, call the DoD 50th Anniversary of the Korean War Commemoration Committee toll-free at 1-866-KOREA50 or visit the official Web site at www.korea50.mil.

NAVFAC teammates win joint-service DSPO award

A contract developed jointly by Army, Navy and Air Force engineers received one of five team awards from the Defense Standardization Program Office (DSPO) for outstanding contributions to the DoD last fiscal year.

The March 4 DSPO ceremony in Washington, D.C. recognized individuals and organizations achieving significant improvements in quality, reliability, readiness, cost reduction and interoperability through standardization.

R. David Curfman and Richard Paradis, NAVFAC Engineering Innovation and Criteria Office, and Maria Swift, NAVFAC Atlantic Division Facilities Support Contracts Branch, both in Norfolk, Va., were award recipients for the Navy. Their team jointly developed a contract to give service architects and engineers Internet access to non-government standards referenced in military criteria, standards and specifications for facilities planning, design, construction, operation and maintenance.

"Legislation directed federal agencies to use commercial standards rather than government-unique standards when procuring products, systems and facilities to the maximum extent practicable," Curfman explained. "The services had

traditionally relied on government-produced facilities criteria and standards and procured non-government standards through individual contracts. These redundant contracts wasted valuable resources and inhibited uniform application of the standards."

Engineers and architects at 66 locations within USACE, NAVFAC and USAF now have access to most of the non-government standards they need for facilities planning, design, construction, operation and maintenance from the convenience of their desktop computer.

"We expect to see reduced construction, acquisition and engineering costs in the military construction process," Curfman added.

You want some pine fragrance with that?

A new vehicle wash platform at Twentynine Palms, Calif, is keeping Marine Corps armored vehicles spotless. The project, valued at \$2,739,265, is capable of fast throughput and is expected to reduce the turn-in and washing process for combined arms exercises by 20 percent.

Design features include a staging area that was incorporated to allow vehicles the ability to stack in queue without obstructing traffic, with a lighting

system designed for nightly operations that would not adversely impact the surrounding areas. All fixtures have high energy efficiency and low power consumption.

Six elevated concrete washstands were included in the design to allow vehicle undercarriages to be thoroughly washed with ease of operation and maintenance. It includes lights for the vehicle undercarriage without creating glare to the driver.

Bird, Lyskin awarded both DACM prizes for DAWIA

For the first time, the Navy Director for Acquisition Career Management (DACM) held presented four Awards for Outstanding Service, two for major SYSCOMS and 2 for smaller SYSCOMS. NAVFAC received *both* of the awards in the major SYSCOMS category.

While this reflects great credit on NAVFAC and its quality workplace environment, the awards were presented directly to the two employees who accomplished most of the work. The recipients were Ms. Joy Bird, from Community Management at HQ, for outstanding work in Command participation of continuous learning, and Ms. Lana Lyskin from the Naval Facilities Institute (CM-West, Port Hueneme) for maintaining the best execution record for continuous learning courses. 🌐