Power 21," exclaimed PEO Ships project manager, Lt. Cmdr. Ivan Pierce. *"Without their ability to man and operate the systems, we can't get the data we need to proceed with our design. On their drill weekends at PEO Ships, reservists receive training as each type of sea strike system is introduced. We also have to test the systems which gives the reservists a chance to interoperate with the DD(X) node's Sea Strike capabilities prior to the FBE."*

DD(X) was not the only virtual platform testing systems and participating in the three-week joint warfighting experiment. The ship was part of an expanded Amphibious Group that included a virtual next generation E2-C Hawkeye, a virtual submarine, an unmanned underwater vehicle (UUV) from Naval Undersea Warfare Center in Newport, R.I., and a simulated Royal Australian Navy destroyer (virtual or vANZAC) in Canberra, Australia. The simulations networked live video feeds from a Predator vUAV to ships operating in the Pacific Fleet where shipboard systems were stimulated with actual radar, acoustic and electronic data as if actual platforms were participating in the event.

Dennis Warne of Naval Surface Warfare Center Dahlgren Division (NSWCDD) Theater Warfare Systems Department, who led a team of technical experts who configured the DD(X) node said, *"It was a challenge to network with NWDC (Naval Warfare Development Center) in Rhode Island and the fleet 14 time zones away. We developed artificial tactical systems and made them operate with real networks such as the Naval Fires Control System (NFCS) in the experiment. Our team of technicians — a majority are former military — understood the experiment's environment and worked behind the scenes to make sure the node's warfighters were connected with ADOCS/LAWS (Automated Deep Operations Coordination System/ Land Attack Warfare System), JSAF (Joint Semi-Automated Forces) Simulation, AFATDS (Advanced Field Artillery Tactical Data System), ANGuSS (Advanced Naval Gun Simulation System), NFCS and JFN."*

"*This is an evolution of fleet battle experiments that we started as a reserve unit last year,"* said Capt. Sposato. *"We're working this in conjunction with mobilization readiness. It supports our gaining command, the Program Executive Office for Ships, who oversees the acquisition of the DD(X)."*

As their technical expertise helps to transform the fleet, the PEO Ship reserve unit is expected to undergo a transformation themselves from the Navy's DD(X) testing team to the Navy's DD(X) training team focusing on Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems.

Sasser's work with the PEO(S) HQ 306 reserve unit and the design agent during fleet battle experiments will help introduce combat and C4ISR systems integration, precision strike and volume fires capabilities aboard the DD(X). Making the fleet's future a reality by helping to build ships is a Sasser family tradition started by her great grandfather a century ago. "*In the late 1800s and early 1900s, his family business built diesel engines for the Navy,"* said Sasser, a Raytheon mission planner from Aurora, Colo. *"Now, here I am, in the Naval Reserve on assignment in this historic part of the country where George Washington was born, helping the design agent build DD(X) and preparing to train our active duty counterparts to become proficient on the Joint Fires Network."*

For more information go to www.nwdc.navy.mil/Products/FBE/FBEKilo.

Coalition Interoperability Tested at Dahlgren During JWID 2003

By JO1(AW) John J. Joyce, USNR

A Spanish soldier sent U.S. Army Staff Sgt. Timothy Knoblach an Artillery Systems Cooperation Activity (ASCA) message from Madrid via a global wide-area network that called for fire on a specific target out of reach. Instantaneously, a dozen military and civilian visitors on tour at Joint Warrior Interoperability Demonstration (JWID) 2003 in Dahlgren, Va., witnessed a demonstration of coalition interoperability action — if they didn't blink an eye.

The U.S. Army fire support sergeant used the Advanced Field Artillery Tactical Data System (AFATDS) to respond decisively to the request by coordinating artillery support with a U.S. Navy warship through the Naval Fires Control System (NFCS).

"Spain is proving they have interoperability with our systems," said Knoblach. *"In the past, we had to run back and forth to use a radio. This new digital exchange of information gives us complete control, overcomes language barriers and does not allow us to fire on friendly troops ... it forces prior coordination before conducting fire missions in a friendly area."*

"*ASCA enables the Spanish field artillery tactical system to become interoperable with the U.S. Army and U.S. Marine Corps tactical fire support system,"* said JWID 2003 Dahlgren Site Manager Dennis Warne. *"... We have to correctly and quickly provide data to a multitude of users — to various nations and cultures that act and think in a different context."*

Information sharing across multiple domains — a critical capability in the Global War on Terrorism is the main concern in coalition interoperability. At the Dahlgren site, many new information technologies and methodologies were tested to determine their usability in a myriad of combat situations that depend on fast, accurate and secure coalition interoperability. JWID, an annual exercise between the U.S. Joint Chiefs of Staff and the international community focuses on Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR). This exercise provides an opportunity for government, private industry and coalition partners to demonstrate new and effective joint warfighting technologies globally.

"*This area of interoperability is vital to our warfighting success,"* said Barry Dillon, head of NAVSEA's Theater Warfare Systems Department. *"We have got to improve and stay ahead of our adversaries who have equal access to hardware technologies."*

With a focus on JWID 2003's theme, "Coalition Interoperability, the 21st Century Warfighter's Environment," JWID's 42 Coalition Interoperability Trials (CIT) assessed at various sites offered a full spectrum of solutions to improve combatant commanders near-term coalition interoperability. Each CIT, conducted in a simulated operational environment to provide context for warfighter

validation of C4ISR solutions, received a comprehensive assessment. Depending on the CIT, evaluations included the warfighter, technical and/or security assessments. Some of the 19 CITs demonstrated at Dahlgren included:

•The Collaboration Gateway illustrates how coalition forces in different security domains can securely share information in real-time.

•Coalition Blue Force Situational Awareness provides commanders improved awareness of friendly force environments, enabling rapid decision-making ability. The system allows tracking of U.S. and coalition forces using a Global Positioning System (GPS) tracking device, and will be integrated into the Global Command and Control System (GCCS).

•Language Translation Services allow U.S. warfighters to automatically transmit information to other coalition members in English, Japanese, Korean and Spanish, and vice-versa.

•The Coalition Information Assurance Common Operational Picture facilitates multilateral sharing of technology information yet protects national sovereignty, at the same time analyzing critical technical infrastructure supporting a coalition mission. It allows early warning of potential attacks on supporting coalition forces infrastructure.

Left to right: Lt. Col. Paul Willem Van Den Broek, New Zealand Army; Lt. Cmdr. Joseph Sposato, USNR; Maj. Martin, Australian Army and Capt. Ives, USNR, during JWID 2003 exercises at NSWC Dahlgren's Theater Warfare Department. Photo by NSWC Dahlgren.

JWID's six core objectives, conducted over the worldwide Combined Federated Battle Laboratories Network (CFBLNet), covered multiple levels of security, logistics, language translation tools, situational awareness, coalition network vulnerability assessment capability and core network services.

The Secondary Navy Site at Dahlgren was a virtual cruiser; USS Chancellorsville (CG-62), manned by a coalition of U.S. Navy and Royal New Zealand Navy sailors, was instrumental in demonstrating methods of sharing situational awareness information with nations via coalition networks in a Multinational Naval Task Group (MNTG). The Naval Fires Control System (NFCS), a Dahlgren demonstration, also expanded JWID's warfighting capabilities and helped to examine the ability of different nations' logistics systems to support the planning and execution of naval fires.

"From the Combat Information Center (CIC) aboard this virtual ship, our communication with seven different nations over 17 different time zones is instantaneous," said Royal New Zealand Navy Lt. Cmdr. Shane Arndell. Arndell demonstrated the MNTG trial, an amalgam of command and control, communications and computer capabilities operating in a low-bandwidth, high-latency maritime IP environment typical of allied and coalition operations. The MNTG, composed of Australia, Canada, New Zealand, United Kingdom and United States (AUSCANNZUKUS), uses the Maritime Tactical Wide Area Network to provide multinational warfighters with a force multiplier that promotes situational awareness in an allied/coalition environment.

Several tools, designed to increase the speed of imagery analysis and targeting by a quantum leap, were introduced at Dahlgren.

For example, the Pilot Aircrew Cockpit Management (PACMAN) system and the Precise Tactical Targeting (PTT) system, are expected to enable aircrews and infantrymen to interoperate and respond within minutes to active targets.

To have a product that allows you to communicate directly with a pilot or a base station or artillery area is absolutely incredible," said Naval Reservist and former Marine, IS1 Robert Williams, who demonstrated the PACMAN system and the PTT system. *"It speeds up the process of targeting from days to minutes — literally. The interest in this system has been one of the greatest in JWID, especially among staff officers. PACMAN is a product that lets you forward what you see on a map, chart or imaging data to someone else so they know exactly what you're looking at and can target that area. It's fantastic."*

While planning and executing coalition operations, warfighters found JWID's real-time or near real-time language translation tools invaluable to share situational awareness information among different nations' logistics systems.

"When I return to the UK, I will be submitting a full post exercise report on JWID," said British Army Major Stuart Heaton. *"My recommendation will be that — time and money allowing — the UK Army might adapt some of the software applications that I've utilized over the last two weeks. The technology does cut down on mistakes and certainly there is quicker collaboration between the coalition partners. The TRiM [Translingual Instant Messaging] language application tool is an example of a marvelous application that crosses the language barrier. As the Fire Support Coordinator (FSC) for JWID 03, responsible for all ground artillery, naval gun and close air support, I was required to work with the Spanish Army. TRiM effectively enabled me to write my message on a whiteboard ... and send it straight to Spain. They receive it in Spanish and can then respond to ... me and I receive it in English."*

In conjunction with the JWID CITs, Dahlgren demonstrations included:

♦The Naval Fires Control System (NFCS), an automated mission planning system designed to allow surface combatants to provide timely and effective fire support to U.S. Army and Marine Corps forces ashore;

♦COLLABORATOR a common collaboration environment that can provide the warfighter with a chat room equipped with a synchronized multilayered, multimedia whiteboard; that allows intelligence analysts to post information on the whiteboard for limited distribution.

Interoperability solutions were tested with coalition members, including participants from 10 NATO nations: Canada, France, Germany, Italy, Norway, Poland, Spain, Turkey, United Kingdom, United States, and Australia and New Zealand. The Pacific Rim nations of Japan, Singapore, South Korea and Thailand supported JWID's host, the Pacific Command (PACOM), as coalition task force members and multinational task force staff. ▭